U. S. DEPARTMENT OF COMMERCE
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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

JANUARY 1959
Volume 10 No. 1

ASHEVILLE: 1959

C O N T E N T S

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

In the interest of economy, and to speed up publication, the 16 pages of maps formerly carried in color in this publication will hereafter appear in black and white.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.
Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 1 JANUARY 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

January temperatures were relatively mild in the Far West and abnormally cold east of the Continental Divide. Precipitation was well above normal from the north Pacific coast to central Montana, in northern California, northwestern Kansas, northern Florida and adjacent areas, and in a belt extending from eastern Illinois to Maine. In extreme western New York State, northwestern Pennsylvania, Ohio, and the northeastern two-thirds of Indiana, monthly totals were more than normal and were concentrated early in the third week, resulting in severe damaging floods. Precipitation was less than one-half of normal in Minnesota and northern Wisconsin and from Texas and Oklahoma to southern California and Nevada.

TEMPERATURE.--Monthly averages were as much as 10° above normal west of the Continental Divide. It was the sixth consecutive abnormally mild month in some sections. The Los Angeles, Calif., Airport observed above-normal temperatures every day in the month. Red Bluff, Calif., reported only 3 days when the temperature dropped to 32° or below. Abundant sunshine in the Southwest set a new record for January of 83 percent of possible at Prescott, Ariz. In central and northern areas, however, a cold snap occurred during the first 5 days of the month, and in some southern areas temperatures fell slightly below normal on the 20th and 21st. Several stations including San Diego, Calif., and Yuma, Ariz., reported their second warmest January on record, and Burns, Oreg., observed 58° on the 23d for a new January high there.

East of the Rockies, temperatures fluctuated frequently and sometimes sharply, but averaged below normal for the month everywhere, except in New England where they averaged slightly above normal. Below-normal monthly averages ranged up to 4° in Gulf coastal areas and 8° in the western Great Lakes region. International Falls, Minn., had a monthly average of -5.6°, the lowest on record there, and at Milwaukee, Wis., 14 days with zero or below may be compared to a normal number of 5.

The month's first cold wave, preceded by rain, snow, sleet, glaze, and high winds and followed by temperature drops of 20° to over 50°, began in the Pacific Northwest on January 1 and covered the entire country by January 5. Subzero minima extended southward to northern portions of Arkansas, Texas, New Mexico, and Arizona, with extreme lows ranging from near -20° in northern Texas to more than -40° in northern Minnesota. By the 11th, freezing extended into the Everglades of Florida, with scattered light frost near Lake Okeechobee and heavy frost away from the lake. At most locations where freezing occurred, however, the duration of critical temperatures was short and crop damage was mostly minor. Strong winds on several days in the Northeast made the cold more disagreeable and increased heating requirements. Ice in the Chesapeake Bay and inflowing tributaries at this time was reported as the heaviest so early in the season in many years.

For the week ending the 19th, 4 more days of subzero minima in the north-central areas increased ice thickness and frost penetration in the ground, and unusually thick ice continued to impede traffic in the Chesapeake Bay. Freezing occurred in Florida, with extreme lows of 21° in the north on the 17th, 23° in central districts and 25° in the Everglades on the 18th.

Another cold wave east of the Rockies reduced temperatures far below-normal levels on the 23d and 24th, and at International Falls, Minn., the temperature for the week ending the 25th averaged -12°. Another surge of cold air at the end of the month sent the temperature down to -46° at Dunn Center, N. Dak.

PRECIPITATION.--January precipitation was well above normal in the Ohio Valley and Pacific Northwest, with monthly totals exceeding 8 inches and ranging up to over 200 percent of normal in both areas. Northern California, northwestern Kansas and adjacent areas, and northern Florida and adjacent areas also had above-normal amounts. In contrast, most of Minnesota and Texas, southern portions of Oklahoma, Nevada, California, and southwestern Arizona received less than 25 percent of normal precipitation.

Heavy rainfall had its greatest effect in Ohio and Indiana where a large percentage of the month's total fell on the 20th and 21st. Frozen surface soil caused heavy runoff and severe floods that probably caused near $100 million damage. Twenty-four-hour amounts in Ohio were: Akron-Canton Airport, 2.99 inches; Cincinnati, 4.88; Cleveland, 2.33 inches on 21st-22d (a new record for January); Columbus, 4.50 inches (a new record for January); and Dayton, 4.30 inches (a new January record).

In the Pacific Northwest, Spokane, Wash., measured 4.96 inches for the wettest January on record, and the fifth wettest of any month on record.

SNOW.--The snow cover at the end of the month was of about the same extent as at the beginning, except that it had melted in the Ohio Valley, and depths had increased slightly in extreme northern areas east of the Continental Divide and up to 2 feet or more at higher elevations in the Cascades, Sierra Nevada, and Rocky Mountains. In the Great Plains, the cover fluctuated considerably during the month, extending to northern Texas both at the beginning and end of the month but only to South Dakota during the second and third weeks.

Snowfall was unusually heavy from the central Great Plains to the great Lakes region, where heavy amounts fell during the first, third, and fourth weeks. Near the end of the third week 51 inches fell at Bennets Bridge, N. Y. On the 16th and 17th near Lake Michigan in southern portions of Berrien and Cass Counties, Michigan, 15 to 20 inches of snow fell; and South Bend, Ind., about the same time measured 16 inches which, drifted by strong winds, virtually paralized the city's transportation. Heavy snow fell in the Cascades and Sierra Nevada Mountains the second week.

DESTRUCTIVE STORMS.--Severe storm damage was greatest on the 20th and 21st when a low pressure

disturbance moved from the Southwest to the Great Lakes region. Glaze damage was heavy in an east-west belt across Illinois, extending from Springfield eastward through Decatur and Champaign-Urbana to Danville and into Indiana. Tree damage was heavy in this belt, and power and communication lines were damaged by fallen limbs. Electricity was off up to 36 hours, and traffic was slowed or halted; worst glaze in Springfield, Ill., since December 1924, and worst at Champaign, Ill., in nearly 40 years. Tornadoes struck sections of Tennessee and Kentucky, and high winds caused some damage in Mississippi.

CONDENSED CLIMATOLOGICAL SUMMARY

JANUARY 1959

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	Clayton	82	30	Heflin	3	16+	Hytop	7.41	Pushmataha	2.79
Arizona	Bouse	88	18	Alpine	-11	21	Tonto CR Fish Hatch	1.35	43 Stations	.00
Arkansas	Crossett 7S	77	20	Gravette	-8	22	Osceola	6.82	Green Forest 4ESE	.13
California	Ramona Spaulding	90	17	White Mountain 2	-6	30	Upper Mattole	31.22	2 Stations	.00
Colorado	Kit Carson	70	10	Red Feather Lakes	-38	3	Winter Park	3.61	Buena Vista	.00
Connecticut	3 Stations	60	22	Coventry	-8	28	Norfolk 2SW	3.99	Bridgeport WB AP	2.20
Delaware	4 Stations	68	22+	Newark Univ. Farm	3	28	Wilmington Porter Res	2.25	Georgetown 5SW	.99
Florida	2 Stations	89	28+	Lake City 2E	17	17	Jacksonville Beach	7.23	Cape Sable Ranger Sta.	.62
Georgia	Newington 2SSW	84	21	Blairsville Exp. Sta.	1	18+	Flat Top	13.14	Kingston	2.40
Idaho	3 Stations	63	24	2 Stations	-41	4	Wallace	10.03	Challis	.03
Illinois	Cairo WB City	68	21	Morrison	-23	5	Glendale Exp. Station	7.91	La Salle 1S	.73
Indiana	Salem	68	13	Spencer 5SE	-18	5	Moores Hill	9.03	Whiting	1.43
Iowa	2 Stations	58	13	Cherokee 3N	-28	4	Tracy	1.79	2 Stations	.11
Kansas	Sedan	70	13	2 Stations	-26	4+	Pittsburg	2.29	do	.02
Kentucky	5 Stations	72	22+	3 Stations	-8	6+	Dundee Barretts Ford	7.89	Freeburn	2.60
Louisiana	Holly Ridge 10N	80	14	Arcadia	10	5	Kinder 3W	9.37	Harmon	.79
Maine	Belfast	54	22	2 Stations	-24	26	Jonesboro	5.57	Houlton FAA AP	1.97
Maryland	2 Stations	71	22	Keedysville	-10	18	Baltimore Hamilton	4.23	Salisbury FAA Airport	1.30
Massachusetts	Sandwich	64	22	Birch Hill Dam	-11	28	Jefferson	5.52	Chatham Lt. Sta.	1.70
Michigan	7 Stations	43	15+	Kenton U. S. Forest	-37	4	Ludington 4SE	4.74	Rock	.41
Minnesota	Tracy Power Plant	52	13	2 Stations	-41	31+	Austin 4S	.92	St. Francis 4S	.01
Mississippi	4 Stations	77	27+	Ripley	4	5	Amory 4W	7.30	Greenwood FAA Airport	1.71
Missouri	Doniphan	71	13	Fayette Exp. Lagoon	-27	5	Sikeston	5.28	Polo	.53
Montana	Wyola	67	12	Summit	-55	3	Essex	8.26	Grant 1NNE	.00
Nebraska	Purdum	67	12	2 Stations	-35	4	Falls City	1.60	Oshkosh	.04
Nevada	Pahrump	79	17	Mountain City RS	-23	4	Fleish PH	2.73	Rattlesnake	.00
New Hampshire	Windham	59	22	First Conn Lake	-30	27	Pinkham Notch	5.21	Bethlehem	1.16
New Jersey	Little Falls 1E	65	22	Layton 3NW	-5	19	Belvidere	3.42	Paterson	1.80
New Mexico	Animas	79	19	Gavilan	-36	4	Palma	1.33	28 Stations	.00
New York	Cairo	67	22	Paul Smiths	-29	26	Boonville 2SSW	9.11	Hinckley	2.58
North Carolina	Smithfield	78	21	Banner Elk	-6	5	Coweeta 8	9.70	Greenville 3S	1.13
North Dakota	Medora 3NNE	51	11	Watford City 14S	-49	31	Medora 3NNE	.76	3 Stations	T
Ohio	4 Stations	70	22+	Barnesville Water Works	-16	18	Cincinnati Price Hill	8.70	Montpelier	2.69
Oklahoma	Frederick	77	25	Boise City	-24	4	Zoe	3.37	Cheyenne	.00
Oregon	2 Stations	70	23+	Minam 7NE	-35	4	Valsetz	25.70	P Ranch Refuge	.33
Pennsylvania	Derry	73	21	Lawrenceville 2S	-16	18	Corry	6.29	Morgantown	1.62
Rhode Island	Providence WB Airport	60	22	Greenville	0	6	Greenville	2.65	Block Island WB AP	1.61
South Carolina	Walterboro	82	21	Caesars Head	0	17	Caesars Head	6.45	Dillon 4SW	1.69
South Dakota	Cedarbutte	66	12	2 Stations	-33	4	Lead	1.48	Ralph 1N	T
Tennessee	6 Stations	74	22+	Allardt	-7	5	Haw Knob	12.59	Dandridge	2.70
Texas	2 Stations	91	21+	Spearman	-22	4	Evadale	6.61	Numerous Stations	.00
Utah	3 Stations	69	24	Soldier Summit	-24	4	Alta	8.16	2 Stations	.00
Vermont	Bennington 2NW	62	22	Enosburg Falls	-30	26	Somerset	6.54	Rutland	2.29
Virginia	2 Stations	75	22+	Berryville	-10	18	Rose Hill	5.15	Augusta Springs 1E	1.11
Washington	McNary Dam	67	9	Stockdill Ranch	-30	3	Rainier Paradise RS	24.30	Wenatchee	1.16
West Virginia	Mannington 1N	78	21	2 Stations	-13	6	Kumbrabow State Forest	6.58	Moorefield 1SSE	1.22
Wisconsin	4 Stations	42	14+	Gordon 2ESE	-45	4	Racine	2.50	Menomonie	.05
Wyoming	Metz Ranch	71	12	Big Piney	-44	4	Moran	2.63	Lysite	.00
Puerto Rico	San German	92	31	Garzas Dam	50	22	Rio Grande El Verde	11.63	Ponce	.05

+ And also on an earlier date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days sunrise to sunset: Clear	Partly cloudy	Cloudy	Sky cover sunrise to sunset	Percent of possible sunshine
	Ft.	Mb	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In	In	In			In	In	M.p.h.		M.p.h.			0-3	4-7	8-10		
ALABAMA																																
Birmingham	610	996.2	1022.2	54	30	42.3	-2.9	73	21	12	5	0	17	32	70	4.16	-0.52	1.60	7	2	T	T	8.6	[illegible]	41	W	21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Huntsville	605	998.0	1022.1	51	27	39.2	----	73	29	7	5	0	21	30	72	4.36	---	2.24	10	3	T	T	7.7	SE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Mobile	211	1013.6	1022.2	59	36	47.8	-4.9	72	26+	24	17+	0	13	37	71	4.38	-.64	2.21	8	2	0	0	11.1	N	14	S	21	[illegible]	[illegible]	[illegible]	[illegible]	
Montgomery	195	1013.8	1022.3	59	34	46.2	-3.0	76	21	18	5	0	15	34	66	3.41	-1.19	1.24	8	2	1	0	6.4	NW	32	S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ARIZONA																																
Flagstaff	6993	------	------	47	16	31.4	6.1	61	18	-3	4	0	31	--	--	.34	-1.35	.30	3	0	6.0	5	---	---				[illegible]	[illegible]	[illegible]	[illegible]	
Phoenix	1109	977.0	1016.7	67	41	53.8	4.1	73	18+	32	4+	0	2	32	46	.23	-.57	.23	2	0	0	0	[illegible]	NE	*[illegible]	W	20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Prescott	5014	847.6	1018.7	56	26	40.7	5.4	71	18	11	4	0	28	21	--	.25	-.85	.25	1	0	0	0	7.7	S	40	W	25	12	11	8	[illegible]	[illegible]
Tucson	2585	926.5	1015.7	70	38	53.8	4.1	79	19+	26	21	0	5	23	34	.03	-.60	.03	1	0	0	0	8.7	SE	31	W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Winslow	4880	852.7	1017.0	52	21	36.5	3.8	67	25	7	4	0	29	14	43	.09	-.28	.07	2	0	T	T	8.0	WSW	*55	WSW	2	[illegible]	[illegible]	[illegible]		
Yuma	199	1011.2	1016.7	75	45	60.1	4.8	86	18	37	4	0	0	24	30	.02	-.31	.02	1	0	0	0	6.8	N	[illegible]	NW		[illegible]	[illegible]	7	[illegible]	[illegible]
ARKANSAS																																
Fort Smith	458	1004.1	1021.4	48	26	36.8	-3.2	69	29+	5	22	0	20	27	71	.61	-2.28	.43	7	0	1.5	1	8.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Little Rock	257	1008.5	1022.2	50	30	39.7	-2.1	70	21+	9	4	0	18	29	68	3.58	-1.54	2.52	8	2	.2	T	10.3	S	27	SE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Texarkana	361	------	1021.9	54	33	43.6	-2.3	73	20	12	4	0	15	--	--	.78	-4.34	.45	6	2	T	0	8.5	SSW		--						
CALIFORNIA																																
Bakersfield	494	1002.4	1020.6	61	42	51.6	4.7	76	24+	28	4	0	2	42	71	.32	-.70	.26	3	0	0	0	5.3	ENE	*[illegible]	SE		7	[illegible]	[illegible]	[illegible]	
Bishop	4108	875.7	1018.6	56	26	41.0	3.1	70	1	9	4	0	27	--	--	.77	.35	.77	2	0	1.7	1	---	---				[illegible]	[illegible]	[illegible]	[illegible]	
Blue Canyon	5280	839.5	1018.3	46	33	39.4	3.2	64	17	20	3	0	17	--	--	15.44	6.27	4.62	13	0	45.4	23	9.8	-	40	WSW	[illegible]	[illegible]	7	[illegible]	[illegible]	
Burbank	699	991.5	1018.0	70	45	57.5	4.9	84	17	40	23+	0	0	40	58	2.90	.55	2.90	2	1	.0	0	2.7	S	*[illegible]	NNW	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Eureka (U)	43	1016.6	1019.0	56	45	50.1	2.9	65	23	33	4	0	0	--	--	7.23	1.03	1.64	20	0	0	0	8.3	-	35	SE	4	[illegible]	7	[illegible]	[illegible]	[illegible]
Fresno	331	1008.1	1020.3	58	40	49.0	4.3	71	24+	25	3	0	4	43	81	1.47	-.10	.71	9	0	0	0	[illegible]	E	25	SE		6	8	17	7.1	46
Los Angeles (U)	312	------	------	69	51	60.1	5.1	82	17	46	3	0	0	44	62	1.24	-1.14	1.24	2	1	0	0	6.0		32	SE	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]
Los Angeles	99	1014.2	1018.1	69	51	59.9	6.7	79	16	47	31+	0	0	47	70	1.11	-.90	1.11	2	0	0	0	[illegible]	W	*32	SSW	[illegible]	[illegible]	8	[illegible]		
Mt. Shasta (R)	3544	892.7	1018.6	44	30	36.9	4.1	61	17	15	4	0	20			14.82	10.28	2.82	14	0	45.6	[illegible]	---							[illegible]		
Oakland	3	1019.6	1020.0	58	44	51.4	4.2	65	10	34	4+	0	3	44	76	3.96	.66	1.60	10	0	0	[illegible]	[illegible]	SSE	*[illegible]	SSE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Red Bluff	341	1007.1	1019.9	56	41	48.5	3.4	68	18	25	4	0	3	38	72	5.86	2.13	3.05	13	2	.2	T	10.9	SSE	35	SE	12	[illegible]	8	18	7.4	[illegible]
Sacramento	17	1018.6	1019.6	56	42	49.1	4.8	67	11	29	4	0	3	43	80	4.93	2.27	1.60	10	0	0	0	8.7	SSE	56	SW	[illegible]	6	[illegible]	20	[illegible]	[illegible]
Sandberg (R)	4517	864.2	1019.0	50	37	43.7	3.9	65	18	25	3	0	7	--	--	2.09	-.21	2.01	4	0	0	0	14.9	---	*46	NNW	28	[illegible]	6	12	[illegible]	
San Diego	19	1013.9	1017.2	69	51	59.7	4.8	77	16	47	30+	0	0	48	69	.08	-1.61	.08	1	0	0	0	5.4	NE	29	SE	6	11	13	7	1.8	80
San Francisco (U)	52	------	------	59	49	54.0	3.9	65	13+	43	4	0	0	--	--	3.96	-.07	1.45	12	0	.0	0	7.6		40	SE	5			--	---	62
San Francisco	8	1019.0	1019.6	60	47	53.4	5.5	69	11	36	4	0	0	46	77	4.04	.57	2.02	9	0	0	0	7.7	WNW	38	SE	5	7	6	18	7.0	--
Santa Maria	238	1010.2	1019.1	66	42	54.1	3.7	76	18+	30	4	0	1	42	68	2.02	-.69	1.71	5	0	0	0	6.9	WNW	*28	SE	5	14	7	10	4.8	
COLORADO																																
Alamosa	7536	769.4	1023.2	38	-4	17.2	.3	50	18+	-31	22	0	31	--	--	.24	.01	.23	3	0	5.7	5	---	---	--		--	13	11	7	4.2	-
Colorado Springs	6173	807.7	1019.0	44	15	29.3	.5	64	10	-21	3	0	31	13	56	.43	.21	.20	6	0	5.2	1	9.5	NNE	*36	NNW	20	12	8	11	5.2	--
Denver	5292	835.8	1018.7	43	17	30.0	1.3	65	24	-13	4	0	31	14	58	1.24	.74	.38	10	0	17.4	5	10.6	SSW	32	NW	18	12	10	9	5.2	78
Grand Junction	4849	861.5	1022.7	40	19	29.4	5.4	52	25	4	4	0	31	17	63	.36	-.24	.19	7	0	4.5	2	6.2	ESE	29	W	3	10	10	11	5.7	59
Pueblo	4639	855.4	1019.7	43	13	27.9	-1.5	65	13	-28	4	0	31	17	68	.76	.38	.34	7	0	13.9	5	6.4	W	54	N	15	14	7	10	4.8	78
CONNECTICUT																																
Bridgeport	7	1014.7	------	36	22	28.9	-.3	52	30	12	19+	0	28	--	--	2.20	-1.23	1.15	7	0	2.6	2	---	---	-			11	6	14	5.8	
Hartford	169	1008.3	1014.6	34	15	24.6	-2.4	57	22	0	28	0	30	17	77	3.33	.18	1.00	11	0	6.9	3	11.2	NW	46	NW	6	7	9	15	6.5	49
New Haven	6	1014.0	1014.6	36	21	28.5	-.6	53	22	9	19	0	28	--	--	2.53	-1.36	1.05	10	0	1.4	1	9.8	---	38	NW	6	9	7	15	6.2	59
DELAWARE																																
Wilmington	78	1013.9	1017.1	41	21	30.9	-2.4	66	22	5	28	0	27	21	68	1.89	-1.67	.87	9	0	3.3	3	11.8	WNW				8	10	13	6.2	
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	44	26	34.9	-1.6	70	21	10	18+	0	24	--	--	2.63	-.78	1.08	8	0	3.1	2	8.9	---	35	NW	5				---	
Wash. Nat'l. AP	14	1014.0	1018.5	44	26	34.9	-1.3	70	21	11	17+	0	24	23	65	2.21	-1.03	.88	8	0	4.0	2	11.2	NW	40	NW	4	12	6	13	5.6	58
FLORIDA																																
Apalachicola (U)	13	1021.8	------	59	44	51.7	-3.5	69	31+	28	17	0	6	--	--	3.74	.13	1.58	10	1	0	0	8.2	-	39	N	5	16	[illegible]	[illegible]	6.0	71
Daytona Beach	31	1019.5	1021.5	67	46	56.7	-2.8	83	31+	27	17	0	5	48	79	4.53	2.43	2.14	6	1	0	0	9.8	NW	*40	W	16	8	11	12	6.0	
Fort Myers	15	1019.6	------	73	51	61.8	-2.8	85	29	32	11	0	1	--	--	1.48	-.04	.57	6	0	0	0	9.6	---	*35	WSW	16	11	10	10	[illegible]	
Jacksonville	24	1020.1	1021.6	64	41	52.6	-3.3	81	21	23	17	0	10	43	74	4.15	1.47	1.53	7	0	0	0	9.4	NW	34	W	16	7	7	17	6.5	58
Key West	4	1018.9	------	74	63	68.5	-2.3	85	22	49	11	0	0	--	--	.92	-.62	.33	6	1	.0	0	11.3	-	31	W	16	5	16	10	6.1	66
Lakeland (U)	214	------	------	69	49	59.0	-3.0	84	30	30	17	0	1	--	--	3.91	1.75	2.10	7	3	0	0	7.1	---	--	---	—	9	10	12	5.5	49
Miami	7	1018.4	1019.8	75	58	66.5	-1.8	84	22	40	11	0	0	57	76	2.21	.15	1.19	8	1	0	0	7.4	NNW	*23	SW	16	9	11	11	5.7	—
Miami Beach	9	------	------	74	62	68.2	-1.8	82	3+	42	11	0	0	--	--	1.00	-1.04	.48	10	--	0	0	--	--	39	NW	16	10	15	6	---	57
Orlando	106	1016.4	1021.4	69	47	58.3	-3.6	83	31	28	17	0	4	49	77	2.78	.73	1.23	8	0	0	0	8.4	NNE	*32	NW	16	6	17	8	5.8	
Pensacola (U)	13	------	------	59	41	50.0	-4.0	70	21	27	17	0	10	--	--	5.16	.61	2.62	7	[illegible]	0	0	10.4	---	26	W	21	-			---	50
Tallahassee	64	1018.7	1021.7	62	39	50.7	-2.9	78	30	21	17	0	11	39	71	4.55	.70	1.11	11	2	.0	0	6.8	NW	-			9	3	19	6.6	
Tampa	19	1019.6	1021.3	69	49	59.0	-2.5	83	21	30	11	0	2	49	74	3.66	1.67	2.01	6	1	0	0	9.2	N	*35	WNW	16	9	10	12	5.9	58
West Palm Beach	15	1018.7	1019.9	74	57	65.2	-1.8	85	22	35	18	0	0	56	76	1.56	-.92	.50	9	1	.0	0	11.9	NW	*40	WNW	22	8	7	16	6.3	
GEORGIA																																
Athens	798	991.1	1021.2	54	31	42.1	-2.6	72	21	12	17	0	17	31	69	3.84	-1.17	1.49	7	1	0	0	10.4	NW	*52	WSW	21	10	8	13	5.7	
Atlanta	975	978.3	1021.6	52	32	42.2	-2.4	71	27	9	5	0	15	32	70	3.38	-1.29	1.10	7	1	T	0	10.2	NW	46	WSW	21	7	11	13	6.4	[illegible]
Augusta	143	1014.2	1021.4	58	32	45.1	-2.3	78	21	15	17	0	17	35	74	3.67	.21	.99	9	2	.0	0	6.1	W	*32	WSW	21	8	9	14	6.3	
Columbus	385	1007.7	------	58	33	45.3	-2.1	74	27	15	6	0	17	--	--	3.87	-.71	1.39	9	2	T	0	7.6	---	*37	WSW	21	8	7	16	6.5	
Macon	356	1007.4	1021.5	58	35	46.5	-3.0	75	27+	16	17	0	15	33	66	4.01	.00	1.11	9	1	0	0	9.1	NW	47	SW	21	7	10	14	6.3	56
Rome	637	997.8	------	51	26	38.6	-4.1	69	21	8	17	0	20	26	66	3.76	-1.79	1.73	9	1	T	T	—	—	—	--	—	9	11	11	—	—
Savannah	48	1018.7	1021.6	60	35	47.5	-4.1	76	27+	17	17+	0	14	38	74	3.39	.94	1.19	8	2	.0	0	7.9	WNW	29	NW	16	8	8	15	6.3	62
Thomasville	283	------	------	61	41	51.0	-3.2	76	30	21	17	0	7	--	--	5.43	1.42	1.11	9		0	0		-								
IDAHO																																
Boise	2842	922.1	1020.3	43	29	35.8	8.5	58	11	3	4+	0	19	27	73	1.33	.00	.56	11	0	6.3	3	9.8	SE	40	SE	10	3	2	26	8.3	42
Idaho Falls 46W (R)	4933	849.0	1022.0	32	11	21.4	5.7	45	12	-31	4	0	31	--	--	.52	-.14	.26	7	0	2.5	3	5.7	---	a33	WSW	1	—	-	—	—	
Idaho Falls 42NW (R)	4790	------	------	31	7	19.3	7.0	44	12	-34	4	0	31	--	--	.60	.07	.39	5	0	[illegible]		4.4	--	a32	SSW	24					
Lewiston	1413	966.1	1019.0	43	29	35.7	4.9	62	9	1	4	0	18	--	--	1.48	.43	.43	16	0	3.2	1	---					[illegible]	7	23	8.7	
Pocatello	4444	863.5	1020.9	37	21	28.8	6.8	53	12	-13	4	0	28	24	80	1.39	.18	.47	11	0	11.9	4	11.9	SW	56	W	1	2	7	22	8.1	36
ILLINOIS																																
Cairo (U)	314	1008.5	------	43	26	34.2	-3.2	68	21	3	5	0	22	--	--	5.61	1.13	2.82	11	3	5	T	10.3	S	36	SW	21	16	7	11	6.0	54
Chicago (O'Hare)	656	993.9	1020.1	25	7	16.2	----	41	14+	-13	5	0	31	10	74	1.91	----	.82	9	0	15.6	8	13.7	NNW	37	SSW	21	7	7	17	6.8	
Chicago (Midway)	610	995.9	1020.2	27	10	18.5	-6.4	43	14	-10	10	0	30	13	77	2.13	.29	.79	9	0	18.4	8	11.4	NW	32	W	21	7	8	16	6.7	48
Moline	589	997.6	1021.4	26	6	15.7	-7.5	45	24+	-15	5	0	30	8	71	1.41	-.09	.54	10	0	15.1	11	9.7	NW	32	NW	15	10	6	5	6.1	53
Peoria	654	997.6	1021.2	27	10	18.5	-6.5	46	14	-11	23+	0	30	12	76	1.71	-.26	1.37	9	0	11.6	10	12.7	S	36	NW	15	7	7	17	6.7	53
Rockford	728	991.9	1020.6	23	4	13.3	----	38	14+	-16	5	0	31	8	74	1.51	----	.47	11	0	21.4	12	9.7	NW	*30	NW	21	7	5	19	6.9	
Springfield	589	997.0	1021.3	31	14	22.5	-4.9	56	14	-7	5	0	29	17	76	1.83	-.20	1.40	6	1	4.6	3	12.6	NW	35	W	29+	7	7	17	6.6	47
INDIANA																																
Evansville	383	1005.4	1021.9	41	21	30.9	-3.8	63	21	-2	5	0	26	22	72	5.31	1.38	3.20	12	2	1.9	1	10.7	NW	36	W	21	9	8	14	6.3	51
Fort Wayne	801	986.5	1019.4	30	13	21.2	-5.1	49	14	-8	5	0	31	16	77	4.01	1.47	2.07	14	1	8.9	3	12.5	W	41	W	22	4	10	17	7.1	48
Indianapolis	793	988.8	1020.2	35	15	24.9	-3.9	56	29	-13	5	0	30	18	76	4.68	1.53	3.09	11	1	5.2	3	12.5	NW	40	W	29	8	8	15	6.5	49

See footnotes at end of table.

State and station		Pressure		Temperature												Precipitation							Wind					No. of days (sunrise to sunset)				
	Elevation (ground)	Station Ø	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb.	Mb	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
INDIANA (Cont'd.)																																
South Bend	768	989.5	1019.0	28	10	18.6	-6.0	43	14	-8	4	0	30	14	78	5.28	3.28	1.72	18	0	45.3	25	12.1	SW	*29	WNW	16+	5	5	21	7.5	--
IOWA																																
Burlington	694	994.9	1022.1	27	8	17.3	-6.7	46	14	-14	23	0	30	11	74	1.03	-.71	.48	11	0	10.5	8	12.6	NW	42	NW	15	8	6	17	6.6	57
Des Moines	948	989.5	1022.4	25	8	16.4	-5.7	51	12	-14	4	0	31	8	72	.79	-.44	.35	8	0	10.6	6	12.7	NW	35	N	3	9	6	16	6.5	55
Dubuque	1065	994.6	1021.5	21	3	11.9	-7.5	37	14+	-16	23	0	31	5	71	1.40	.03	.55	8	0	14.0	10	---	---	--	---	--	9	6	16	6.3	--
Sioux City	1094	978.3	1022.2	26	5	15.2	-3.9	53	13	-14	4	0	31	7	71	.31	-.43	.17	5	0	5.1	3	11.5	NW	35	NW	14	8	7	16	6.9	57
Waterloo	870	------	------	23	3	13.0	-5.7	43	12	-17	23+	0	31	--	70	.52	-.66	.14	8	0	7.8	3	11.1	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	969.2	------	33	14	23.5	-4.6	58	13	-12	4	0	31	--	71	1.09	.50	.49	8	0	15.3	6	7.8	N	27	N	29	12	4	15	5.9	61
Dodge City	2594	928.9	1020.5	37	15	26.4	-3.9	60	12	-12	4	0	30	20	79	.50	.01	.21	6	0	7.1	3	15.1	SSW	50	SW	5	10	8	13	5.5	75
Goodland	3645	888.3	1019.8	41	12	26.4	.6	65	24	-26	3	0	31	18	76	.62	.31	.17	9	0	12.2	3	11.2	WSW	*32	N	20	14	5	12	5.2	--
Topeka	877	984.8	1022.4	34	14	24.0	-4.7	60	13	-13	4	0	31	16	72	.77	-.30	.41	8	0	10.3	7	13.0	S	42	N	20	6	5	20	6.9	49
Wichita	1321	970.2	1021.0	36	17	26.5	-5.5	62	13	-10	4	0	29	19	75	.53	-.52	.34	8	0	8.6	7	14.8	S	49	NW	29	9	2	20	6.9	53
KENTUCKY																																
Lexington	979	984.0	1021.1	41	22	31.1	-2.8	67	21	-4	5	0	23	25	80	4.86	.36	1.41	13	1	3.3	2	12.8	SSW	--	---	--	9	6	16	6.8	--
Louisville	474	1000.8	1020.7	42	23	32.5	-2.4	66	21	-2	5	0	23	19	72	5.51	1.41	2.25	13	2	1.5	1	11.3	SW	42	SE	21	5	9	17	6.8	43
LOUISIANA																																
Baton Rouge	64	1019.3	1022.5	61	36	48.7	-3.7	75	26+	22	5	0	13	38	69	4.72	-.77	2.51	7	3	.0	0	9.8	E	--	---	--	9	4	18	6.9	--
Lake Charles	12	1020.0	1021.6	58	39	48.4	-4.2	72	20+	25	22	0	10	40	75	4.89	.07	3.98	9	3	.0	0	10.2	ESE	*35	NNW	21	5	9	17	7.3	--
New Orleans (U)	9	------	------	60	42	51.3	-4.6	75	21	30	5	0	4	--	74	3.95	-.83	1.59	7	1	.0	0	7.3	---	27	SW	21	9	8	14	6.1	59
New Orleans	3	1019.6	1022.1	60	40	50.3	-4.6	75	21	29	11+	0	10	42	72	3.71	-.97	1.22	10	1	.0	0	11.6	SSE	*39	SSE	21	10	6	15	6.4	--
Shreveport	252	1012.2	1021.9	56	34	45.2	-2.6	74	20	15	4	0	15	33	65	1.17	-3.55	.59	5	2	.0	0	11.7	S	--	---	--	4	6	21	7.7	45
MAINE																																
Caribou	624	984.4	1008.6	21	2	11.6	2.9	47	17	-17	26	0	31	3	67	2.40	.16	1.03	17	0	17.4	19	12.3	WSW	*40	WNW	5	3	8	20	7.5	--
Portland	61	1007.5	1011.6	32	11	21.3	.6	51	22	-4	5	0	31	13	73	3.00	-1.43	.85	12	0	8.7	4	11.0	WSW	42	SW	16	11	6	14	5.6	51
MARYLAND																																
Baltimore (U)	14	------	------	44	26	34.9	-1.7	65	22	11	6	0	23	--	--	2.59	-1.07	1.50	10	--	---	---	---	---	--	---	--	--	--	--	---	--
Baltimore	146	1013.3	1018.3	43	21	32.0	-2.2	65	22	5	18	0	27	22	68	2.39	-1.27	1.21	10	0	2.1	1	12.7	WNW	52	NW	4	10	7	14	5.6	60
Frederick	294	------	------	40	20	29.7	-3.0	65	21	2	18	0	31	--	--	2.08	-.80	1.05	11	--	3.0	1	---	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs. (R)	629	988.2	1012.4	35	17	25.2	-.7	58	22	0	6	0	29	--	64	2.09	-2.00	.73	11	0	4.7	2	18.7	WNW	51	WNW	5	10	11	10	5.5	52
Boston	15	1008.1	1012.6	37	21	28.7	-.4	62	22	2	5	0	26	16	61	2.72	-.78	1.00	10	0	4.1	2	15.1	NW	*45	NW	6+	11	8	12	5.8	61
Nantucket	43	1012.8	1013.6	37	23	30.0	-2.1	50	22	7	6	0	26	22	72	2.78	-1.09	.77	12	0	5.6	3	16.3	WNW	48	NW	6+	8	7	16	6.3	55
Pitsfield	1153	969.3	------	30	10	20.2	-1.0	56	22+	-6	19	0	31	--	--	3.91	.81	1.39	14	0	3.4	3	---	---	--	---	--	--	--	--	---	--
Worcester	986	974.0	------	31	15	23.0	-1.0	59	22	-3	6+	0	31	--	--	3.92	.59	1.15	12	0	8.9	4	17.4	---	*60	WSW	5	6	12	13	6.1	--
MICHIGAN																																
Alpena (U)	587	993.6	------	22	10	16.0	-5.2	35	2+	-6	26	0	31	--	73	1.24	-.42	.44	16	0	15.8	12	11.0	NW	32	NW	30	6	6	19	7.3	41
Detroit	619	990.2	1018.3	28	14	21.3	-4.9	42	1	0	5	0	31	14	74	2.81	.73	1.11	15	0	15.4	7	12.3	NW	42	W	22	6	6	19	7.1	31
Detroit (Willow Run)	722	988.2	1018.0	29	13	20.6	-4.7	43	1	-5	5	0	31	14	77	2.83	1.03	1.22	14	0	11.8	6	12.8	WSW	*35	W	22	4	11	16	6.8	--
East Lansing (U)	856	------	------	27	11	18.8	-5.0	39	14	-2	26	0	31	--	--	2.82	.95	1.25	17	0	19.5	12	6.0	SW	13	NW	16+	--	--	--	---	34
Escanaba (U)	594	994.9	------	19	3	11.3	-6.2	35	29+	-16	23	0	31	--	69	.70	-.83	.20	8	0	8.4	10	9.9	---	35	NW	21	9	8	14	6.5	48
Flint	761	988.5	1018.0	25	7	15.9	-7.3	39	1	-16	26	0	31	13	82	2.52	.94	.96	14	0	26.0	15	7.9	WNW	*20	SW	22	5	5	21	7.5	--
Grand Rapids	681	992.2	1018.8	25	10	17.7	-5.8	38	14+	-3	26	0	31	13	78	2.32	.42	.71	20	0	32.6	18	11.2	NW	26	W	22	3	5	23	8.3	23
Inkster (Wayne Co.)	630	993.2	1018.1	28	12	19.9	----	41	1	-5	5	0	31	13	75	2.79	----	1.25	14	0	13.4	7	12.0	WSW	--	---	--	5	7	19	7.1	--
Marquette (U)	677	990.2	------	19	6	12.6	-6.1	35	2	-12	23	0	31	--	68	.75	-1.42	.23	14	0	14.7	15	9.2	NW	26	SW	18	4	6	21	7.8	50
Muskegon	627	994.6	1019.1	26	12	19.0	-5.9	37	14	-6	26	0	31	13	78	2.40	.45	.60	18	0	47.6	27	---	---	--	---	--	0	3	28	9.5	--
Sault Ste. Marie	721	993.6	1017.5	19	3	11.2	-2.6	33	2+	-19	5	0	31	8	86	1.51	-.65	.39	20	0	17.9	27	10.5	NW	*27	NW	12+	5	6	20	7.6	39
MINNESOTA																																
Duluth	1409	976.6	1020.9	12	-7	2.2	-6.1	30	12	-23	31+	0	31	-5	69	.46	-.77	.19	9	0	8.6	12	13.9	WNW	43	NW	2	9	7	15	6.2	57
Intern'l. Falls	1179	976.6	1021.7	5	-17	-5.6	-8.6	30	13	-34	4	0	31	-16	57	.56	-.33	.21	10	0	8.4	20	7.4	W	*24	SSE	1	11	7	13	5.4	--
Minneapolis	830	986.1	1022.1	20	2	10.6	-4.0	43	13	-16	4	0	31	1	66	.11	-.69	.05	4	0	1.4	1	10.3	NW	28	NW	15	9	11	11	5.7	67
Rochester	1017	982.4	1022.1	19	0	9.4	-4.9	43	13	-17	31+	0	31	3	71	.47	-.46	.19	8	0	5.9	3	10.2	NW	--	---	--	9	6	16	6.4	--
St. Cloud	1034	981.4	1022.1	16	-5	5.8	-4.7	40	13	-22	4+	0	31	-1	68	.20	-.55	.12	5	0	2.0	1	---	---	--	---	--	9	7	15	5.9	--
MISSISSIPPI																																
Jackson	305	1009.6	1022.1	56	31	43.5	-4.8	74	20	16	5	0	16	32	68	3.73	-1.36	1.67	6	2	T	0	8.3	SSE	38	NW	21	6	7	18	7.0	51
Meridian	294	1008.2	------	58	30	43.8	-3.7	75	21	15	5	0	20	--	--	3.75	-1.34	1.72	7	1	T	0	---	---	--	---	--	9	8	14	5.8	--
Vicksburg (U)	234	1012.7	------	56	35	45.3	-3.9	75	21	17	5	0	14	--	--	1.72	-3.72	.58	6	2	T	0	8.8	---	36	NW	21	7	9	15	6.7	46
MISSOURI																																
Columbia	778	991.9	1021.7	34	15	24.6	-5.2	59	13	-9	5	0	30	18	76	2.01	.21	1.64	7	1	8.9	6	12.2	SSE	37	NW	15	6	11	14	6.5	49
Kansas City	741	984.4	1021.6	35	18	26.6	-3.4	60	13	-7	4	0	27	17	69	1.74	.31	1.15	7	1	13.2	8	11.7	SSW	33	NW	29	5	6	20	6.9	50
St. Joseph	809	984.8	------	31	12	21.6	-5.5	52	12	-13	4	0	31	--	--	1.18	.03	.61	10	0	11.2	7	12.2	S	*35	N	15	8	8	15	6.3	--
St. Louis RFC	465	------	------	36	19	27.9	-5.4	62	14	-3	4	0	26	--	--	1.68	-.64	1.31	5	--	2.2	1	---	---	30	SE	29	--	--	--	---	45
St. Louis	552	1000.0	1021.6	35	18	26.3	-5.9	62	14	-4	5+	0	28	20	76	1.42	-.50	1.13	5	1	4.7	3	10.0	NW	--	---	--	10	5	16	6.5	--
Springfield	1265	970.9	1020.9	40	19	29.5	-3.2	64	29+	-7	4	0	26	22	75	1.79	-.52	1.37	7	1	3.4	3	14.9	SSE	55	SW	29	7	7	17	6.6	51
MONTANA																																
Billings	3567	889.9	1018.5	34	12	23.0	.1	58	12	-16	3	0	27	13	65	1.02	.49	.35	14	0	10.1	4	11.9	SW	42	NW	18	1	6	24	8.4	46
Butte	5530	826.9	1020.9	33	9	20.7	6.5	49	12	-27	4	0	30	12	--	.13	-.46	.05	6	0	4.6	2	6.5	S	*32	NW	1	0	3	28	8.8	--
Glasgow	2277	943.1	1022.2	14	-3	5.5	-5.0	43	1	-30	31	0	31	--	81	.48	.08	.26	8	0	7.6	9	---	---	--	---	--	4	7	20	7.5	--
Great Falls	3664	886.9	1018.2	34	12	23.1	.4	62	12	-28	3	0	24	11	65	1.57	1.02	.64	10	0	19.3	8	16.3	SW	60	SW	18	4	3	24	8.1	74
Havre (U)	2488	927.2	1021.3	20	2	10.5	-5.7	47	12	-25	31	0	31	--	--	.77	.31	.26	8	0	10.9	7	7.5	---	34	W	1	5	4	22	7.6	48
Helena	3893	872.0	1020.3	32	10	20.7	3.1	57	12	-29	3	0	29	12	69	.43	-.08	.19	5	0	7.4	4	7.1	NW	52	W	18	2	7	22	8.0	35
Kalispell	2965	------	------	31	15	22.7	2.4	46	10	-17	4	0	28	--	--	2.03	.71	.38	19	0	18.9	15	---	---	--	---	--	3	6	22	8.3	--
Miles City	2629	933.1	1021.4	22	1	11.7	-4.4	43	12+	-24	31	0	31	6	--	.81	.34	.22	8	0	10.3	8	8.2	NW	*29	NW	28+	1	8	22	8.2	--
Missoula	3200	902.1	1020.2	34	18	26.1	6.7	47	25+	-10	21	0	29	19	77	2.08	1.27	.64	17	0	13.8	7	5.0	NW	31	E	2	0	6	25	9.0	29
NEBRASKA																																
Grand Island	1841	951.9	1021.3	33	8	20.1	-2.9	58	18	-20	4	0	31	12	74	.66	.08	.36	7	0	6.3	3	11.0	N	--	---	--	8	6	17	6.7	--
Lincoln (U)	1166	------	------	31	13	21.8	-3.2	61	13	-10	4	0	31	--	--	1.13	.31	.58	7	0	12.2	6	11.2	S	37	SW	18	9	7	15	6.3	57
Norfolk	1544	962.8	1021.5	28	5	16.3	-3.0	56	13	-19	4	0	31	8	69	.33	-.46	.21	4	0	4.8	3	---	---	--	---	--	8	6	17	6.6	--
North Platte	2779	916.7	1019.9	38	8	23.2	-.8	63	12	-17	4	0	31	14	74	.31	-.08	.15	4	0	5.2	3	8.7	N	35	N	20	8	7	16	6.5	59
Omaha	978	980.4	1022.6	28	9	18.7	-4.3	50	24+	-10	4	0	31	10	72	.56	-.29	.24	7	0	6.0	3	12.2	SSE	40	N	18	7	7	17	6.7	53
Omaha, N. Omaha AP	1323	971.2	------	26	7	16.5	-4.1	50	13+	-16	4	0	31	--	--	.69	-.16	.26	7	0	6.4	3	---	---	--	---	--	8	5	18	6.8	--
Scottsbluff	3950	878.4	1019.6	37	12	24.2	.7	58	24	-22	4	0	30	16	72	.26	-.07	.12	6	0	6.1	3	9.6	WNW	*35	NNE	1	7	12	12	6.2	--
Valentine	2587	924.8	------	34	5	19.4	-.6	65	12	-29	4	0	31	--	74	.12	-.44	.09	5	0	4.4	2	8.6	W	35	N	18	7	4	20	6.9	71
NEVADA																																
Elko	5075	845.6	1020.0	42	22	31.8	9.9	57	17	-11	4	0	31	23	69	.56	-.51	.22	13	1	3.4	1	5.5	WSW	*28	W	28	3	7	21	8.0	--
Ely	6257	808.7	1019.9	43	15	28.8	5.8	59	17	-9	4	0	31	17	63	.17	-.77	.05	7	0	2.0	1	12.9	S	50	SE	5	2	11	18	7.5	66
Las Vegas	2162	953.6	1018.9	59	34	46.4	2.2	72	25	20	4	0	14	21	41	.11	-.33	.11	1	0	.0	0	4.9	W	*38	NNW	19	14	7	10	4.7	81
Reno	4397	863.2	1020.0	51	23	36.5	5.3	63	11	5	3	0	28	24	61	.64	-.40	.32	6	0	.5	T	5.8	S	42	SSE	24	5	10	16	6.7	69
Winnemucca	4299	869.3	1020.0	47	23	34.6	6.8	60	23+	-2	4	0	26	25	68	.34	-.62	.14	7	0	2.5	1	7.8	S	36	W	28	5	8	18	7.6	37

See footnotes at end of table.

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover tenths sunrise to sunset	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F	°F.	°F	°F		°F				°F	%	In.	In.	In.			In.	In	M p. h.		M p. h.			0–3	4–7	8–10	0–10	%
NEW HAMPSHIRE																																
Concord	339	1001.6	1012.9	32	11	21.2	1.1	52	22	-12	28	0	30	12	70	3.27	0.36	1.23	11	0	9.8	10	8.3	NW	39	NW	6	8	10	13	5.9	55
Mt. Washington	6262	791.9	------	14	-6	3.9	-1.5	42	21	-38	6	0	31	--	89	5.47	.37	1.42	19	1	32.5	16	49.1	W	‡133	W	7	2	2	27	8.8	20
NEW JERSEY																																
Atlantic City (U)	10	------	------	40	24	31.9	-3.9	56	30+	12	6	0	26	--	--	1.21	-2.57	.47	8	0	----	--	14.9	---	54	NW	5	--	--	--	---	75
Atlantic City	58	1014.0	1016.8	41	22	31.5	-3.1	58	25	6	19+	0	26	22	69	1.59	-1.89	.80	7	0	2.7	2	14.7	WNW	--	---	--	7	11	13	6.1	--
Newark	11	1014.6	1016.1	39	24	31.4	-.1	62	22	12	18	0	25	20	64	2.40	-1.20	1.33	12	0	2.2	1	11.4	WNW	*42	NNW	6	9	7	15	6.4	
Trenton (U)	56	1008.7	------	39	24	31.7	-.9	64	22+	12	6	0	27	--	--	2.05	-1.11	1.02	12	0	2.3	1	11.3	--	12	NW	5	6	10	15	6.2	58
NEW MEXICO																																
Albuquerque	5310	848.6	1017.4	45	23	34.3	.6	61	25+	3	1	0	27	18	53	.17	-.11	.08	3	1	1.7	6	7.4	N	34	NW	28	18	8	5	3.6	89
Clayton	4969	843.6	1017.3	44	16	29.7	-3.2	62	28+	-21	4	0	31	--	--	.72	.45	.45	4	0	7.3	7	----	---	--	--	--	14	7	10	4.7	
Raton	6379	802.9	1017.3	46	11	28.3	2.1	64	10	-20	4+	0	31	--	--	.64	.22	.37	6	0	5.2	2	---	--	--	---	--	15	6	10	4.5	--
Roswell	3612	894.0	1017.6	58	21	39.2	-.4	73	25+	10	22+	0	31	22	54	.02	-.40	.02	1	0	.2	T	10.2	—	67	NW	29	11	14	6	5.0	-
NEW YORK																																
Albany	277	1011.2	1015.0	30	12	21.1	-1.4	58	22	-4	28+	0	31	13	71	2.75	.48	1.26	12	0	12.2	5	10.3	WNW	56	W	4	7	6	18	7.0	51
Binghamton	1590	953.5	1014.8	29	14	21.5	-.2	58	22+	2	26+	0	30	17	81	2.59	.21	.98	21	0	20.0	8	12.0	NNW	59	NW	5+	3	6	22	8.1	42
Buffalo	693	987.1	1016.8	30	15	22.3	-3.2	57	21	3	26	0	31	16	78	6.47	3.69	1.88	22	0	38.4	10	14.0	W	65	W	22	2	8	21	8.3	32
New York (U)	10	1015.8	------	39	25	31.6	-1.3	60	22	14	18+	0	24	--	--	2.11	-1.35	1.05	12	0	.9	1	18.8	NW	69	NW	5	9	11	11	5.7	58
New York	19	1013.8	1015.8	38	25	31.6	-1.4	57	30+	14	18+	0	23	19	62	2.58	-.61	1.33	11	0	2.2	1	17.5	WNW	63	NW	5	8	11	12	6.3	--
Rochester	543	996.2	1016.3	30	14	21.9	-2.8	56	22+	3	29	0	31	16	80	3.87	1.51	1.12	20	0	46.8	13	14.4	WSW	66	SW	22	2	7	22	8.4	33
Schenectady	217	------	------	31	14	22.2	.7	56	22	-5	19	0	31	--	--	2.86	.44	1.37	11	0	10.5	6	----	---	--	---	--	14	10	7	4.6	--
Syracuse	424	992.9	1016.1	29	13	21.0	-4.5	59	22+	-10	26	0	31	17	82	4.59	1.80	.85	23	0	48.8	20	12.9	WSW	47	NW	6	2	6	23	8.3	34
NORTH CAROLINA																																
Asheville (U)	2203	938.3	------	48	26	36.5	-2.9	65	29	3	5	0	19	--	--	2.96	-.02	1.62	7	1	1.5	2	9.5	---	42	W	21	10	9	12	5.6	59
Cape Hatteras (R)	9	1018.7	1019.5	52	35	43.6	-4.4	71	30+	18	19	0	13	35	74	2.53	-1.57	.83	9	1	T	0	11.6	SW	--	---	--	9	9	13	5.7	--
Charlotte	725	991.2	1020.3	53	29	40.9	-1.4	71	21	10	17	0	16	28	65	3.02	-.66	.97	8	1	T	T	10.7	SSW	34	NW	16	13	7	11	5.2	65
Greensboro	891	987.5	1020.6	49	25	37.0	-2.0	69	21	7	18	0	22	25	65	3.01	-.36	1.09	8	1	4.7	3	9.3	SW	36	WSW	21	13	6	12	5.2	71
Raleigh	433	1005.8	1020.3	52	28	39.6	-1.8	74	21	10	18+	0	19	26	64	1.77	-1.57	.55	8	1	2.9	2	8.5	SSW	*25	SSW	21	12	8	11	5.1	71
Wilmington	30	1019.4	------	57	33	44.5	-3.3	74	21	16	6	0	15	--	--	2.11	-1.01	.53	8	0	T	T	10.9	---	40	S	21	11	7	13	5.4	65
Winston-Salem	967	983.8	1020.2	49	28	38.5	-.8	68	21	10	18	0	18	27	67	2.25	-1.44	.66	7	1	3.5	2	10.5	SSW	*40	SSE	21	13	7	11	4.9	--
NORTH DAKOTA																																
Bismarck	1650	958.7	1023.3	13	-7	3.2	-6.0	38	13	-40	31	0	31	-4	72	.29	-.07	.13	6	0	8.2	6	9.5	E	45	NW	1	5	9	17	6.8	52
Devils Lake (U)	1471	964.8	------	7	-9	-1.1	-5.9	35	1	-27	31	0	31	--	74	.34	-.06	.17	6	0	5.2	14	8.7	W	34	NW	1	4	9	18	7.0	72
Fargo	895	986.1	1023.1	11	-4	3.7	-3.4	33	13	-20	31	0	31	-4	68	.13	-.47	.12	3	0	2.0	3	13.4	N	43	N	2	7	5	19	6.7	46
Williston (U)	1877	950.2	1022.4	15	-4	5.7	-4.3	43	13	-34	31	0	31	-4	64	.23	-.26	.07	7	0	2.5	3	7.2	W	29	NW	1	5	6	20	7.5	58
OHIO																																
Akron	1210	978.9	1018.8	32	13	22.6	-4.8	60	21	-7	5	0	30	17	80	5.46	2.72	2.99	17	0	15.0	6	13.2	S	--	---	--	5	8	18	7.2	--
Cincinnati Obs.	761	------	------	39	20	29.7	-3.4	65	21	-4	5	0	27	--	--	8.32	4.88	4.53	11	2	7.3	3	7.5	-	49	SW	21	--	--	-	--	44
Cincinnati	869	986.8	1020.1	39	19	29.3	-2.5	66	21	-6	5	0	28	20	71	7.61	4.21	4.33	10	2	8.0	4	10.8	SW	46	WSW	21	2	11	18	7.4	--
Cleveland	787	989.1	1018.3	33	16	24.0	-4.5	60	21	-7	5	0	29	18	80	4.61	2.23	2.33	19	0	14.0	5	14.7	S	68	SW	21	6	5	20	7.5	33
Columbus (U)	724	------	------	35	18	26.8	-4.3	63	21	-4	5	0	30	--	--	6.36	3.55	4.23	11	1	5.1	2	----	---	--	---	--	--	--	--	---	--
Columbus	815	988.8	1020.3	36	16	26.0	-3.7	63	21	-6	5	0	30	19	76	7.44	4.50	4.81	11	1	6.5	2	9.0	W	56	W	21	7	7	17	7.2	48
Dayton	1002	981.7	1019.7	34	16	25.2	-4.5	59	21	-11	5	0	30	19	77	6.85	3.89	4.30	14	1	9.9	3	13.2	SSE	59	W	21	5	12	14	6.7	48
Sandusky (U)	603	995.3	------	32	15	23.4	-5.4	55	21	-6	5	0	31	--	--	4.50	2.21	2.17	12	1	14.0	5	9.9	---	51	SW	21	5	9	17	7.3	44
Toledo	676	992.4	1019.0	30	12	21.0	-5.4	46	14	-6	5	0	31	16	81	3.89	1.64	1.78	13	1	10.2	4	11.1	WSW	-	--	--	4	11	16	6.9	46
Youngstown	1178	973.5	1018.1	32	13	22.6	-4.9	59	21	-4	18	0	30	17	81	5.34	2.02	2.79	18	0	15.8	6	13.5	WNW	*48	WSW	21	5	5	21	7.7	--
OKLAHOMA																																
Oklahoma City	1280	976.0	1021.1	44	22	33.0	-4.1	70	25	-4	4	0	25	26	78	.31	-1.19	.24	5	0	3.3	5	15.4	S	47	NW	29	7	7	17	6.7	54
Tulsa	672	995.6	1021.2	44	23	33.6	-3.8	68	13	-5	5	0	24	25	72	.77	-1.21	.73	4	1	4.6	6	11.9	S	46	NW	29	6	11	14	6.6	49
OREGON																																
Astoria	[illegible]	1014.9	1015.4	49	39	43.7	3.6	57	11	17	3	0	4	40	86	13.24	2.58	2.65	29	0	1.1	1	9.9	ESE	*40	S	24	0	3	28	9.4	--
Burns (U)	4140	873.0	1018.6	41	24	32.8	8.9	58	23	-4	4	0	25	25	74	.99	-.48	.29	14	0	8.3	4	----	---	-	---	--	1	9	21	8.2	--
Eugene	361	1004.1	1018.0	49	38	43.3	5.1	58	23	19	4+	0	5	--	--	12.39	6.98	3.03	23	0	1.2	1	8.4	---	*29	SSW	8	0	2	29	9.4	--
Meacham	4050	------	------	35	24	29.5	4.6	47	17	-12	3	0	24	--	--	5.82	1.58	1.51	24	0	42.7	21	----	---	--	---	--	1	1	29	9.4	--
Medford	1312	970.9	1019.4	48	34	41.3	4.1	65	23	22	4+	0	16	36	84	1.99	-.52	.59	13	0	T	0	5.4	SSE	*40	SE	8+	1	3	27	8.9	--
Pendleton	1492	963.4	1018.5	43	29	36.0	5.4	63	9	-3	4	0	17	29	78	2.45	.97	.76	19	0	5.3	3	9.2	SSE	*37	W	9	1	7	23	8.6	--
Portland	21	1011.5	1017.2	45	35	40.4	3.0	57	24	16	3	0	7	36	85	7.57	2.98	1.35	27	0	.9	1	10.2	ESE	42	S	24	2	1	28	9.0	20
Roseburg	505	999.0	1018.0	53	38	45.1	5.6	65	23	21	3	0	6	--	--	8.07	3.47	2.01	21	0	T	T	3.8	---	31	S	23	1	1	29	9.0	27
Salem	195	1010.2	1017.5	49	37	42.8	4.4	59	24	17	6+	0	5	39	87	11.15	5.43	1.88	25	0	3.4	2	8.6	S	*31	S	24	1	3	27	9.0	--
Sexton Summit (R)	3836	882.8	1018.6	40	30	35.1	-.7	54	16	15	3	0	19	--	--	8.47	4.45	2.44	19	0	8.8	8	13.2	---	--	---	--	1	4	26	9.0	--
PENNSYLVANIA																																
Allentown	376	1001.9	1016.7	37	19	28.0	-.5	63	22+	2	19	0	30	17	66	2.58	-.63	1.00	13	1	3.8	1	14.8	W	--	---	--	7	8	16	6.5	--
Erie	732	------	------	31	15	23.3	-3.9	59	21	0	26	0	31	--	--	4.59	2.25	1.51	20	0	24.7	14	8.8	---	*23	SSE	19+	3	2	26	8.4	--
Harrisburg	335	1003.1	1017.5	38	21	29.5	-1.6	64	21	7	18	0	28	16	61	2.66	.04	1.06	12	0	6.6	2	10.1	WNW	42	NW	9	7	4	20	6.9	51
Philadelphia (U)	26	------	------	41	26	33.6	-1.3	63	22	12	17+	0	23	--	--	----	----	----	--	-	----	--	----	---	--	---	--	--	--	-	---	--
Philadelphia	7	1012.2	1016.9	40	23	31.6	-1.6	63	22	11	18+	0	26	20	64	2.03	-1.34	.81	11	0	3.3	2	12.0	NW	52	NW	6	4	13	14	6.9	58
Pittsburgh (U)	749	------	------	38	20	28.8	-4.2	69	21	0	5	0	27	--	--	3.79	.96	1.15	16	-	8.8	--	----	---	--	---	--	--	--	--	---	24
Pittsburgh	1151	987.3	1018.8	34	16	25.3	-3.7	67	21	-3	5	0	30	17	73	3.99	1.22	.89	16	0	13.7	5	10.5	WSW	*38	W	21	2	8	21	7.9	34
Reading (U)	266	1004.5	1017.2	39	23	31.1	-1.1	67	22+	9	19	0	26	--	--	2.07	-1.08	.97	10	0	3.9	2	13.5	---	46	NW	6	6	8	17	6.7	46
Scranton	940	981.1	1016.7	33	17	24.7	-2.2	64	21	-1	19	0	30	17	73	3.11	.85	1.52	15	0	7.2	5	10.6	NW	34	SW	22+	4	7	20	7.5	37
Williamsport	527	997.6	------	35	18	26.6	-1.9	60	21	-3	18	0	28	--	--	3.49	.90	1.03	14	0	9.6	5	----	---	--	---	--	4	9	18	7.2	--
RHODE ISLAND																																
Block Island	110	1009.1	1013.6	38	24	30.9	-1.0	53	22	9	6+	0	25	--	--	1.61	-2.06	.96	7	0	.6	T	----	---	--	---	--	7	11	13	6.1	--
Providence	55	1007.2	1013.7	37	20	28.2	-.5	60	22	4	6+	0	28	16	62	2.27	-1.48	.95	13	0	2.2	1	13.8	WNW	*44	SSW	22	10	9	12	5.5	58
SOUTH CAROLINA																																
Charleston (U)	9	------	------	57	39	47.8	-3.6	71	21	19	17	0	9	--	--	3.73	1.25	1.10	9	-	.0	0	9.1	---	30	W	16	--	--	--	---	--
Charleston	41	1019.4	1021.5	59	34	46.3	-4.0	75	21	17	17	0	14	37	75	4.20	1.72	.95	9	0	.0	0	7.7	S	--	---	--	7	7	17	6.6	65
Columbia	217	1012.4	1021.2	58	32	44.6	-2.4	78	21	13	17	0	17	32	68	2.94	-.20	1.05	10	1	.0	0	6.8	WSW	*29	S	21	9	11	11	5.3	66
Florence	146	1014.3		57	32	44.4	-1.9	79	21	15	6	0	15	--	--	2.85	.00	1.00	10	1	.0	0	----	---	--	---	--	10	10	11	5.5	--
Greenville	1018	981.8	1020.3	52	31	41.5	-1.8	68	27+	10	17	0	15	28	65	2.74	-1.72	1.04	7	1	T	T	9.9	SW	35	SW	21+	10	10	11	5.6	62
Spartanburg	801	------	------	52	30	41.2	-2.2	69	27+	9	17	0	15	--	--	2.24	-2.27	1.04	6	1	T	0	9.0	---	30	WNW	5	--	--	--	---	--
SOUTH DAKOTA																																
Huron	1282	972.6	1022.6	19	-1	8.9	-4.6	39	13	-18	31	0	31	3	76	.32	-.25	.15	8	0	5.6	5	9.4	SSE	33	NW	22	4	10	17	7.2	56
Rapid City	3165	900.8	1020.0	33	8	20.6	-.5	58	11	-20	4	0	31	12	72	.39	-.09	.10	9	0	3.7	1	10.1	N	43	NW	18+	7	5	19	7.1	48
Sioux Falls	1420	967.5	1021.9	22	1	11.8	-2.4	49	13	-16	4	0	31	1	63	.16	-.56	.08	4	0	2.4	2	10.1	NW	*30	WNW	22+	6	12	13	6.5	--
TENNESSEE																																
Bristol	1519	964.8	------	45	23	33.8	-4.8	68	21	-1	18	0	20	--	--	2.93	-.57	1.15	8	1	4.2	3	----	---	--	---	--	8	5	18	6.7	--
Chattanooga	670	993.3	1021.9	49	27	38.0	-3.6	69	21	7	5	0	19	38	72	6.11	.88	3.93	9	1	.1	T	7.5	S	59	SW	21	10	6	15	6.4	54
Knoxville	950	985.3	1021.8	48	27	37.3	-3.2	72	21	6	5	0	18	27	69	4.09	-.45	1.64	11	1	2.5	2	8.2	SW	60	SW	21	7	7	17	6.8	37
Memphis (U)	271	------	------	47	31	39.0	-2.9	72	21	8	5+	0	16	--	--	4.34	-1.04	1.64	8	-	T	T	----	---	--	---	--	--	--	--	---	--

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure		Temperature								No. of days				Precipitation					Snow, Sleet		Wind					No. of days (sunrise to sunset)				
		Ø Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	No. of days With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile Speed	Fastest mile Direction	Fastest mile Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F.	°F	°F.	°F.		°F.		#		°F.	%	In.	In.	In			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
TENNESSEE (Cont'd.)																																
Memphis	263	1007.0	1022.3	49	30	39.5	-2.1	72	21+	9	5	0	18	28	65	4.34	-1.21	1.46	8	2	T	T	9.5	SSW	33	NW	21	7	4	20	7.1	45
Nashville	577	1000.6	1021.8	48	26	37.0	-2.9	74	21	2	5	0	20	28	73	3.26	-1.67	1.07	9	2	T	T	9.5	S	42	S	20	6	9	16	6.8	39
Oak Ridge	905	986.4	------	46	26	35.9	-3.1	72	21	3	5	0	19	--	--	5.81	-.25	3.21	11	1	1.3	1	4.9	---	*59	---	21	9	5	17	6.4	--
TEXAS																																
Abilene	1759	957.0	1019.8	55	30	42.5	-.8	75	14	5	4	0	20	27	58	.04	-.84	.04	2	0	T	T	12.7	S	34	S	28+	10	4	17	6.1	69
Amarillo	3590	888.9	1018.4	46	18	32.3	-3.0	68	28	-11	4	0	30	19	63	.16	-.48	.11	5	0	1.7	2	11.3	SW	38	NW	29	11	9	11	5.4	82
Austin	615	999.3	1022.0	58	38	47.7	-2.2	79	20	14	4	0	11	39	73	.42	-2.21	.12	5	0	T	0	9.7	S	30	N	15	5	8	18	7.0	46
Brownsville	16	1017.3	1020.0	65	48	56.8	-3.7	79	15	31	4	0	2	52	84	2.98	1.55	1.78	14	0	T	0	10.6	NNW	34	N	15	6	7	18	7.1	39
Corpus Christi	41	1019.6	1021.0	61	45	52.8	-4.1	78	20	25	4	0	4	46	80	1.74	.35	.73	10	0	.0	0	10.2	NNE	33	N	21	5	8	18	7.2	44
Dallas	487	1002.0	1021.6	53	33	43.3	-2.4	74	29+	9	4	0	14	32	67	.30	-2.17	.16	2	1	T	T	12.5	S	35	N	15	8	1	22	7.2	57
Del Rio (U)	957	------	------	59	39	49.2	-2.7	82	20	21	4	0	10	--	--	.08	-.75	.03	3	0	.0	0	----	---	--	---	--	--	--	--	---	--
El Paso	3920	886.6	1016.5	62	34	47.9	4.5	73	19	17	1	0	14	23	38	.21	-.21	.21	1	0	.0	0	11.5	NNE	54	NW	20	14	7	10	4.6	89
Fort Worth	544	999.7	1021.4	54	31	42.5	-2.8	75	20+	7	4	0	17	32	70	.36	-2.06	.21	3	1	.2	T	15.0	S	*39	SSW	20+	5	7	19	7.2	--
Galveston (U)	7	------	------	57	45	51.3	-3.2	68	15	26	4	0	3	--	--	1.22	-2.87	.87	8	--	.0	0	13.8	---	40	NW	15	--	--	--	---	42
Galveston	5	1019.3	1021.7	57	45	50.8	-3.5	68	15	27	4	0	2	44	79	1.80	-2.54	1.05	8	2	.0	0	13.3	ESE	--	---	--	4	9	18	7.6	--
Houston (U)	41	1015.9	------	61	42	51.3	-2.5	75	26	21	4	0	8	--	--	1.90	-2.08	1.79	5	1	.0	0	11.1	SE	36	N	15	5	9	17	7.2	53
Houston	50	1019.0	1022.1	60	41	50.3	-3.0	76	26	22	4	0	9	42	76	2.70	-1.46	2.42	11	0	.0	0	13.2	NNW	--	---	--	3	7	21	7.8	--
Laredo	500	1004.7	1020.2	65	44	54.2	3.4	81	20+	30	4	0	6	43	71	.40	-.62	.19	7	0	.0	0	9.3	SE	*27	NW	21	9	8	14	6.4	--
Lubbock	3243	904.2	1018.6	55	21	37.9	-.9	76	25	0	4	0	29	22	57	.08	-.59	.04	3	0	.4	T	14.1	SW	*43	N	20	16	5	10	4.2	--
Midland	2854	917.4	1018.4	58	27	42.7	-1.5	75	20	8	4	0	23	26	56	.06	-.56	.04	2	0	.3	T	9.6	S	*29	NNE	15	14	6	11	5.1	--
Port Arthur	16	1020.0	1021.5	60	40	49.7	-3.2	73	20+	23	4	0	9	43	79	2.97	-2.15	2.15	9	2	.0	0	12.9	ESE	38	NW	21	4	7	20	7.4	37
San Angelo	1903	950.9	1019.7	58	32	44.9	-2.4	81	20	9	4	0	16	31	61	T	-.99	T	0	0	T	T	12.6	SW	*37	NNW	20	11	6	14	5.6	--
San Antonio	792	994.9	1020.8	59	39	48.9	-1.7	81	20	20	4	0	13	39	72	.52	-1.29	.25	8	0	.0	0	9.8	N	30	NW	21	5	6	20	7.1	39
Victoria	110	1015.9	1021.0	61	43	51.5	-3.7	76	20	22	4	0	6	43	74	.31	-2.41	.10	6	0	.0	0	10.4	N	‡47	N	21	5	6	20	7.6	--
Waco	500	999.3	1021.4	56	34	45.3	-2.0	77	29	11	4	0	14	35	70	.29	-2.09	.24	4	0	.0	0	13.0	S	*38	NNW	21	6	3	22	7.5	--
Wichita Falls	1020	983.1	1020.7	50	27	38.4	-2.2	75	25	3	4	0	22	28	67	.21	-1.10	.14	3	3	1.0	1	11.8	S	*29	NW	20	9	6	16	6.0	--
UTAH																																
Milford	5028	844.9	1021.7	45	18	31.3	7.5	60	24	-5	4	0	31	--	--	.24	-.33	.10	4	0	1.9	1	----	---	--	---	--	5	9	17	7.0	--
Salt Lake City	4220	869.3	1021.0	43	25	33.9	7.4	59	12	-1	4	0	28	25	71	1.60	.40	.81	10	0	11.8	2	8.3	SSE	36	SW	28	3	8	20	7.5	49
VERMONT																																
Burlington	331	998.7	1014.1	26	8	17.2	-.7	53	22	-14	26	0	30	8	67	2.72	.83	.95	18	0	29.2	24	10.6	SSW	34	NW	4	2	9	20	8.2	44
VIRGINIA																																
Lynchburg	947	984.0	------	46	26	36.0	-1.7	69	21	6	6	0	20	--	--	2.01	-1.42	.90	8	0	7.8	4	9.4	---	38	S	21	11	7	13	5.3	58
Norfolk	26	1018.1	1019.4	49	30	39.7	-1.8	72	21	14	6	0	16	28	65	1.52	-1.65	.70	5	1	1.1	1	11.5	SW	56	SW	22	11	8	12	5.6	61
Richmond	162	1013.3	1019.7	49	26	37.5	-.8	72	21	8	18	0	21	25	64	1.31	-2.33	.55	7	1	2.4	2	8.9	S	40	S	21	11	7	13	5.8	54
Roanoke	1174	975.0	1019.8	46	26	36.0	-1.9	69	21	6	6+	0	19	20	57	2.37	-1.02	1.31	11	0	4.9	4	10.7	WNW	--	---	--	12	7	12	5.3	--
WASHINGTON																																
Olympia	190	1008.1	1015.8	45	34	39.7	2.7	55	27	7	3	0	11	35	84	8.91	2.22	1.81	26	0	5.5	5	8.2	SW	*40	SSW	24	2	2	27	8.8	--
Seattle (U)	14	------	------	47	39	42.7	2.0	53	25+	18	3	0	4	--	--	8.94	4.45	1.79	23	--	5.0	4	----	---	45	SW	12	--	--	--	---	17
Seattle	14	1014.7	1015.7	--	--	----	---	--	--	--	--	-	--	35	76	-----	----	----	--	--	----	--	6.9	S	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	1001.7	1015.5	45	37	40.8	3.6	53	17+	14	3	0	5	35	79	7.98	3.25	1.69	23	1	3.2	3	10.1	E	*40	SSW	24	2	2	27	8.9	--
Spokane	2357	947.5	1018.1	34	24	29.0	4.1	52	9	-5	4	0	24	24	83	4.96	3.24	1.10	19	0	22.4	8	8.0	ENE	34	SW	24+	2	1	28	8.8	19
Stampede Pass (R)	3958	876.1	1017.5	29	21	24.6	.9	38	23+	-6	4	0	31	--	--	14.99	1.94	2.67	28	0	84.5	78	----	---	--	---	--	1	1	29	9.4	--
Tatoosh (R)	101	1010.5	1013.4	46	39	42.6	.6	54	8	22	3	0	4	37	82	12.08	1.89	2.34	23	1	4.7	2	21.1	E	68	E	4	1	4	26	9.0	20
Walla Walla (U)	949	981.4	1018.0	44	30	37.2	5.2	63	12+	-2	4	0	17	--	--	4.00	2.32	1.08	18	0	9.4	5	6.0	---	37	S	8	0	5	26	9.1	24
Yakima	1061	978.7	1019.0	39	23	31.0	4.1	57	24	-6	4	0	30	25	79	2.03	1.07	.71	18	0	5.3	4	5.3	WNW	*31	SSW	12+	4	5	22	8.2	--
WEST VIRGINIA																																
Charleston	950	983.0	1019.8	43	23	32.9	-3.5	73	21	-1	5	0	24	20	59	3.27	-.72	1.01	10	0	5.6	2	7.5	SW	29	WSW	21	4	7	20	7.6	--
Elkins	1970	------	------	39	17	28.1	-4.1	67	21	-4	6+	0	26	20	--	3.33	.11	.88	18	0	4.7	3	8.7	WSW	*30	NW	22	3	8	20	7.8	--
Huntington (U)	565	------	------	43	23	33.3	-4.7	70	21	-2	5	0	21	--	--	3.75	.14	.89	10	--	3.0	2	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	------	40	20	30.0	-4.4	72	21	-3	5	0	25	--	--	4.81	1.64	1.35	11	2	6.2	4	6.6	---	31	S	21	4	10	17	7.3	34
WISCONSIN																																
Green Bay	689	995.9	1020.6	18	-1	8.8	-7.3	36	14	-18	31	0	31	4	78	1.04	-.25	.38	11	0	12.1	7	11.7	NW	35	NW	18	10	6	15	6.0	43
La Crosse	652	995.6	1021.3	20	1	10.2	-5.5	40	13	-15	31+	0	31	3	65	.66	-.56	.27	8	0	8.6	6	9.6	NNW	*31	NNW	15	8	8	15	6.3	--
Madison	857	983.4	1021.0	21	0	10.6	-8.5	40	13	-18	31	0	31	4	72	1.40	.09	.35	9	0	18.9	13	9.3	WNW	36	W	15+	7	8	16	6.6	48
Milwaukee	672	993.9	1020.5	22	4	13.4	-8.5	38	14	-14	23	0	31	9	77	2.48	.90	1.25	14	0	27.5	16	11.6	WNW	33	N	21	9	6	16	6.5	47
WYOMING																																
Casper	5322	834.7	1017.6	35	12	23.7	1.4	53	12	-25	3	0	28	13	63	.58	-.11	.22	11	0	11.8	3	16.2	SW	*44	WSW	6	6	6	19	7.1	--
Cheyenne	6131	808.3	1017.7	38	15	26.3	.8	60	12	-23	3	0	30	14	60	.52	-.04	.19	10	0	7.3	2	15.2	W	59	W	18	10	10	11	5.5	69
Lander	5563	833.4	1019.5	32	9	20.5	3.7	55	24	-30	4	0	31	9	66	.76	.26	.32	4	0	14.4	6	5.5	---	39	SW	24	6	9	16	6.5	66
Sheridan	3942	883.5	1020.3	31	9	19.8	-.3	52	12	-24	4+	0	30	13	77	.32	-.43	.12	10	0	6.4	3	6.5	NW	45	NW	18	1	7	23	8.2	58
PACIFIC AREA																																
Canton Island	9	1007.8	1008.1	90	79	84.3	1.3	92	26	72	28	21	0	75	75	10.08	9.00	5.21	12	1	.0	0	13.7	E	*35	WNW	29	0	0	31	10.0	--
Guam (R)	361	------	------	83	72	77.7	.0	86	6	62	9	0	0	--	--	3.45	.26	.93	24	0	.0	0	----	---	25	E	22	--	--	--	---	84
Hilo	31	1011.5	1012.8	79	65	71.9	1.5	89	17	60	1	0	0	65	81	8.44	-5.69	2.09	20	0	.0	0	6.9	SW	33	S	17	3	9	19	7.5	31
Honolulu	7	1012.9	1013.5	80	65	72.5	.3	86	26	56	1	0	0	64	78	3.76	-.89	2.48	10	1	.0	0	10.3	NE	67	SW	17	9	11	11	5.5	60
Johnston Island	10	1008.5	1009.2	80	72	76.0	----	82	28+	68	21	0	0	66	74	6.42	----	2.68	11	0	.0	0	----	---	--	---	--	4	23	4	5.5	--
Koror (R)	94	1007.8	1011.5	86	75	80.6	.4	89	16	72	16	0	0	75	85	6.28	-5.75	1.15	23	1	.0	0	----	---	--	---	--	0	3	28	9.2	--
Lihue	115	1007.5	1013.2	79	63	71.1	1.0	83	30+	55	15	0	0	63	80	6.45	.22	2.77	18	0	.0	0	9.2	W	36	SW	17	8	10	13	5.9	55
Majuro	10	1009.1	1009.5	86	77	81.2	----	88	17+	74	27+	0	0	72	72	1.07	----	.85	7	0	.0	0	10.4	---	28	NE	31	0	0	31	9.9	71
Ponape (R)	120	1004.4	1009.6	86	75	80.7	-.5	88	23+	69	12	0	0	73	77	3.91	-7.83	1.06	19	2	.0	0	8.8	---	18	E	28+	0	2	29	9.6	68
Truk, Moen Island	5	1010.2	1010.2	87	78	82.0	1.1	88	31+	73	16	0	0	72	73	.96	6.63	.29	10	0	.0	0	----	---	24	NE	16	0	1	30	9.2	--
Wake Island	11	1013.9	1014.2	81	71	75.9	-1.6	84	29	68	21+	0	0	63	66	1.02	-.24	.28	11	0	.0	0	15.0	ENE	*31	ENE	18+	10	15	6	5.0	--
Yap (R)	53	1009.5	1011.5	86	76	81.3	.5	90	1	70	27	1	0	75	80	7.75	.92	1.69	22	0	.0	0	----	---	--	---	--	0	0	31	10.0	--
WEST INDIES																																
San Juan, P.R.(U)	47	------	------	81	71	75.9	1.0	84	16	68	26+	0	0	--	--	6.42	1.73	1.79	20	--	.0	0	----	---	--	---	--	--	--	--	---	--
San Juan, P.R.	15	1014.6	1017.6	82	68	75.1	.9	84	10	63	6	0	0	67	81	5.79	.02	1.85	19	0	.0	0	7.4	ENE	26	N	6	6	21	4	5.4	63
Swan Island	31	1013.6	------	83	74	78.8	.9	85	31+	70	10	0	0	--	--	2.09	-1.65	.70	9	0	.0	0	----	---	--	---	--	6	16	9	5.6	--
ALASKA																																
Anchorage	92	1005.8	1010.8	18	3	10.1	-2.9	40	31	-17	1	0	31	2	66	.27	-.49	.10	6	0	6.5	22	6.2	NNE	*42	ENE	7	10	5	16	6.2	29
Annette	110	1005.4	1009.4	38	31	34.4	-.2	46	16	13	3	0	13	27	76	12.18	2.78	2.22	23	0	12.3	4	12.7	ESE	*38	ESE	14	2	1	28	9.1	--
Barrow	22	1030.5	1030.9	-11	-24	-17.3	-2.2	24	19	-34	4	0	31	-28	60	.05	-.11	.02	3	0	.5	12	8.9	ENE	24	E	18	⊕6	⊕0	⊕2	---	--
Barter Island	39	1028.8	1030.3	-11	-24	-17.4	-1.9	25	19	-38	8	0	31	-27	61	.01	-.38	.01	1	0	.2	6	10.4	E	*41	W	19	⊗8	⊗1	⊗6	---	--
Bethel	10	1012.9	1013.8	10	-3	3.3	-3.5	36	30	-21	6	0	31	-5	68	.23	-.67	.13	3	0	2.5	3	17.8	NE	*38	NE	20	14	4	13	4.9	--
Cold Bay	90	1003.4	1007.3	33	25	28.8	-.3	40	28+	10	18	0	27	25	84	1.50	-1.02	.58	16	0	6.7	3	19.3	NNW	*63	ENE	20	2	3	26	8.7	--
Cordova	40	1006.1	1007.5	28	11	19.7	-5.3	43	15	-7	8	0	29	15	79	1.52	-5.53	.84	8	0	11.6	8	2.3	E	*23	ESE	31	6	3	22	7.7	--
Fairbanks	436	1005.1	1023.8	-10	-30	-20.0	-10.2	18	31	-50	7+	0	31	-29	63	.09	-.90	.09	1	0	5.6	22	3.6	NE	*17	NE	20	17	7	7	3.7	--
Juneau	15	1012.5	1013.1	23	13	18.0	-8.2	39	31+	-4	8	0	31	11	74	1.39	-3.09	.21	18	0	13.6	4	7.9	N	30	SE	31+	4	2	25	8.5	--
King Salmon	44	1006.4	1008.2	18	3	10.5	-3.6	40	31+	-24	12+	0	29	6	77	.16	-.89	.11	4	0	3.1	4	14.7	N	*46	N	15	10	6	15	6.0	--
Kotzebue	10	1023.0	1023.5	2	-10	-3.8	2.8	22	31	-25	1	0	31	-13	65	.07	-.40	.03	4	0	1.0	16	13.1	E	*41	E	4	15	3	13	4.5	--
McGrath	334	1005.8	1019.2	-2	-22	-12.0	-3.3	19	20	-41	1	0	31	-23	60	.28	-.86	.15	4	0	6.9	20	2.6	N	*23	NE	21+	17	3	11	4.3	--
Nome	13	1018.3	1018.8	14	-1	6.4	.8	34	31+	-20	7	0	31	-1	74	.80	-.45	.29	10	0	9.6	19	12.3	E	*52	ENE	20	11	6	14	5.7	49
St. Paul Island	22	1010.2	1011.2	34	26	29.7	3.3	40	3	11	13	0	29	27	86	.89	-.93	.28	10	0	1.5	T	----	---	--	---	--	2	11	18	7.8	--
Yakutat	28	1007.5	1008.4	31	17	24.0	-2.5	41	31+	0	12	0	28	15	69	5.53	-6.07	3.34	11	0	25.8	23	8.8	ENE	*32	ENE	14	6	5	20	7.3	--

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural ,sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
\+ And also on an earlier date or dates.
a Maximum hourly average.
\# Number of days maximum 70° or above for Alaskan Stations.
Ø Station pressures apply to elevations shown in Table 10b of the annual issue of this publication.

† City Office Data
‡ Peak Gust
⊕ Sun below horizon Jan. 1-23, inclusive.
⊗ Sun below horizon Jan. 1-16, inclusive.

HEATING DEGREE DAYS

(Base 65° F)

JANUARY 1959

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
ALABAMA			
Birmingham	696	1833	1753
Mobile	525	1198	1039
Montgomery	573	1416	1381
ARIZONA			
Flagstaff	1034	3588	4198
Phoenix (U)	244		980
Phoenix	341	740	1119
Prescott	747	2199	2641
Tucson	340	866	1123
Winslow	875	2534	2904
Yuma	151	345	682
ARKANSAS			
Ft. Smith	864	2206	2048
Little Rock	776	1970	1898
Texarkana	659	1714	1513
CALIFORNIA			
Bakersfield	406	1062	1380
Bishop	737	2086	2515
Blue Canyon	784	2155	2899
Burbank	229	556	976
Eureka (U)	458	2156	2585
Fresno	488	1294	1640
Los Angeles (U)	155	369	779
Los Angeles	148	330	1075
Mt. Shasta (R)	863	2654	3324
Oakland	415	1160	1790
Red Bluff	507	1185	1559
Sacramento (U)	451	1107	1594
Sacramento	486	1270	1714
Sandberg (R)	656	1748	2184
San Diego	156	358	813
San Francisco (U)	333	1212	1709
San Francisco	351	980	1890
San Jose	354	905	1348
Santa Maria	329	1042	1566
COLORADO			
Alamosa	1475	4679	5112
Colorado Springs	1099	3303	3513
Denver	1081	3169	3489
Grand Junction	1096	3066	3564
Pueblo	1143	3132	3383
CONNECTICUT			
Bridgeport	1114	3317	3169
Hartford	1243	3871	3458
New Haven	1124	3409	3276
DELAWARE			
Wilmington	1051	3100	2824
DIST. OF COLUMBIA			
Washington (U)	923	2588	2488
Washington	926	2585	2523
FLORIDA			
Apalachicola (U)	409	860	827
Daytona Beach	276	485	533
Fort Myers	165	258	250
Jacksonville	393	808	804
Key West	38	42	46
Miami	82	108	118
Miami Beach	57	68	80
Orlando	236	401	410
Pensacola (U)	457	1000	912
Tallahassee	437	992	991
Tampa	213	353	424
West Palm Beach	112	147	154
GEORGIA			
Athens	701	1858	1738
Atlanta	701	1767	1757
Augusta	610	1651	1356
Columbus	599	1528	1514
Macon	565	1406	1321
Rome	812	2183	1956
Savannah	537	1282	1099
IDAHO			
Boise	896	2948	3509
Lewiston	903	2898	3307
Pocatello	1114	3525	4060
ILLINOIS			
Cairo (U)	945	2488	2321
Chicago	1437	3737	3595
Chicago University	1397	3665	
Moline	1523	3934	3730
Peoria	1435	3741	3563
Springfield	1309	3440	3359
INDIANA			
Evansville	1048	2978	2654
Ft. Wayne	1353	3871	3582
Indianapolis	1239	3539	3263
South Bend	1428	3944	3694
IOWA			
Burlington	1471	3810	3605
Des Moines	1503	3904	3802
Dubuque	1631	4458	4215
Sioux City	1539	4066	4156
KANSAS			
Concordia (U)	1278	3216	3192
Dodge City	1189	3105	3027
Goodland	1192	3474	3676
Topeka	1265	3194	[illegible]
Wichita	1187	2903	2786
KENTUCKY			
Lexington	1043	2975	2892
Louisville	1001	2785	2666
LOUISIANA			
Baton Rouge	502	1149	1039
Lake Charles	511	1125	1009
New Orleans (U)	421	900	770
New Orleans	454	979	848
Shreveport	609	1576	1398
MAINE			
Caribou	1648	5805	5663
Greenville (U)	1612	5485	
Portland	1349	4825	4220
MARYLAND			
Baltimore (U)	927	2628	2417
Baltimore	1015	2937	2773
Frederick	1083	3213	2842
MASSACHUSETTS			
Blue Hill Obs. (R)	1234	3938	
Boston	1118	3331	3128
Nantucket	1081	3241	3098
Pittsfield	1381	4468	4291
MICHIGAN			
Alpena (U)	1508	4535	4320
Detroit	1349	3759	3536
Detroit (Willow Run)	1369	3852	3614
East Lansing (U)	1426	3959	
Escanaba (U)	1662	4851	4686
Grand Rapids	1462	4109	3927
Marquette (U)	1617	4798	4602
Muskegon	1421	4045	3836
S. Ste. Marie	1665	5339	5162
MINNESOTA			
Duluth (U)	1937	5932	5386
Duluth	1947	5943	5600
Internat. Falls	2191	6581	6145
Minneapolis	1686	4603	4577
Rochester	1720	4855	4716
St. Cloud	1832	5240	5173
MISSISSIPPI			
Jackson	663	1654	1417
Meridian	650	1644	1517
Vicksburg (U)	603	1516	1282
MISSOURI			
Columbia	1246	3103	3064
Kansas City	1187	2862	2960
St. Joseph	1339	3331	3223
St. Louis (U)	1146	2838	2686
St. Louis	1190	3001	2822
Springfield	1094	2870	2842
MONTANA			
Billings	1297	3881	4072
Glasgow	1842	5386	5141
Great Falls	1297	4076	4270
Havre (U)	1686	4824	4811
Helena	1367	4575	4818
Kalispell	1305	4568	4720
Miles City	1648	4581	4584
Missoula	1201	4243	4684
NEBRASKA			
Grand Island	1384	3741	3761
Lincoln (U)	1331	3375	3490
Norfolk	1503	4040	4161
North Platte	1292	3850	3852
Omaha	1431	3626	3675
Scottsbluff	1258	3837	3925
Valentine	1409	4133	4091
NEVADA			
Elko	1020	3658	4241
Ely	1115	3774	4232
Las Vegas	571	1448	1622
Reno	875	3048	3474
Tonopah	952	2806	3323
Winnemucca	936	3293	3765
NEW HAMPSHIRE			
Concord	1353	4394	4299
Mt. Washington Obs.	1895	8151	
NEW JERSEY			
Atlantic City (U)	1019	2891	2502
Newark	1036	3019	2951
Trenton (U)	1027	3055	2856
NEW MEXICO			
Albuquerque	948	2516	2727
Clayton	1089	3008	2986
Roswell	789	2268	2202
NEW YORK			
Albany	1354	4171	3901
Binghamton	1339	4257	4193
Buffalo	1317	3862	3695
New York (U)	1031	2931	2766
New York	1029	2905	2724
Rochester	1327	3974	3765
Schenectady	1319	3953	3965
Syracuse	1357	4056	3594
NORTH CAROLINA			
Asheville (U)	877	2519	2427
Cape Hatteras (R)	658	1538	1315
Charlotte	741	2035	1978
Greensboro	860	2470	2319
Raleigh	780	2239	2036
Wilmington	627	1650	1402
Winston-Salem	814	2301	2255
NORTH DAKOTA			
Bismarck	1914	5409	5254
Devils Lake (U)	2050	5965	5769
Fargo	1903	5407	5399
Grand Forks	2069	5929	
Pembina	2131	6133	
Williston (U)	1839	5286	5271
OHIO			
Akron	1306	3916	3464
Cincinnati (U)	1013	2787	2653
Cincinnati	1102	3168	3028
Cleveland	1261	3580	3313
Columbus	1201	3514	3233
Dayton	1227	3569	3222
Sandusky (U)	1283	3595	3238
Toledo	1359	3901	3573
Youngstown	1309	3946	3437
OKLAHOMA			
Oklahoma City	983	2444	2282
Tulsa	969	2331	2238
OREGON			
Astoria	654	2407	2733
Burns (U)	992	3395	4103
Eugene	667	2240	2770
Meacham	1094	3756	4348
Medford	727	2299	2711
Pendleton	891	2818	3161
Portland (U)	676	2017	2418
Portland	755	2399	2673
Roseburg	608	2014	
Salem	682	2222	2640
Sexton Summit (R)	918	2872	3278
PENNSYLVANIA			
Allentown	1141	3563	3337
Harrisburg	1095	3266	3022
Philadelphia (U)	963	2814	2557
Philadelphia	1030	3033	2777
Pittsburgh (U)	1116	3213	2882
Pittsburgh	1224	3678	3384
Reading (U)	1045	3115	2888
Scranton	1243	3905	3413
Williamsport	1184	3683	3382
RHODE ISLAND			
Block Island	1050	3119	2989
Providence	1134	3485	3346
SOUTH CAROLINA			
Charleston (U)	526	1208	1103
Charleston	574	1438	1250
Columbia	630	1732	1544
Florence	631	1666	1603
Greenville	723	1909	1873
Spartanburg	732	1966	1881
SOUTH DAKOTA			
Huron	1738	4708	4626
Pierre	1648	4452	
Rapid City	1374	3944	4219
Sioux Falls	1646	4537	4637
TENNESSEE			
Bristol	959	2681	2506
Chattanooga	829	2233	2105
Knoxville	854	2287	2214
Memphis	781	2069	1973
Nashville	861	2370	2150
TEXAS			
Abilene	689	1837	1721
Amarillo	1008	2676	2651
Austin	530	1293	1130
Brownsville	268	565	437
Corpus Christi	382	805	695
Dallas	664	1601	1477
Del Rio (U)	486	1177	
El Paso	523	1551	1756
Ft. Worth	690	1678	1512
Galveston (U)	418	889	758
Galveston	433	919	780
Houston (U)	426	974	843
Houston	452	1020	903
Laredo	345	789	576
TEXAS (Cont'd.)			
Lubbock	835	2281	2256
Midland	686	1859	
Port Arthur	469	1107	993
San Angelo	614	1672	1410
San Antonio	497	1194	1062
Victoria	426	984	760
Waco	604	1460	1311
Wichita Falls	818	1974	1937
UTAH			
Milford	1040	3436	3828
Salt Lake City	956	3037	3473
VERMONT			
Burlington	1478	4666	4385
VIRGINIA			
Lynchburg	891	2597	2471
Norfolk	778	2054	1986
Richmond	847	2465	2360
Roanoke	893	2563	2472
WASHINGTON			
Olympia	777	2691	3122
Seattle (U)	684	2182	2529
Seattle-Tacoma	742	2536	3025
Spokane	1111	3677	3993
Stampede Pass (R)	1244	4761	5111
Tatoosh Island (R)	688	2921	3193
Walla Walla (U)	855	2704	2989
Yakima	1047	3491	3657
WEST VIRGINIA			
Charleston	988	2875	2607
Elkins	1136	3626	3312
Huntington (U)	976	2781	2434
Parkersburg (U)	1078	3108	2773
WISCONSIN			
Green Bay	1741	4850	4641
La Crosse	1694	4533	4459
Madison	1684	4543	4269
Milwaukee	1594	4301	3999
WYOMING			
Casper	1276	3004	4345
Cheyenne	1195	3855	4137
Lander	1373	4295	4833
Sheridan	1397	4310	4505
ALASKA			
Anchorage	1700	6784	6419
Annette	942	3794	3964
Barrow	2557	10500	10875
Barter Island	2561	10189	
Bethel	1913	7516	7363
Cold Bay	1117	5304	
Cordova	1398	5723	5430
Fairbanks	2643	9365	8693
Juneau	1449	5256	5169
King Salmon	1689	6594	
Kotzebue	2135	8727	8850
McGrath	2388	9209	8663
Nome	1815	7914	7808
St. Paul	1085	5621	5753
Yakutat	1268	5234	5265

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

JANUARY 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ø ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS
Alabama										0	1	5	1																
California										1	5	5	0	0	0	2	0									0	0	5	0
Colorado										0	2	4	0													0	0	5	0
Connecticut and Rhode Island										0	1	°5	C																
Florida										0	0	*	*													3	1	0	0
Georgia										0	0	5	0																
Illinois																		0	0	*	0	0	*	6	*				
Indiana																		0	0	5	0	0	0	°6	C	2	0	°6	C
Iowa																		3	88	5	0					3	0	0	0
Kansas																						3	N	0	0				
Kentucky	1	1	3	0	5					2	3	6	3																
Louisiana	1	1	0	0	2					0	0	5	0																
Maine										0	0	4	0									0	200	5	0				
Maryland																						0	0	0	1				
Massachusetts										0	9	4	0									0	53	5	0	0	0	4	0
Michigan																						0	110	5	0				
Mississippi	10	2	0	2	6					1	1	5	0	1	0	1	0												
Missouri														0	0	5	0					1	20	6	0				
New Hampshire										0	1	4	0									0	50	5	0	0	0	3	0
New Jersey																										2	0	0	0
New York	1	1	0	0	3					0	23	5	0					15	8+	4	0					23	0	7	0
North Carolina	2	1	0	0	5					1	1	5	0									0	15	4	0				
Ohio																										13	*	8	*
Oklahoma																		1	5	0	0								
Oregon										0	0	3	1					1	3	3	1	0	0	2	1	0	0	2	1
Pennsylvania										0	0	4	0					6	23	4	0	13	4	0	0	4	13	7	0
Puerto Rico																										0	1	4	0
South Carolina										0	0	4	0																
Tennessee	1	1	0	3	5	0	0	3	0	0	0	4	5													0	0	4	0
Texas										0	1	3	0									0	8	4	5				
Utah																		1	3	4	0								
Vermont										0	0	4	0									0	2	4	0	0	0	3	0
Virginia										0	0	4	0																
Washington										0	0	4	0					1	0	4	4					0	0	5	5
West Virginia										0	0	3	0																

‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
° Includes crop damage.
C Crop damage.
* Not estimated.
N Numerous.
ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JANUARY 1959

Significant floods occurred during the month in the Ohio Basin during the last decade of January. Record to near record stages occurred along several streams in southeastern Indiana, Ohio, and Pennsylvania. The flooding in the Whitewater Basin in Indiana and in the Scioto Basin in Ohio was generally the highest since 1913. The flooding along the East Fork of the White River in Indiana was the worst in a decade. Previous maximum stages in the Beaver River and the upper Allegheny River Basins in Pennsylvania were equalled or exceeded.

Extensive and serious flooding occurred along the entire length of the Sandusky River in Ohio, with near record stages in the headwaters. Severe local flooding occurred along small streams in the Cleveland, Ohio, area. Severe flash floods occurred on several small streams in Erie County in New York.

There was some moderately heavy flooding in the Columbia Basin. Otherwise flooding over the rest of the country was mostly light.

ST. LAWRENCE DRAINAGE

Lakes Erie and Ontario.--Heavy rains over the St. Marys and Auglaize portions of the Maumee River Basin caused some flooding from the 22d through the 27th on the St. Marys at Decatur, Ind., and on the Maumee at Defiance, Ohio. There was some minor ice jamming in the Maumee River below Grand Rapids, Ohio. The brief rise to above flood stage at Defiance, Ohio, was apparently due to a minor ice jam.

Extensive and serious flooding developed along the entire length of the Sandusky River in Ohio between the 21st and 26th. A near record stage of 18.7 feet was reached at Upper Sandusky, Ohio, on the 22d. This was 0.3 foot below the record 1913 flood. At Tiffin, Ohio, the Sandusky reached the highest stage since 1937. At Fremont, the flood stage of 10 feet was exceeded by a little more than 7 feet, largely the result of a serious ice jam. This flood was due to an average rainfall of 3 inches occurring in a period of approximately 40 hours. Heavy flood damage occurred in the lower sections of the river. More than 500 persons were evacuated.

Many homes and streets in Cleveland, Ohio, were flooded as the Chagrin, Cuyahoga, and Rocky Rivers and other smaller streams overflowed their banks from the record 24-hour rainfall (2.29 inches) on the 21st. There was 5 inches of snow on the ground at the Cleveland Airport before the rain began. The snow was deeper in the higher elevations in the eastern suburbs. Most of the damage was caused as the ice jammed the entrance to Lake Erie at Rocky River and the Chagrin River. Severe flooding in the Chagrin Valley accounted for most of the 8 deaths. The Cleveland Yachting Club, at the entrance of Rocky River, was severely damaged due to high water and the ice jam. The flooding water of Big Creek virtually wiped out all of the Cleveland Zoo's outstanding reptile collection.

Severe flash floods occurred on several of the small streams in Erie County in New York during the day and evening of the 21st. The flash flood on Cazenovia Creek resulted when an ice jam near Cazenovia Street Branch in Buffalo, N. Y., burst, sending a wall of water and hundreds of huge chunks of ice rolling over the area. Flood waters surged through an 18-block area of south Buffalo in a sudden and terrifying wave of destruction. Several persons were injured, and hundreds of others were forced to flee their homes. Flash floods occurred in western New York again on the 30th in creeks in West Seneca, the Sunset Bay region, southern Chautauqua County, Pleasant Valley near Olen in Genesee County south of Batavia, and in Evans Center. Small creeks in these areas flooded nearby lowlands. A number of families were driven from their homes by the high water. Most streams and creeks in this area were choked with ice at the end of the month and the threat of further floods remained.

The only other flooding of importance during the month was on Canaseraga Creek below Dansville, N. Y. Here the highway extending westward from Groveland, N. Y., was closed the evening of the 21st and remained closed the rest of the month, due to the ice remaining after the waters receded.

ATLANTIC SLOPE DRAINAGE

An ice jam on the Kennebec River in Maine on the 8th caused water to inundate U. S. Route 201 between Caratunk and the Forks. It was under water several feet in a one-half mile stretch where the road skirts the river bank. Traffic was detoured onto other roads, and no damage or accidents were reported. At the close of the month, snow depths ranged from a trace in southern Maine to about 2 feet of compacted snow over the upper reaches of the main streams. Water equivalents of the snow ran nearly 6 inches in some headwater areas. The thickness of the river ice was variable, averaging about 18 inches.

Moderate to heavy rain caused light local flooding on the Housatonic River at Gaylordsville, Conn., on the 22d. No damage was reported.

An ice jam on the Ausable River at Ausable Forks, N. Y., caused about $10,000 worth of property damage on the 22d.

Minor flooding occurred on the 21st and 22d in the Hudson River Basin. Most small streams reached bankfull stages by the evening of the 21st, due to warm, heavy rain and rapid snowmelt. The ice broke up in the middle and lower sections of the basin, and ice jams were numerous. The Mohawk River flooded in scattered areas on the 22d, due to ice jams. The Hudson did not reach flood levels and crested 2 to 3 feet below flood stage. Damages were relatively minor, except for a few local areas where substantial ice jam damages occurred. Two lives were lost in the Kinderhook River in New York (at bankfull stage with large chunks of moving ice) when a car skidded into the river at a bridge approach. Two bridges were destroyed at North Adams, Mass., and one bridge was damaged downstream on the main Hoosic.

The ice broke up in the Delaware River basin from the mild weather and heavy rain on the 21st and 22d. The temperature on both days rose above 50°. The rainfall amounts averaged near 1.5 inches in the upper reaches above Port Jervis, N. Y. Ice jams resulted in many places, especially near Narrowsburg, N. Y., and above Fishs Eddy on the East Branch. Several cottages on the Pennsylvania side of the river near Narrowsburg were damaged by ice, and many roads near the small streams in Delaware and Sullivan Counties of New York were under water until the ice jams broke. No flood stages were reached from Port Jervis downstream.

The ice-covered Lackawaxen broke up on the 21st without any difficulty. It rose to slightly above flood stage at Hawley, Pa., on the 22d. This ice-breakup resulted from 1.6 inches of precipitation

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between the 20th and 22d, and mild weather. The ice on the Lehigh River broke up in the early morning of the 22d, with several minor jams but no flooding was reported. Crests were well below flood stage at all points.

The flooding in the Susquehanna Basin between the 21st and 24th was confined mostly to the northern tributaries in New York and to the main stem at and above Towanda, Pa. Temperatures during this period were mild, with maximum readings over 60°. Significant snowmelt resulted in the northern headwater areas. The precipitation on the 21st and 22d averaged approximately 1.5 inches. Ice jams also caused the inundation of sections of small towns along the main Susquehanna River between Marietta, Pa., and Safe Harbor Dam. The Susquehanna River reached 3.5 feet above flood stage at Towanda, Pa., but crested within one-half foot of flood stage at Wilkes-Barre, Pa. On the morning of the 22d, when the Susquehanna River was at partial flood stage, the roof of a mine slope beneath the river near Port Griffith, Pa., collapsed; water poured into the mine, flooding it and adjacent mines. Twelve coal miners lost their lives in this mine disaster.

EAST GULF OF MEXICO DRAINAGE

The light flooding on the Tombigbee River in Mississippi and Alabama between the 22d and 29th was due to rainfall averaging slightly over an inch on the 20th and 21st. These rains were preceded by rainfall of the same intensity on the 16th. No damage was reported.

Excessive rainfall in the Jackson, Miss., area on the 21st produced rapid rises on tributary streams within the city. One child fell in a tributary in Jackson and drowned. Runoff was sufficient to cause slight flooding without material damage on the Rankin County side of the Pearl River near Jackson between the 23d and 29th.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The mean stage of the Mississippi River at Minneapolis, Minn., during January was 4.8 feet, 1.3 feet below the longterm mean. This was the lowest mean stage at this point since 1949, when a mean stage of 4.7 feet was recorded. At St. Paul, Minn., the mean stage was 0.3 foot above the longterm mean and at La Crosse, Wis., 0.1 foot below the longterm mean.

Ice thickness on the Mississippi River at the end of the month varied from 15 inches at Guttenberg, Iowa, to 28 inches at Minneapolis, Minn. With much below normal temperature in January and little snow cover in some areas, frost penetration was deeper than normal.

Snow cover is heaviest over the northern third of Minnesota, where depths range from 4 to 20 inches, and over north-central Wisconsin with depths up to 12 inches. In southeastern Minnesota and southern Wisconsin, the depth varies from 5 up to 10 inches. A comparison of snow depths in the Upper Mississippi Basin on January 31 with that of other years is given for selected points in the following table:

COMPARATIVE SNOW DEPTHS (INCHES)

Station (Minnesota)	1959	1958	1957	1956	1955
Bemidji	8	5	11	26	8
International Falls	20	8	11	22	15
Duluth	11	11	14	29	17
Fargo, N. Dak.	3	2	2	7	3
Alexandria	0	5	2	16	6
New Ulm	2	3	T	6	4
Minneapolis	0	2	2	11	6
Rochester	3	2	1	10	3
Park Falls, Wis.	12	12	13	21	17

The light flooding on the Sangamon River at Riverton, Ill., and on the Big Muddy River at Murphysboro, Ill., during the latter part of the month was due to moderate to heavy rains, which started on the 19th and continued for several days. There was no flood damage reported. The situation in the Big Muddy Basin is such that its overflowing will not cause significant damage as long as the Mississippi is low, since drainage canals can easily handle the overflow by dumping it into the Mississippi. That was the situation during January when the Mississippi was quite low. At St. Louis, Mo., the Mississippi remained below zero on the gage for almost all the month, but never reached record low readings.

Ohio Basin.--Heavy rains augmented by snow runoff and aggravated by ice gorge conditions brought a major flood to the Allegheny, Beaver, and upper Ohio River Basins during the period from the 21st to the 25th. Major flooding occurred at Meadville, Pa., on French Creek, due to backwater from an ice gorge. The previous record stage of 61.1 feet was exceeded by 1.4 feet on the 23d. Three hundred families were evacuated due to the record high water which exceeded flood stage by 5.5 feet. The Allegheny River reached record height at Parker, Pa., and Kittanning, Pa., due to backwater from ice. At Parker, Pa., the previous high water mark of 29.4 feet of March 1865 was exceeded by 0.9 foot. The water rose to a height of 10 feet in the business district in a matter of hours, leaving cakes of ice as large as 10 feet square inthe main street as the water receded. At Kittanning, Pa., the river reached a stage of 26.4 feet and exceeded the March 1936 flood by 0.4 foot. Twenty percent of the streets were flooded, and water reached the second floors of many homes. Hundreds of persons were evacuated from their homes and some patients were removed from the Armstrong County Hospital. At Freeport, Pa., an estimated 300 persons were forced from their homes, as one-third of the town was inundated by water from the Allegheny River and Buffalo Creek. On the Shenango River, crest stages were the second highest of record at Sharpsville, Pa., Sharon, Pa., and New Castle, Pa. At Sharon, Pa., flood damage was heavy, as a large area of the business district was flooded with water 2 to 5 feet deep. The crest of 17.8 feet exceeded the July 1958 flood by 1 foot. Other communities hard hit were Green-

ville, Wheatland, and New Castle, Pa. No serious flooding occurred in the Monongahela River Basin.

The flooding on the Hocking and Muskingum River Basins in Ohio was due to heavy rain between the 19th and 21st falling on a snow cover up to 7 inches deep. The principal flood damage was in the Muskingum River Basin. There was very little damage in the Hocking River Basin.

Extensive and serious flooding occurred along the Scioto, the Olentangy, and Paint Creek in Ohio between the 21st and 26th of the month. The crests reached along the Scioto were generally the highest since 1913. This flood was due to heavy rainfall falling on frozen ground in a period of 40 hours. The principal damage on the Scioto resulted when a levee failed on Dry Run and allowed a large section of the near west side of Columbus to flood. A similar condition occurred further downstream at Chillicothe, Ohio, where nearly one-third of the city's population was evacuated. Numerous families were without heat, due to heating systems failing when basements flooded. Flooding was also critical at Mt. Vernon, Mansfield, and Wooster, Ohio. All traffic in and out of the cities of Mount Vernon and Columbus, Ohio, was disrupted, due to flooding of highways.

Record to near record-breaking floods occurred in much of southeastern Indiana, due to rainfall up to 5 inches on the 21st and 22d on frozen ground. The Whitewater River at Brookville reached a stage of 27.8 feet, 11.2 feet lower than the disastrous flood of 1913 and 3.2 feet higher than any stage recorded during a period of almost 40 years. The Big Indian Creek near Corydon, Ind., equalled the stage reached in 1943 which was the highest flood of record dating back to 1815. On the Great Miami, the crest at Hamilton, Ohio, was 21.9 feet, the greatest since the flood control work was done by the Miami Conservancy District in the years following the great flood of 1913. In the lower reaches, it reached a stage about 12 feet higher than during the flash flood of July 22, 1958. Many families in the towns of Hamilton, New Miami, Millville, Ross, Fairfield, and Miamitown, Ohio, were evacuated and one person was drowned. Homes were floated off their foundation, with a few smaller ones torn to pieces. A trailer camp at Ross was scattered for miles downstream. The rise at Ross was so rapid that nearly a hundred persons were trapped in upstairs or attics, rooftops, and trees. The swift waters made rescue work very difficult and dangerous. Similar type of destruction occurred along the entire reach of the Great Miami below Hamilton, Ohio, and on Indian Creek at Millville, Ohio. Summer homes along the banks were in many cases washed away or badly damaged. New Miami, built in the flood plains of the Miami Conservancy District, was badly flooded by backwater from Four Mile Creek with over two-thirds of the homes affected. A section of Springfield, Ohio, at the confluence of Mad River and Buck Creek was condemmed after widespread damage from flooding. Similar conditions occurred along the Little Miami River. Morrow, Loveland, and Milford, Ohio, were hardest hit with hundreds of homes inundated, some up to 7 feet. Extensive damage occurred to summer camps in the Newton and Milford areas. Flash flooding in Mill Creek caused extensive damage in Cincinnati and suburbs. Over 800 persons were evacuated. Many large industries along Mill Creek, and business districts in northern Cincinnati, suffered major flooding. Minor flooding occurred on the Licking River at Falmouth, Ky., where the crest was 29.9 feet, 1.9 feet above flood stage.

Flooding along the Green River in Kentucky was the highest since May 1958, with flood stages exceeded by 3 to 6 feet. The Rough River, a tributary stream of the Green, poured backwater over a large portion of Ohio County, washing out an estimated 30 to 35 county road bridges and a number of farm levees. All 15 schools in the county, serving some 4,300 pupils, were closed because school busses were unable to make their rounds.

The worst flood in a decade swept along the East Fork of the White River during the month. At Bedford, Ind., the river was the highest since 1937, and at Williams and Shoals, Ind., the highest since 1945. At Deputy, Ind., on the Muscatatuck River, a U.S.G.S. recorder gage was washed away by the greatest flood in memory. Many bridges and culverts were washed out in that area, and the A.T.& T. suffered extensive damage to long distance trunk lines, necessitating rerouting of many long distance calls. Many bridges and culverts were washed out along the East Fork of the White River in the Seymour, Ind., area, where the crest was the highest since 1949. Numerous railroad trestles and railroad bridges were washed away. Railroad tracks were flooded at some points never known to flood before. Many secondary roads were closed. Homes in some residential and rural areas were surrounded, particularly in the Columbus, Ind., area. Most of the evacuations in the Columbus area were believed to have been caused by overflow of creeks. The rise on the Wabash and White River, although not extreme, was noteworthy because of huge ice jams which caused some local flooding. Damage was at a minimum.

Minor flooding occurred on the Cumberland River at Williamsburg, Ky., and at several headwater points from rainfall, averaging 2.5 to 3 inches and falling during a period of 18 hours. Damages were minor and very limited in extent. Low-lying areas in and around Harlan and Baxter, Ky., were flooded during the night of the 21st, necessitating some evacuation. No reports of damage or evacuation of residents were received from points below Baxter.

Heavy rains on the 21st caused minor flooding on the Chickamauga Creek at Chickamauga, Tenn., and on the Little Pigeon River at Gatlinburg and Sevierville, Tenn., between the 21st and 23d. A few homes along the Pigeon River were surrounded by water but not flooded. Damages were insignificant. Heavy discharges at Guntersville Dam caused the main river at Whitesburg, Ala., to exceed flood stage by 1.3 feet on the 23d.

The Ohio River was about half bankfull stage before the heavy rains began on the 19th. The river rose rapidly and crested up to 12 feet above flood stage. Damages in the upper Ohio were moderate to heavy. Several families were evacuated from summer cabins along the Ohio that are used as year-round residences.

A comparison of the present flood crests with the maxima previously recorded is given in Table 1.

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TABLE I COMPARATIVE FLOOD CRESTS - OHIO BASIN

RIVER AND STATION	FLOOD STAGE	CURRENT FLOOD CREST	CURRENT FLOOD DATE	PREVIOUS MAXIMUM OF RECORD CREST	PREVIOUS MAXIMUM OF RECORD DATE
French Creek: Meadville, Pa.	57	62.5	1/23/59	61.05	4/7/47
Allegheny: Olean, N. Y.	10	16.0	1/22/59	*21.3 17.5	7/19/42 3/8/56
Salamanca, N. Y.	1370	1372.1	1/22/59	1374.8	3/8/56
Warren, Pa.	14	16.5	1/22/59	*19.4 18.3	3/17/1865 3/8/56
West Hickory, Pa.	14	17.8	1/22/59	17.51	2/23/45
Franklin, Pa.	17	21.9 (ice)	1/21/59	26.0 (ice)	2/27/17 2/26/26
Parker, Pa.	20	30.3	1/21/59	*29.4 27.85 (ice)	3/17/1865 3/5/34
Lock 7, Kittanning, Pa. (Upper Gage)	23	26.4	1/22/59	26.0	3/18/36
Lock 5, Freeport, Pa. (Upper Gage)	21	26.1	1/22/59	34.7	3/18/36
Lock 4, Natrona, Pa. (Upper Gage)	20	25.8	1/22/59	32.1	3/18/36
Lock 3, Acmetonia, Pa. (Upper Gage)	20	23.5	1/22/59	33.9	3/18/36
Shenango: Sharpsville, Pa.	10	15.7	1/22/59	19.3	3/26/13
Sharon, Pa.	13	18.0	1/22/59	16.8	7/--/58
Muskingum: Zanesville, Ohio	25	30.7	1/22/59	51.8	3/27/13
McConnellsville, Ohio	11	14.4	1/22/59	33.5	3/27/13
Hocking: Enterprise, Ohio	12	15.9	1/22/59	*26.7 20.0	1/--/07 3/6/45
Athens, Ohio	17	19.2	1/23/59	*26.7 23.0	3/14/07 3/7/45
Olentangy: Delaware, Ohio	9	10.2	1/21/59	25.5	3/25/13
Paint Creek: Bourneville, Ohio	10	16.7	1/22,23/59	19.2	3/6/45
Scioto: La Rue, Ohio	11	†17.0	-------	*17.8 15.0	3/26/13 3/20/27
Prospect, Ohio	10	17.6	1/23/59	*21.1 17.0	3/26/13 3/22/27
Circleville, Ohio	14	27.0	1/22/59	28.2	3/26/13
Chillicothe, Ohio	16	32.5	1/23/59	39.8	3/26/13
Piketon, Ohio	16	32.6	1/24/59	28.8	3/7/45
East Fork Little Miami: Perintown, Ohio	17	21.25	1/21/59	23.42	3/6/45
Little Miami: Milford, Ohio	12	22.9	1/22/59	20.90	3/6/45

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TABLE I (Cont'd.) COMPARATIVE FLOOD CRESTS - OHIO BASIN

RIVER AND STATION	FLOOD STAGE	CURRENT FLOOD		PREVIOUS MAXIMUM OF RECORD	
		CREST	DATE	CREST	DATE
Little Miami (Cont'd.):					
Kings Mills, Ohio	17	30.0	1/22/59	*33.7 26.77	3/26/13 4/20/40
Whitewater: Brookville, Ind.	20	27.8	1/21/59	*43.5 25.56	3/26/13 2/26/29
Miami: Hamilton, Ohio	17	21.85	1/21/59	*25.8 *43.1 18.7	3/24/1898 3/26/13 4/21/20
Eel: Bowling Green, Ind.	17	24.1	1/22/59	*30.0 23.53	1875 1/4/50
East Fork White River:					
Columbus, Ind.	10	13.4	1/22/59	15.12	1/28/52
Seymour, Ind.	14	19.4	1/22/59	*21.0 19.74	3/26/13 1/5/49
Bedford, Ind.	20	32.8	1/25/59	*46.0 32.7	3/--/13 1/8/50
Williams, Ind.	10	21.0	1/26/59	*30.97 25.0	3/--/13 1/25/37
Shoals, Ind.	25	32.0	1/27/59	42.2	3/28/13
White: Muncie, Ind.	6	11.0	1/22/59	*19.6 18.07	3/25/13 1/15/27
Anderson, Ind.	10	18.9	1/22/59	23.6	3/25/13
Noblesville, Ind.	14	16.85	1/23/59	*23.8 20.1	3/25/13 5/19/43
Indianapolis (Morris St. Bridge), Ind.	6	8.9	1/24/59	*30.0 21.57	3/26/13 1/16/37
Spencer, Ind.	14	21.1	1/23/59	*28.5 23.2	3/26/13 1/16/37
Elliston, Ind.	18	25.6	1/25/59	31.3	3/27/13
Newberry, Ind.	18	20.1	1/25/59	*29.2 23.31	1882 & 1913 1/18/37
Edwardsport, Ind.	15	22.2	1/26/59	26.25	1/8/50
Petersburg, Ind.	16	25.0	1/28/59	*29.8 28.38	1913 1/22/37
Hazleton, Ind.	16	26.6	1/29/59	31.6	1/22/37
Wabash: Bluffton, Ind.	10	13.35	1/24/59	20.0	3/26/13
Wabash, Ind.	12	15.95	1/25/59	*28.7 24.22	3/26/13 5/18/43

JANUARY 1959

TABLE I (Cont'd.) COMPARATIVE FLOOD CRESTS - OHIO BASIN

RIVER AND STATION	FLOOD STAGE	CURRENT FLOOD		PREVIOUS MAXIMUM OF RECORD	
		CREST	DATE	CREST	DATE
Wabash (Cont'd.):					
Lafayette, Ind.	11	18.4	1/25/59	28.4 *32.9	5/19/43 3/26/13
Covington, Ind.	16	20.5	1/27/59	*35.1 32.4	3/--/13 5/20/43
Montezuma, Ind.	14	21.7	1/28/59	*34.0 32.83	3/27/13 5/20/43
Ohio: Pittsburgh, Pa.	25	29.2	1/22/59	*41.1 46.0	3/9/1763 3/18/36
Dashields Dam (Upper Gage), Pa.	26	30.2	1/22/59	44.5	3/18/36
Dam 7, Midland, Pa.	30	41.7	1/23/59	53.7	3/19/36
Dam 12, Wheeling, W. Va.	36	43.3	1/23/59	55.2	3/19/36
Dam 13, McMechen, W. Va.	37	45.9	1/23/59	*55.6 57.9	2/7/1884 3/19/36

† Estimated
* Prior to gage records

White Basin.--The flooding on the lower White River in Arkansas between the 19th and the end of the month was due to heavy rain ranging from 2.5 to 4 inches on the 13th and 14th. Damage was negligible.

Red Basin.--The Ouachita River was above flood stage between the 15th and 22d at Arkadelphia and Camden, Ark. Damage was limited to the loss of the use of the land for grazing and a temporary delay in timbering operations on lowland adjacent to the streams.

PACIFIC SLOPE DRAINAGE

Sacramento Basin.--Moderate rises occurred in the Sacramento system in California from the intermittent heavy rain between the 5th and 12th. The only overflow which occurred was at the two lowest weirs, Colusa and Tisdale, on the east side of the Sacramento River into Sutter and Butte Basins.

CALIFORNIA COAST DRAINAGE

Minor flooding occurred near the mouth of Smith River and the Eel River near Fernbridge, Calif., on the 12th from the moderately heavy rain between the 5th and 12th. Several thousand acres of farmland were inundated between Fernbridge and the mouth of the river.

OREGON COAST DRAINAGE

The intermittent heavy rain between the 5th and 12th caused some flooding in the Coquille River Basin at Coquille and Myrtle Point, Oreg. The only flood damage reported was where the water spilled over the diked Highway 101 and eroded the highway shoulders.

Columbia Basin.--The heavy rains from the 8th to the 12th on a comparatively light snow cover in the Coastal Range produced moderately heavy flooding in Marys River, the Luckiamute, South Yamhill, and Tualatin Rivers in Oregon and moderate flooding in the lower Santiam. There was also moderate flooding on the Santiam the latter part of the month. Moderate rises were observed in the upper reaches of the Willamette Basin and in its Cascade tributaries, resulting in moderate to substantial rises along the main stem of the Willamette above Albany, Oreg., with light flooding at Oregon City. Additional heavy rain (2 to 3 inches) on the 26th caused local light flooding on the Pudding, Tualatin, and Willamette Rivers. Minor flooding occurred in eastern Washington on Wilson Creek at Wilson Creek and Wilbur, Wash., between the 9th and 11th. In the Hartline-Almira, Wash., area, fields were badly eroded, and numerous county roads damaged. All of eastern Washington had unusually heavy runoff and many U. S. Geological Survey gaging stations reported peak flows as highest in the last 40 years.

GRAYS HARBOR AND PUGET SOUND DRAINAGE

Heavy rains from the 22d to the 24th caused 1-foot overflows in the southern streams and overflows up to 5 feet in the central streams. This was the 4th or 5th time this season that these areas have been flooded. Little or no damage resulted from the overflows. One person drowned as the car stalled on a flooded road near the Snohomish River between Snohomish and Lowell, Wash.

FLOOD STAGE DATA

(All dates in January unless otherwise specified)

January 1959

River and station	Flood stage	Above flood stages -dates		Crest *	
		From–	To–	Stage	Date
	Ft.			Ft.	
ST. LAWRENCE DRAINAGE					
Lake Erie					
St. Marys: Decatur, Ind.	15	22	27	18.5	26
Maumee: Defiance, Ohio	10	24	24	11.0	24
Sandusky: Upper Sandusky, Ohio	13	21	24	18.7	22
Tiffin, Ohio	7	21	25	9.7	23
Fremont, Ohio	10	21	26	17.2	24
Lake Ontario					
Canaseraga Creek: Groveland, N.Y.	11	21 30	23 30	14.05 12.5	22 30
Honeoye Creek: Honeoye Falls, N.Y.	5	22	22	5.4	22
Black Breek: Churchville, N. Y.	5	22	24	5.0 5.4	22 23
Oatka Creek: Garbutt, N. Y.	5	23	24	5.1	23
Genesee: Wellsville, N. Y.	10	22	22	14.7	22
Scio, N. Y.	8	22	22	10.6	22
Portageville, N. Y.	19	22	22	21.9	22
ATLANTIC SLOPE DRAINAGE					
Housatonic: Gaylordsville, Conn.	8	22	22	8.4	22
Hoosic: Eagle Bridge, N. Y.	10	21	22	19.9	22
Mohawk: Schenectady, N. Y.	10	21	21	15.0	21
Lackawaxen: Hawley, Pa.	9	22	22	10.6	22
Tioughnioga: Whitney Point, N. Y.	12	22	31	16.7	23
Chenango: Sherburne, N. Y.	8	22	29	E 9.4	22
Greene, N. Y.	13	22	23	E14.5	22
Chenango Forks, N. Y.		22	23	E10.0	22
Tioga: Lindley, N. Y.	17	22	22	E17.35	22
Chemung: Elmira, N. Y.	16	22	22	E19.85	22
Chemung, N. Y.	12	21	22	18.0	22
West Branch: Williamsport, Pa.	20	22	23	22.9	22
Susquehanna: Unadilla, N. Y.	11	22	23	E13.4	22
Rockdale, N. Y.	11	23	23	E11.15	23
Bainbridge, N. Y.	13	22	24	17.9	23
Conklin, N. Y.	11	22	24	E14.4	22
Vestal, N. Y.	18	22	24	E20.5	22
Towanda, Pa.	16	22	23	19.6	23
EAST GULF OF MEXICO DRAINAGE					
Tombigbee: Fulton, Miss.	16	24	24	16.2	24
Macon, Miss.	20	22	23	21.3	22
Lock 3, Whitfield, Ala.	33	23	29	44.8	27
Lock 2, Pennington, Ala.	46	27	27	46.5	27
Lock 1, Jackson, Ala.	31	28	29	31.5	29
Pearl: Jackson, Miss.	18	23	29	18.9	29
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Sangamon: Riverton, Ill.	13	[illegible] 31	28 1/	13.5 13.8	28 31
Big Muddy: Murphysboro, Ill.	16	22	1/	19.0	26
Ohio Basin					
French Creek: Meadville, Pa.	57	21	26	62.5	23
Allegheny: Olean, N. Y.	10	21	25	16.0	22
Salamanca, N. Y.	1370	21	24	1372.1	22
Warren, Pa.	14	22	23	16.5	22
West Hickory, Pa.	14	22	24	17.8	22
Oil City, Pa.	21	22	22	21.9	22
Franklin, Pa.	17	21	23	21.9 20.0	21 22
Parker, Pa.	20	21	23	30.3	21
Lock 7, Kittanning, Pa.	23	21	23	26.4	22

River and station	Flood stage	Above flood stages -dates		Crest *	
		From–	To–	Stage	Date
	Ft			Ft	
MISSISSIPPI SYSTEM (Cont'd.) Ohio Basin (Cont'd.)					
Allegheny (Cont'd.): Lock 5, Freeport, Pa.	21	22	24	26.1	22
Lock 4, Natrona, Pa.	20	22	23	25.8	22
Lock 3, Acmetonia, Pa.	20	22	24	23.5	22
Cheat: Parsons, W. Va.	11	21	22	11.5	22
Monongahela Lock 2, Braddock, Pa.	26	22	23	26.1	22
Shenango: Sharpsville, Pa.	10	21	24	15.7	22
Sharon, Pa.	13	21	23	18.0	22
New Castle, Pa.	18	22	23	20.6	22
Muskingum: Zanesville, Ohio	25	22	23	30.7	22
McConnellsville, Ohio	11	22	23	14.4	22
Hocking: Enterprise, Ohio	12	21	23	15.9	22
Athens, Ohio	17	21	24	19.2	23
Olentangy: Delaware, Ohio	9	21	21	10.2	21
Columbus, Ohio		21	21		
Paint Creek: Bourneville, Ohio	10	21	24	16.7 16.7	22 23
Scioto: La Rue, Ohio	11	22	26	E17.0	
Prospect, Ohio	10	22	26	17.6	23
Circleville, Ohio	14	22	25	27.0	22
Chillicothe, Ohio	16	23	25	32.5	23
Piketon, Ohio	16	22	27	32.6	24
East Fork Little Miami: Perintown, Ohio		21	22	21.25	21
Little Miami: Milford, Ohio	12	21	23	22.9	22
Kings Mills, Ohio	17	21	23	30.0	22
Licking: Falmouth, Ky.	28	21	22	29.9	22
Whitewater: Brookville, Ind.	20	21	22	27.8	21
Miami: Hamilton, Ohio	17	21	22	21.85	21
Miamitown, Ohio	16	21	25	31.4 24.8	22 23
Rolling Fork: Boston, Ky.	40	22	25	43.9	23
Brashears Creek: Taylorsville, Ky.	20	21	22	29.0	21-22
Big Indian Creek Corydon, nr., Ky.				24.0	21
Green: Mundfordville, Ky.	28	22	24	31.3	23
Lock 6, Brownsville, Ky.	28	22	25	33.4	24
Lock 4, Woodbury, Ky.	33	22	27	39.2	24
Lock 2, Calhoun, Ky.	23	23	1/	27.9	29
Mississinewa: Marion, Ind.	10	22	23	12.35	23
Eel: Bowling Green, Ind.	17	22	24	24.1	22
East Fork: Columbus, Ind.	10	22	24	13.4	22
Seymour, Ind.	14	22	26	19.4	22
Bedford, Ind.	20	22	30	32.8	25
Williams, Ind.	10	22	30	21.0	26
Shoals, Ind.	25	24	30	32.0	27
White: Muncie, Ind.	6	21	24	11.0	22
Anderson, Ind.	10	21	24	18.9	22
Noblesville, Ind.	14	22	24	16.85	23
Indianapolis, Ind.	6	22	24	8.9	24
Spencer, Ind.	14	22	27	21.1	23
Elliston, Ind.	18	22	28	25.6	25
Newberry, Ind.	18	25	27	20.1	25
Edwardsport, Ind.	15	22	30	22.2	26
Petersburg, Ind.	16	22	1/	25.0	28
Hazleton, Ind.	16	22	1/	26.6	29
Skillet Fork: Wayne City, Ill.	16	21	26	18.4	23
Wabash: Bluffton, Ind.	10	24	27	13.35	24

FLOOD STAGE DATA

(All dates in January unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
Wabash (Cont'd.): Wabash, Ind.	12	22	27	15.95	25
Lafayette, Ind.	11	22	1/	18.4	25
Covington, Ind.	16	24	1/	20.5	27
Montezuma, Ind.	14	22	1/	21.7	28
Terre Haute, Ind.	14	29	1/	14.3	30-31
Mt. Carmel, Ill.	17	24	1/	23.0	30
New Harmony, Ind.	15	27	1/		
Cumberland: Baxter, Ky.	16	21	22	19.7	22
Barbourville, Ky.	27	22	24	35.5	23
Williamsburg, Ky.	21	22	25	24.2	23
South Chickamauga Creek: Chickamauga, Tenn.	10	21	23	11.95	22
Tennessee: Whitesburg, Tenn.	560	23	25	561.3	
Ohio: Pittsburgh, Pa.	25	22	24	29.2	22
Dashields Dam, Pa.	26	22	23	30.2	22
Montgomery Dam, Pa.	32	22	24	41.0	23
Dam 7, Midland, Pa.	30	22	24	41.7	23
Dam 8, Newell, W. Va.	32	22	24	40.6	23
Dam 9, New Cumberland, W.Va.	34	22	24	39.9	23
Dam 10, Steubenville, Ohio	33	22	24	41.0	23
Dam 11, Wellsburg, W. Va.	32	22	25	41.1	23
Dam 12, Wheeling, W. Va.	36	22	24	43.3	23
Dam 15, Duffy, Ohio	37	23	25	42.5	24
Marietta, Ohio	35	23	25	41.4	24
Parkersburg, W. Va.	36	23	25	40.4	24
Dam 22, Ravenswood, W. Va.	44	24	25	46.3	24
Pomeroy, Ohio	46	24	25	47.7	25
Point Pleasant, W. Va.	40	23	26	43.9	25
Dam 29, Ashland, Ky.	51	24	27	53.4	25
Dam 30, Greenup, Ky.	52	24	27	55.2	25
Portsmouth, Ohio	50	24	27	54.4	25
Dam 32, Vanceburg, Ky.	53	25	27	55.1	25
Dam 33, Maysville, Ky.	50	24	28	54.8	26
Dam 34, Chilo, Ohio	49	25	28	52.0	26
Dam 35, New Richmond, Ohio	48	24	28	51.9	26
Dam 36, Brent, Ky.	52	24	28	55.8	26
Dam 37, Fernbank, Ohio	50	22	29	55.1	26
Dam 38, Grant, nr., Ky.	51	23	29	53.9	26
Madison, Ind.	46	25	27	46.4	26
Dam 41, Louisville, Ky. (U.G.)	28	23	29	30.6	27
Dam 41, Louisville, Ky. (L.G.)	55	23	29	57.4	27
Dam 43, Evans Landing, Ind.	57	24	29	59.0	27
Dam 44, Leavenworth, Ind.	53	22	31	58.9	27
Dam 45, Addison, Ky.	47	23	31	51.0	28
Tell City, Ind.	38	23	1/	44.2	28
Dam 46, Owensboro, Ky.	41	24	1/	42.9	27
Dam 47, Newburgh, Ind.	38	23	1/	45.1	28
Evansville, Ind.	42	26	1/	42.9	29
Dam 48, Cypress, Ind.	38	23	1/	44.8	29
Mt. Vernon, Ind.	35	24	1/	42.7	31
Dam 49, Uniontown, Ky.	37	24	1/		
Shawneetown, Ill.	33	23	1/		
Dam 50, Fords Ferry, Ky.	34	23	1/		
Dam 51, Golconda, Ill.	40	28	Feb. 6	42.9	Feb. 2
Dam 52, Brookport, Ill.	37	27	Feb. 6	38.4	Feb. 2
Dam 53, Grand Chain, Ill.	42	Feb. 3	Feb. 4	42.0	Feb. 3

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
White Basin					
White: Clarendon, Ark.	26	19	27	#26.6	21
St. Charles, Ark.	25	25	1/	#25.1	26
Red Basin					
Ouachita: Arkadelphia, Ark.	17	15	16	#24.0	15
Camden, Ark.	26	17	22	#33.1	20
PACIFIC SLOPE DRAINAGE					
Sacramento Basin					
Sacramento: Colusa Weir, Calif.	62	10 13 29	11 15 1/	62.9 64.0 62.5	10 13 30
Tisdale Weir, Calif.	45	10 29	15 1/	47.5 47.8 47.4	10 14 30
Miscellaneous Basins					
Eel: Fernbridge, Calif.	18	12	12	18.8	12
Smith: Dr. Fine Bridge, Calif.	30.5	12	12	30.7	12
Coquille: Coquille, Oreg.	22	12	12	23.7	12
Columbia Basin					
McKenzie: Leaburg, Oreg.	12	27	28	15.1	27
Coburg, Oreg.	11	28	28	11.4	28
Marys: Philomath, Oreg.	20	9 12	10 12	20.2 20.0	9 12
Santiam: Jefferson, Oreg.	13	11 27	13 28	16.9 17.0	12 27
South Yamhill: Whiteson, Oreg.	38	9	13	43.0	9
Pudding: Aurora, Oreg.	15	10 28	18	19.2 16.5	13 29
Tualatin: Dilley, Oreg.	12	9 28	13 28	13.4 12.15	9 27
Farmington, Oreg.	29	11	17	33.1	12
Willamette: Harrisburg, Oreg.	12	28	28	13.1	28
Oregon City, Oreg., Upper	12	13	14	12.8	13
Oregon City, Oreg., Lower	25	11 30	15 30	28.0 25.4	13 30
Grays Harbor					
Chehalis: Centralia, Wash.	63	25	25	64.0	25
Grand Mound, Wash.	14	25	25	14.2	25
Puget Sound					
Green: Auburn, Wash.	63	24	25	64.7	24
Snohomish: Snohomish, Wash.	23	23	27	27.8	25
Snoqualmie: Carnation, Wash.	51	23	26	56.0	24

* Provisional
E Estimated
1/ Continued at end of month

RAWINSONDE DATA

Average monthly values

ALBANY, N. Y. (1004 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	86	- 8.2	73	280	4.4
1,000	31	113			289	6.0
950	31	515	- 7.9	67	273	13.6
900	31	932	- 8.7	70	280	20.4
850	31	1,375	- 8.9	68	287	26.0
800	31	1,845	- 9.4	63	287	26.6
750	31	2,346	-10.9	60	278	30.6
700	31	2,872	-12.9	57	274	34.7
650	31	3,436	-15.4	52	274	39.6
600	31	4,036	-18.7	51	272	43.7
550	30	4,669	-22.9	44	272	48.9
500	30	5,364	-27.3	42	268	54.2
450	30	6,111	-31.8	39	270	56.3
400	30	6,941	-36.8		271	58.2
350	30	7,855	-42.4		275	63.5
300	30	8,884	-47.8		275	67.8
250	30	10,073	-52.8		276	65.6
200	30	11,507	-54.5		276	68.0
175	30	12,364	-53.4		275	70.9
150	29	13,366	-53.0		276	58.0
125	29	14,539	-54.5		278	56.3
100	29	15,962	-56.7		272	54.2
80	29	17,375	-57.6		270	50.3
60	28	19,186	-58.3		271	44.1
50	28	20,334	-58.1		268	42.9
40	27	21,741	-57.3		267	45.4
30	26	23,564	-55.5		267	46.6
25	22	24,740	-54.2		260	48.1
20	19	26,192	-52.6		258	55.1
15	15	28,100	-48.5		252	59.8
10	7	30,777	-46.2			

ALBUQUERQUE, N. MEX. (838 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,619	- 2.7	61	360	3.3
1,000	31	196				
950	31	611				
900	31	1,050				
850	31	1,508				
800	31	1,995	.9	45	316	6.8
750	31	2,512	- .7	41	299	12.8
700	31	3,062	- 3.1	41	295	19.4
650	31	3,644	- 6.0	37	290	23.3
600	31	4,269	- 9.3	34	285	25.4
550	31	4,933	-13.4	33	278	24.4
500	31	5,658	-18.3	35	277	20.9
450	31	6,435	-23.5		270	21.9
400	31	7,290	-29.3		280	20.5
350	31	8,230	-36.5		271	26.4
300	31	9,280	-44.5		267	30.8
250	31	10,480	-52.3			
200	31	11,903	-57.3			
175	31	12,745	-58.8			
150	31	13,711	-59.5			
125	31	14,845	-62.3			
100	30	16,217	-65.0			
80	29	17,577	-65.3			
60	27	19,341	-62.6			
50	26	20,469	-61.5			
40	25	21,861	-60.9			
30	24	23,661	-59.4			
25	20	24,802	-58.3			
20	15	26,218	-57.3			
15	10	28,059	-54.7			

AMARILLO, TEX. (891 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,095	- 3.9	76	253	4.6
1,000	31	179				
950	31	591				
900	31	1,024				
850	31	1,479	1.9	48	262	10.1
800	31	1,969	2.5	39	269	12.4
750	31	2,487	.9	34	276	16.3
700	31	3,041	- 2.0	33	277	19.6
650	31	3,622	- 5.2		278	23.5
600	31	4,252	- 9.0	31	279	27.3
550	31	4,911	-13.4		281	31.2
500	31	5,639	-18.3		283	34.7
450	31	6,406	-23.9		281	40.6
400	31	7,267	-30.2		279	45.8
350	31	8,203	-37.0		278	47.2
300	31	9,252	-44.7		278	54.0
250	31	10,451	-52.0		281	59.8
200	30	11,879	-57.0		275	62.9
175	30	12,724	-57.3		274	62.9
150	30	13,695	-58.7		274	61.7
125	29	14,836	-60.6		277	52.4
100	28	16,221	-63.6		280	43.9
80	28	17,587	-64.5		280	34.3
60	28	19,354	-62.9		279	23.1
50	28	20,481	-61.7		281	18.8
40	26	21,869	-60.9		282	17.0
30	24	23,666	-58.9		282	16.5
25	22	24,824	-57.7		283	20.0
20	20	26,235	-56.3		283	20.0
15	14	28,072	-55.2			

ANCHORAGE, ALASKA (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	30	-12.5	65	26	3.1
1,000	30	79			19	5.2
950	30	477	- 8.2	56	21	9.1
900	30	898	- 6.1	53	42	8.1
850	30	1,345	- 7.3	51	80	6.6
800	30	1,815	- 9.7	53	93	6.9
750	30	2,306	-12.5	56	100	7.5
700	30	2,835	-15.3	56	119	7.3
650	30	3,388	-18.3	56	113	5.4
600	30	3,985	-21.9	52	114	5.4
550	30	4,616	-26.2	49	82	4.6
500	30	5,303	-30.6	46	104	3.3
450	30	6,039	-35.5	46	180	2.5
400	30	6,856	-40.8		262	4.6
350	30	7,754	-45.9		320	6.6
300	30	8,769	-50.4		315	7.1
250	30	9,951	-52.6		315	6.0
200	30	11,398	-50.5		315	9.1
175	30	12,272	-49.6		296	9.9
150	30	13,282	-49.2		308	10.6
125	30	14,476	-49.8		278	12.2
100	30	15,933	-50.6		281	16.1
80	30	17,389	-50.9		291	18.8
60	30	19,260	-51.7		287	21.3
50	30	20,442	-52.0		292	21.3
40	30	21,887	-52.7		289	20.4
30	28	23,762	-53.3		292	24.8
25	25	24,909	-54.0		300	29.5
20	22	26,342	-54.2		301	33.6
15	14	28,217	-52.8			

ANNETTE, ALASKA (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	37	0.9	76	92	5.0
1,000	31	78			98	6.2
950	31	487	- 1.1	73	123	8.7
900	31	919	- 3.3	73	147	8.1
850	31	1,370	- 5.2	72	165	9.1
800	31	1,844	- 7.7	68	182	8.9
750	31	2,337	-10.4	61	204	7.3
700	31	2,873	-13.4	55	228	7.3
650	31	3,427	-16.8	52	235	10.1
600	31	4,031	-20.8	50	256	12.4
550	31	4,666	-24.9	52	266	16.7
500	31	5,357	-29.4	50	272	22.9
450	31	6,096	-34.3	48	253	24.4
400	31	6,919	-40.1	52	267	31.6
350	31	7,819	-46.0		273	33.4
300	31	8,832	-51.8			
250	31	10,006	-54.2			
200	31	11,444	-51.9			
175	31	12,312	-50.8			
150	30	13,316	-50.3			
125	29	14,509	-51.2			
100	26	15,944	-52.4			
80	24	17,374	-53.3			
60	24	19,226	-54.2			
50	23	20,400	-54.5			
40	22	21,812	-55.5			
30	19	23,619	-57.2			
25	16	24,761	-58.8			
20	9	26,190	-59.5			

ATHENS, GA. (991 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	246	1.3	82	302	3.8
1,000	31	174				
950	31	596	4.0	55	293	9.9
900	31	1,031	4.0	50	283	12.4
850	31	1,495	2.8	49	282	17.0
800	31	1,985	1.5	42	277	20.0
750	31	2,504	.0	42	276	24.6
700	31	3,054	- 2.5	41	273	26.8
650	31	3,637	- 5.7	38	270	29.5
600	31	4,263	- 9.1		273	36.1
550	31	4,930	-12.4		277	40.6
500	31	5,656	-16.9		275	46.6
450	31	6,437	-22.6		271	49.5
400	31	7,295	-28.5	39	273	54.2
350	31	8,239	-35.2			
300	31	9,296	-43.1			
250	31	10,502	-53.3			
200	30	11,943	-56.6			
175	30	12,788	-57.7			
150	30	13,757	-59.8			
125	29	14,885	-62.9			
100	29	16,250	-66.1			
80	29	17,603	-66.2			
60	29	19,356	-64.1			
50	29	20,479	-62.0			
40	28	21,866	-60.0			
30	27	23,679	-56.6			
25	27	24,841	-54.6			
20	23	26,279	-51.7			
15	9	28,088	-50.4			

BARROW, ALASKA (1030 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	-27.8	59	86	3.8
1,000	31	225	-22.1	67	101	9.5
950	31	615	-15.3	58	100	11.6
900	31	1,018	-13.5	45	95	10.8
850	31	1,453	-13.4	37	94	10.2
800	31	1,914	-14.6	36	87	9.1
750	31	2,399	-16.5	33	77	8.7
700	31	2,919	-18.6		69	8.5
650	31	3,466	-21.5	34	58	8.1
600	31	4,055	-25.0		48	9.5
550	31	4,682	-28.7		33	10.4
500	31	5,361	-32.9		30	12.4
450	31	6,090	-38.0		14	8.9
400	31	6,899	-43.4		20	10.6
350	31	7,786	-49.4		14	10.1
300	31	8,784	-55.3		350	10.6
250	31	9,936	-59.0		311	9.9
200	31	11,339	-57.0		292	14.3
175	31	12,187	-55.8		281	18.0
150	31	13,171	-54.9		287	22.3
125	31	14,336	-55.2		289	24.6
100	31	15,760	-55.5		289	28.9
80	30	17,168	-56.4		287	35.1
60	26	18,990	-57.3		290	52.0
50	26	20,140	-58.3		290	58.2
40	22	21,549	-58.6		289	64.7
30	14	23,386	-58.5			
25	6	24,296	-60.1			

BARTER IS., ALASKA (1029 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	-27.5	61	83	0.5
1,000	31	221	-23.4	63	92	3.6
950	31	607	-16.6	55	102	6.8
900	31	1,011	-14.8	46	98	7.1
850	31	1,444	-15.3	42	87	8.1
800	31	1,902	-16.2	43	78	7.7
750	31	2,386	-18.2	44	70	8.9
700	31	2,900	-20.3	41	57	10.1
650	31	3,445	-23.2	39	51	10.6
600	31	4,029	-26.7	40	43	11.2
550	31	4,648	-30.3	38	45	13.7
500	31	5,327	-34.5		45	14.5
450	31	6,050	-39.3		39	13.6
400	31	6,856	-44.3		32	16.1
350	31	7,742	-49.5		24	17.0
300	31	8,741	-54.2		18	16.5
250	31	9,904	-55.9		5	16.1
200	31	11,327	-54.6		338	17.6
175	31	12,184	-53.6		327	17.4
150	31	13,176	-53.6		314	21.1
125	31	14,348	-53.8		316	24.2
100	31	15,779	-55.0		310	30.8
80	31	17,202	-55.9		307	38.4
60	31	19,030	-57.0		306	47.9
50	31	20,182	-58.1		306	55.3
40	29	21,581	-58.7		306	63.7
30	26	23,419	-59.7		302	70.9
25	23	24,547	-60.7		300	74.8
20	12	25,939	-60.1			

BETHEL, ALASKA (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	-16.8	66	28	13.0
1,000	31	113			28	13.6
950	31	511	- 7.2	58	54	15.9
900	31	930	- 7.4	54	53	11.6
850	31	1,374	- 8.3	52	72	8.5
800	31	1,844	- 9.9	51	22	9.3
750	31	2,342	-11.9	47	15	10.6
700	31	2,866	-14.3	45	15	9.9
650	31	3,425	-17.0	42	10	10.2
600	31	4,022	-20.3	39	39	.9
550	31	4,658	-24.1	38	152	3.3
500	31	5,352	-28.6		166	2.9
450	31	6,091	-33.5		163	3.6
400	31	6,917	-39.3		283	5.8
350	31	7,819	-45.3		267	9.3
300	31	8,834	-51.5		279	8.7
250	31	10,004	-55.7		259	10.1
200	30	11,435	-52.3		236	8.1
175	30	12,303	-51.2		173	9.7
150	29	13,306	-50.1			
125	29	14,497	-50.0			
100	29	15,954	-50.3			
80	29	17,411	-50.4			
60	29	19,288	-50.7			
50	28	20,473	-51.0			
40	27	21,919	-51.3			
30	25	23,774	-51.9			
25	21	24,948	-51.8			
20	9	26,422	-49.8			

BISMARCK, N. DAK. (958 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	505	-17.8	71	337	2.3
1,000	31	184				
950	31	570	-17.3	68	321	4.6
900	31	980	-11.9	63	303	11.6
850	31	1,420	- 9.6	52	302	18.2
800	31	1,888	- 9.7	52	303	22.1
750	31	2,383	-11.2	53	307	25.2
700	31	2,912	-13.8	52	304	27.2
650	31	3,468	-16.7	50	299	30.6
600	31	4,069	-20.3	51	292	29.9
550	31	4,705	-24.0	50	289	34.0
500	31	5,399	-28.4	52	283	33.8
450	31	6,139	-33.3	50	285	40.6
400	31	6,965	-39.0		284	43.7
350	31	7,870	-45.1		279	42.3
300	31	8,886	-51.3			
250	31	10,058	-55.4			
200	31	11,479	-55.5			
175	31	12,332	-54.5			
150	31	13,322	-54.0			
125	31	14,492	-54.3			
100	31	15,919	-55.8			
80	31	17,335	-56.9			
60	31	19,150	-58.4			
50	30	20,295	-58.8			
40	30	21,692	-59.8			
30	27	23,488	-60.7			
25	27	24,620	-61.2			
20	24	25,997	-61.5			
15	16	27,823	-59.4			

BOISE, IDAHO (918 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	868	0.1	81	139	5.4
1,000	31	180				
950	31	593				
900	31	1,030	1.4	69	137	4.2
850	31	1,489	- .4	65	205	3.1
800	31	1,972	- 3.1	68	265	9.9
750	31	2,477	- 6.3	68	267	14.3
700	31	3,019	- 9.3	69	273	19.6
650	31	3,585	-12.2	65	280	22.3
600	31	4,198	-15.3	59	279	25.2
550	31	4,844	-19.2	56	283	26.8
500	31	5,555	-23.8	57	287	31.4
450	31	6,310	-28.8	57	285	34.9
400	31	7,151	-34.5	54	280	38.6
350	31	8,073	-40.9			
300	31	9,105	-48.5			
250	31	10,285	-55.6			
200	29	11,708	-57.8			
175	29	12,551	-57.2			
150	29	13,528	-56.8			
125	28	14,675	-57.8			
100	25	16,090	-59.5			
80	24	17,494	-59.8			
60	22	19,295	-60.4			
50	21	20,442	-60.2			
40	15	21,829	-60.0			
30	12	23,639	-59.3			
25	5	24,781	-60.1			
20						
15						
10						

BROWNSVILLE, TEX. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	11.1	91	328	2.5
1,000	31	160	12.8	84	40	2.5
950	31	591	13.1	79	126	5.6
900	31	1,047	12.0	72	162	8.5
850	31	1,525	10.3	64	188	8.7
800	31	2,029	8.8	57	210	9.9
750	31	2,560	7.0	48	230	12.4
700	31	3,127	4.5	40	246	14.1
650	31	3,723	.8	36	251	16.9
600	31	4,366	- 3.2	36	255	19.0
550	31	5,040	- 7.2	37	254	23.1
500	31	5,787	-11.7		262	23.1
450	30	6,578	-16.8		255	28.5
400	30	7,461	-23.0		257	32.6
350	30	8,426	-30.0		268	27.3
300	30	9,507	-38.1			
250	30	10,737	-47.4			
200	30	12,179	-56.9			
175	30	13,018	-59.9			
150	30	13,975	-62.9			
125	30	15,088	-66.7			
100	29	16,423	-71.5			
80	29	17,733	-73.2			
60	27	19,443	-67.3			
50	27	20,554	-63.7			
40	26	21,929	-60.8			
30	24	23,738	-57.5			
25	24	24,896	-55.5			
20	23	26,321	-54.3			
15	19	28,165	-52.0			
10	6	30,783	-48.0			

BUFFALO, N. Y. (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	182	- 6.1	78	253	8.3
1,000	31	127			271	6.4
950	31	525	- 7.5	76	263	12.4
900	31	948	- 8.6	73	269	17.8
850	31	1,391	- 9.4	67	269	22.1
800	31	1,858	-11.1	69	273	25.2
750	31	2,356	-12.6	68	278	31.0
700	31	2,878	-14.2	64	278	33.0
650	31	3,439	-16.8	60	278	37.3
600	31	4,036	-20.0	55	278	41.5
550	31	4,675	-23.6	50	277	45.6
500	31	5,368	-27.3	46	279	51.8
450	31	6,119	-31.9		274	57.1
400	31	6,944	-37.3		267	59.4
350	31	7,856	-42.8		269	60.8
300	31	8,883	-48.4		269	58.6
250	31	10,071	-52.7		270	62.9
200	31	11,507	-53.6		279	61.7
175	31	12,368	-52.6		277	58.8
150	30	13,361	-53.1		277	58.2
125	30	14,533	-54.4		277	56.5
100	29	15,952	-56.4		276	54.0
80	28	17,363	-57.7		275	47.7
60	27	19,175	-58.8		274	44.4
50	27	20,318	-58.4		274	42.3
40	25	21,720	-58.3		272	41.7
30	22	23,545	-56.8		265	43.9
25	19	24,688	-56.5		266	47.9
20	15	26,117	-55.5		265	54.7

BURRWOOD, LA. (1021 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	3	10.1	92	40	6.4
1,000	31	172	11.3	80	44	7.1
950	31	601	10.4	70	127	2.1
900	31	1,050	9.5	58	256	3.1
850	31	1,525	8.5	49	275	8.9
800	31	2,025	6.8	43	266	12.2
750	31	2,555	4.9	42	264	15.1
700	31	3,115	2.5	39	262	20.5
650	31	3,711	- .8	39	261	24.8
600	31	4,346	- 4.6	36	259	29.5
550	31	5,023	- 8.4	35	267	34.9
500	31	5,761	-13.0		266	37.6
450	31	6,551	-18.3		262	42.9
400	31	7,427	-24.6		264	39.8
350	31	8,385	-32.0	38	261	41.7
300	30	9,453	-40.3		268	42.7
250	30	10,673	-49.3			
200	30	12,106	-58.1			
175	30	12,943	-60.3			
150	30	13,899	-62.3			
125	30	15,017	-65.5			
100	28	16,358	-69.4			
80	25	17,696	-70.4			
60	20	19,429	-66.0			
50	16	20,545	-62.3			
40	16	21,933	-58.8			
30	15	23,756	-55.7			
25	15	24,923	-53.2			
20	12	26,374	-51.5			
15	10	28,230	-49.9			

CAPE HATTERAS, N. C. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	5.2	75	316	5.6
1,000	31	154	5.8	66	299	8.1
950	31	569	4.8	59	273	13.4
900	31	1,014	3.3	55	270	17.0
850	31	1,476	1.6	51	274	19.8
800	31	1,963	.1	46	273	24.0
750	31	2,477	- 1.3	43	271	27.3
700	31	3,027	- 3.5	42	268	33.2
650	31	3,603	- 6.2	37	267	36.9
600	31	4,232	- 9.5	36	267	40.0
550	31	4,892	-13.3		267	45.6
500	31	5,619	-17.5	34	268	52.2
450	31	6,394	-22.8	37	268	56.3
400	31	7,253	-28.9	39	269	61.2
350	31	8,196	-35.7	41	268	65.6
300	31	9,251	-43.4		269	71.5
250	31	10,458	-50.8		269	81.8
200	31	11,892	-55.9		268	87.0
175	31	12,743	-56.2		267	86.8
150	31	13,719	-57.9		267	80.4
125	31	14,862	-60.7		266	72.6
100	31	16,241	-63.4		267	61.0
80	30	17,615	-64.0		267	47.4
60	29	19,387	-62.2		268	36.1
50	29	20,520	-60.0		273	30.5
40	26	21,916	-58.1		270	26.4
30	23	23,741	-55.1		267	32.4
25	18	24,908	-53.0		260	29.7
20	7	26,320	-50.6			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

JANUARY 1959

CARIBOU, ME. (985 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	191	-13.4	68	252	4.6
1,000	31	71				
950	31	464	-12.4	69	273	10.2
900	31	876	-12.8	68	285	13.9
850	31	1,312	-12.9	67	290	17.0
800	31	1,774	-13.6	63	290	18.2
750	31	2,265	-14.9	62	287	20.2
700	31	2,784	-16.9	58	285	23.5
650	31	3,337	-19.3	56	281	25.8
600	31	3,930	-22.4	54	281	28.9
550	31	4,560	-26.2	52	277	33.4
500	31	5,249	-30.1	49	277	35.7
450	31	5,988	-34.9		274	40.0
400	31	6,806	-40.3		273	44.6
350	31	7,706	-46.0		272	48.1
300	31	8,721	-50.3		273	52.0
250	31	9,903	-52.8		271	54.5
200	31	11,345	-52.0		273	51.6
175	30	12,207	-52.1		274	49.7
150	30	13,203	-49.3		273	48.7
125	30	14,377	-53.6		272	44.8
100	30	15,808	-55.2		269	43.1
80	30	17,228	-56.6		269	47.6
60	30	19,052	-57.3		267	47.2
50	30	20,204	-57.6		267	51.1
40	28	21,619	-57.3		263	49.3
30	25	23,436	-57.0		260	52.8
25	23	24,582	-57.6		258	55.1
20	21	26,001	-55.4		252	59.4
15	13	27,880	-52.7		250	74.9

CHARLESTON, S. C. (1020 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	13	4.0	87	291	2.3
1,000	31	175	7.1	71	304	4.8
950	31	597	7.2	63	277	8.7
900	31	1,042	5.7	60	272	13.6
850	31	1,509	4.3	56	258	14.7
800	31	2,002	3.1	48	261	21.5
750	31	2,523	1.3	44	262	26.4
700	31	3,077	-1.1	41	263	31.2
650	31	3,664	-3.9	39	263	37.6
600	31	4,294	-7.1		262	41.7
550	31	4,963	-11.1		263	48.1
500	31	5,694	-15.8	34	259	54.7
450	31	6,473	-21.2	36	260	62.3
400	30	7,337	-27.2	39	259	67.4
350	30	8,286	-34.0		261	74.6
300	30	9,349	-41.8		263	81.9
250	30	10,563	-49.9		262	97.5
200	30	11,998	-56.6		259	95.5
175	30	12,842	-58.3		262	92.6
150	30	13,810	-59.8		263	83.3
125	30	14,943	-62.5		263	69.5
100	30	16,310	-65.7		262	63.1
80	30	17,661	-66.5		264	49.5
60	30	19,414	-63.3		266	32.4
50	30	20,541	-61.1		268	34.7
40	30	21,935	-58.4		264	24.0
30	29	23,759	-55.3		268	30.5
25	27	24,924	-52.7		259	29.5
20	20	26,376	-50.4		260	32.4
15	6	28,224	-50.0			

COLD BAY, ALASKA (1004 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	27	-1.8	84	344	5.4
1,000	31	57			347	10.6
950	31	467	-3.7	78	25	9.3
900	31	890	-5.8	75	34	8.5
850	31	1,337	-6.8	67	35	10.4
800	31	1,809	-8.7	58	113	11.2
750	31	2,309	-10.4	50	120	12.4
700	31	2,838	-12.4	43	113	11.0
650	31	3,400	-15.2	36	130	10.1
600	31	4,002	-18.5	35	139	9.1
550	31	4,644	-22.3	36	149	11.2
500	31	5,341	-26.4	37	146	9.7
450	31	6,089	-31.8		171	8.3
400	31	6,918	-37.5		182	12.4
350	31	7,827	-43.7		174	11.0
300	31	8,848	-50.2		197	16.5
250	31	10,025	-55.0		192	14.5
200	31	11,454	-52.5		185	14.9
175	30	12,314	-50.6		193	14.7
150	30	13,322	-49.2		189	11.8
125	30	14,517	-49.6		204	13.2
100	30	15,980	-49.0		199	10.4
80	28	17,453	-49.9		205	10.1
60	26	19,327	-50.0		198	11.0
50	26	20,519	-50.0		217	4.4
40	25	21,983	-50.6		227	3.4
30	19	23,874	-50.3		73	3.8
25	15	25,073	-50.0			
20	5	26,436	-50.6			

COLUMBIA, MO. (992 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	238	-6.1	80	297	1.1
1,000	31	173				
950	31	574	-5.1	72	277	8.5
900	31	1,001	-4.5	68	283	13.4
850	31	1,453	-3.5	61	288	15.3
800	31	1,933	-3.4	53	283	17.2
750	31	2,439	-4.9	48	282	22.3
700	31	2,983	-7.2	44	282	28.1
650	31	3,551	-10.2	43	283	32.2
600	31	4,171	-13.7	39	280	37.3
550	31	4,820	-17.6	37	278	40.8
500	31	5,535	-22.2		278	46.4
450	31	6,294	-27.4		278	49.9
400	31	7,141	-33.6		277	54.0
350	31	8,066	-40.0		275	56.7
300	31	9,102	-47.1		273	65.6
250	31	10,292	-53.2		269	73.8
200	31	11,722	-54.6		271	72.4
175	31	12,575	-55.2		272	69.9
150	31	13,560	-55.2		272	63.7
125	31	14,720	-57.0		274	58.6
100	30	16,124	-59.3		275	48.9
80	30	17,519	-60.5		276	39.4
60	30	19,311	-60.7		279	32.2
50	28	20,452	-60.5		281	28.9
40	26	21,849	-59.4		283	24.6
30	24	23,658	-58.7		286	24.0
25	22	24,806	-57.9		284	23.5
20	17	26,202	-57.5		283	31.2
15	6	28,007	-56.8			

DAYTON, OHIO (982 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	297	-5.6	73	259	4.8
1,000	31	156				
950	31	554	-5.4	71	261	9.9
900	31	983	-5.8	68	268	16.9
850	31	1,431	-6.2	66	269	22.1
800	31	1,905	-7.1	63	271	26.4
750	31	2,404	-8.4	57	274	30.5
700	31	2,942	-10.1	53	274	34.9
650	31	3,504	-12.7	48	275	40.0
600	31	4,118	-15.6	45	275	46.0
550	30	4,761	-19.6	42	276	49.3
500	30	5,470	-23.9		275	54.4
450	30	6,220	-29.0		273	62.9
400	30	7,065	-34.9		272	68.1
350	30	7,985	-41.0		272	70.5
300	30	9,018	-47.9		271	80.2
250	30	10,205	-53.5		273	85.8
200	30	11,633	-54.9		273	79.4
175	30	12,487	-54.7		271	74.8
150	30	13,473	-55.2		272	68.7
125	30	14,633	-56.8		275	62.3
100	27	16,036	-59.4		274	54.5
80	26	17,432	-60.0		272	47.9
60	26	19,227	-60.4		277	39.8
50	24	20,357	-60.7		277	38.4
40	21	21,754	-59.7		278	35.5
30	17	23,576	-57.2		273	36.3
25	12	24,732	-54.9			
20	5	26,188	-52.4			

DENVER, COLO (836 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,611	-5.7	68	208	3.1
1,000	31	181				
950	31	590				
900	31	1,022				
850	31	1,476				
800	31	1,959	-.2	49	303	5.6
750	31	2,474	-2.2	46	312	9.3
700	31	3,019	-5.4	46	303	11.2
650	31	3,595	-8.7	47	303	18.2
600	31	4,214	-13.0	49	300	25.6
550	31	4,867	-17.4	46	299	28.1
500	31	5,580	-22.3	45	297	30.1
450	31	6,340	-27.8	43	296	33.4
400	31	7,184	-33.6		295	38.6
350	31	8,107	-40.3		296	43.1
300	31	9,144	-47.1		295	49.5
250	31	10,333	-53.5		286	52.8
200	31	11,758	-56.2		285	54.5
175	31	12,609	-55.5		282	56.7
150	31	13,591	-56.2		282	56.3
125	31	14,746	-57.8		283	50.5
100	31	16,146	-59.9		283	42.5
80	31	17,534	-61.4		282	35.5
60	31	19,324	-60.4		287	25.2
50	31	20,461	-60.4		296	20.0
40	29	21,862	-59.6		296	20.2
30	27	23,665	-59.3		298	22.9
25	26	24,796	-59.1		293	27.0
20	19	26,171	-58.2		287	36.9
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DODGE CITY, KANS. (926 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	792	-6.4	85	292	3.3
1,000	31	181				
950	31	589				
900	31	1,013	-1.7	63	302	4.0
850	31	1,471	1.1	43	308	5.0
800	31	1,958	.5	38	279	7.5
750	31	2,472	-1.9	36	284	10.1
700	31	3,020	-4.8	37	286	15.1
650	31	3,597	-8.1	38	281	19.8
600	31	4,217	-11.9	37	278	24.8
550	31	4,875	-16.0	35	277	27.0
500	31	5,591	-20.7		275	29.1
450	31	6,354	-26.3		280	28.3
400	31	7,203	-32.9		271	37.4
350	31	8,130	-39.3		268	38.0
300	31	9,171	-46.2		274	39.4
250	31	10,363	-53.3		275	47.7
200	31	11,789	-55.4		280	54.0
175	30	12,646	-55.6			
150	30	13,628	-56.1			
125	30	14,782	-58.3			
100	30	16,178	-61.1			
80	28	17,568	-61.8			
60	25	19,354	-61.1			
50	24	20,491	-60.4			
40	23	21,880	-60.4			
30	22	23,685	-58.6			
25	20	24,831	-57.5			
20	16	26,268	-54.7			
15	8	28,126	-53.3			

EL PASO, TEX. (882 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,197	2.9	57	12	3.8
1,000	31	164				
950	31	585				
900	31	1,035				
850	31	1,504	8.8	36	299	2.7
800	31	2,003	6.6	35	268	9.5
750	31	2,526	3.7	37	274	16.9
700	31	3,089	1.1	31	273	19.8
650	31	3,679	-2.0		275	18.8
600	31	4,314	-5.6		273	23.5
550	31	4,986	-9.9		276	23.5
500	31	5,722	-14.7		279	26.8
450	31	6,504	-20.6	32	273	30.1
400	31	7,373	-26.9		278	31.2
350	31	8,323	-33.9		280	32.2
300	31	9,385	-41.8		266	31.6
250	31	10,597	-50.6			
200	31	12,026	-58.0			
175	31	12,864	-59.6			
150	31	13,826	-60.9			
125	31	14,954	-63.3			
100	31	16,315	-67.0			
80	31	17,659	-67.6			
60	31	19,405	-64.2			
50	31	20,528	-62.3			
40	28	21,907	-61.2			
30	26	23,701	-59.3			
25	26	24,847	-57.9			
20	24	26,255	-56.5			
15	20	28,106	-53.3			

ELY, NEV. (809 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,908	-5.7	75	192	8.1
1,000	31	215				
950	31	628				
900	31	1,066				
850	31	1,518				
800	31	1,997	-1.7	66	207	6.6
750	31	2,512	-2.6	57	247	4.4
700	31	3,054	-5.6	56	292	12.8
650	31	3,635	-8.0	48	295	21.7
600	31	4,250	-11.1	45	299	26.4
550	31	4,908	-15.1	42	294	28.3
500	31	5,628	-19.9	45	280	25.2
450	31	6,396	-25.0	44	275	26.8
400	31	7,249	-30.7	40	275	28.3
350	31	8,184	-37.5		268	29.1
300	31	9,231	-45.3			
250	31	10,425	-53.3			
200	31	11,843	-58.5			
175	31	12,681	-58.9			
150	30	13,648	-58.0			
125	30	14,795	-59.4			
100	30	16,184	-61.5			
80	30	17,564	-62.5			
60	30	19,342	-61.1			
50	29	20,483	-60.7			
40	29	21,874	-59.8			
30	26	23,696	-59.1			
25	26	24,841	-58.4			
20	20	26,273	-57.1			
15	15	28,083	-56.5			

FAIRBANKS, ALASKA (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	135	-30.0	63	44	2.1
1,000	31	179			59	3.8
950	31	562	-17.8	51	83	10.8
900	31	963	-16.4	50	91	14.7
850	31	1,395	-15.1	49	83	13.2
800	31	1,854	-14.0	49	77	13.4
750	31	2,341	-15.1	43	70	10.4
700	31	2,863	-17.7	43	56	9.9
650	31	3,409	-20.7	43	42	8.9
600	31	4,003	-23.9	37	358	4.2
550	31	4,628	-27.8	34	348	6.8
500	31	5,312	-32.5	34	347	6.4
450	31	6,042	-37.7		336	8.9
400	31	6,851	-42.9		342	8.9
350	31	7,741	-48.1		339	8.7
300	31	8,746	-52.6		323	13.4
250	31	9,918	-54.0		288	9.5
200	31	11,360	-51.2		287	9.1
175	31	12,229	-51.2		294	11.6
150	30	13,221	-50.9		291	10.8
125	29	14,417	-51.0		282	16.1
100	29	15,868	-51.7		282	20.7
80	29	17,315	-52.2		286	23.5
60	28	19,170	-53.0		291	30.6
50	26	20,328	-54.0			
40	22	21,744	-55.3			
30	19	23,571	-56.8			
25	15	24,748	-58.2			
20	5	26,024	-61.7			

FLINT, MICH. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	234	-10.0	84	260	3.1
1,000	31	144				
950	31	543	-8.9	79	285	9.5
900	31	959	-9.5	74	288	13.9
850	31	1,401	-9.6	68	285	17.6
800	31	1,869	-10.3	63	284	20.5
750	31	2,367	-11.3	58	284	25.2
700	31	2,893	-13.2	53	282	28.5
650	31	3,455	-15.7	51	279	33.6
600	31	4,055	-18.9	49	280	37.3
550	31	4,696	-22.7	50	279	40.8
500	31	5,392	-26.9	49	278	45.2
450	31	6,139	-31.9	46	277	50.9
400	31	6,969	-37.6		276	56.7
350	31	7,878	-43.5		275	63.3
300	31	8,904	-48.5		273	69.3
250	31	10,089	-53.5		272	72.2
200	31	11,521	-54.3		275	71.5
175	29	12,376	-53.7		277	68.0
150	29	13,368	-53.4		279	63.1
125	29	14,538	-55.0		277	57.5
100	29	15,956	-57.3		278	51.8
80	29	17,364	-58.4		278	48.3
60	28	19,165	-59.1		276	43.7
50	28	20,307	-59.2		279	40.8
40	27	21,704	-59.0		274	41.9
30	22	23,511	-58.3		274	42.5
25	20	24,665	-57.5		272	50.7
20	16	26,058	-55.5		271	48.7
15	8	27,916	-50.8			
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FORT WORTH, TEX. (1000 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	180	2.6	79	286	1.5
1,000	31	179			348	.9
950	31	594	3.0	70	227	9.3
900	31	1,034	4.0	64	248	12.8
850	31	1,501	5.3	50	262	15.5
800	31	1,996	4.3	36	267	17.6
750	31	2,515	2.0	34	269	19.6
700	31	3,073	-.8	33	269	22.3
650	31	3,660	-3.5		268	26.8
600	31	4,291	-6.9		266	29.1
550	31	4,959	-11.0		266	33.6
500	31	5,691	-16.1		266	37.8
450	31	6,467	-21.7		267	42.5
400	31	7,334	-28.0		266	47.7
350	31	8,279	-35.1		266	54.7
300	31	9,338	-42.3		266	64.5
250	31	10,550	-50.2		266	76.1
200	31	11,986	-56.7		265	76.9
175	31	12,828	-57.5		265	70.7
150	31	13,798	-59.1		268	62.3
125	30	14,936	-62.1		269	55.7
100	30	16,304	-65.6		273	47.6
80	29	17,659	-66.1		273	34.1
60	29	19,412	-64.0		278	23.8
50	29	20,535	-62.3		281	18.4
40	28	21,923	-60.5		281	16.9
30	27	23,726	-58.7		269	19.6
25	27	24,877	-56.8		271	24.2
20	25	26,292	-55.2		270	24.6
15	17	28,117	-54.0		260	37.1
10	6	30,736	-47.9			

GLASGOW, MONT. (935 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	696	-15.4	84	2	2.5
1,000	31	184				
950	31	573				
900	31	987	-9.7	68	310	9.9
850	31	1,429	-8.7	61	310	16.5
800	31	1,899	-9.3	59	301	21.7
750	31	2,395	-11.6	58	299	25.6
700	31	2,923	-14.1	58	295	25.8
650	31	3,478	-17.1	57	292	29.1
600	31	4,079	-20.8	54	292	31.2
550	31	4,712	-24.7	47	294	32.4
500	31	5,405	-29.3	43	292	35.7
450	31	6,142	-34.2		288	37.6
400	31	6,965	-39.9		280	42.3
350	31	7,866	-45.7			
300	31	8,880	-51.5			
250	31	10,052	-55.5			
200	31	11,472	-55.5			
175	31	12,327	-53.9			
150	31	13,318	-53.8			
125	31	14,486	-55.1			
100	29	15,899	-55.9			
80	29	17,315	-56.7			
60	29	19,129	-58.5			
50	28	20,266	-58.9			
40	25	21,677	-60.1			
30	21	23,481	-61.3			
25	17	24,629	-62.6			
20	7	26,102	-58.5			

GRAND JUNCTION, COLO. (854 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,474	-4.5	74	120	1.9
1,000	31	215				
950	31	626				
900	31	1,060				
850	31	1,512			116	3.1
800	31	1,993	-2.6	54	158	5.0
750	31	2,503	-4.2	51	230	5.2
700	31	3,046	-7.0	52	276	10.8
650	31	3,618	-9.9	47	284	15.9
600	31	4,234	-13.6	41	288	21.5
550	31	4,889	-17.6	43	290	27.3
500	31	5,598	-21.9	43	297	30.6
450	31	6,360	-26.9	41	291	27.9
400	31	7,205	-32.8		298	25.2
350	31	8,132	-39.3		295	27.7
300	31	9,171	-46.9		306	29.7
250	31	10,360	-53.7		304	34.0
200	30	11,781	-57.2			
175	30	12,627	-56.6			
150	30	13,605	-56.9		280	41.3
125	29	14,749	-58.6			
100	29	16,142	-61.4			
80	29	17,522	-62.8			
60	29	19,306	-61.2			
50	29	20,442	-60.2			
40	29	21,834	-60.5			
30	28	23,638	-59.4			
25	28	24,783	-58.6			
20	23	26,174	-58.2			
15	11	28,019	-56.1			

GREAT FALLS, MONT. (886 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,123	-6.8	69	234	8.7
1,000	31	162				
950	31	566				
900	31	997				
850	31	1,444	-5.0	54	245	15.1
800	31	1,920	-6.8	57	269	17.8
750	31	2,419	-9.6	60	278	20.2
700	31	2,952	-12.6	60	283	23.8
650	31	3,511	-15.0	55	285	28.3
600	31	4,117	-18.5	50	289	30.5
550	31	4,755	-22.9	47	290	34.0
500	31	5,454	-27.6	49	292	37.4
450	31	6,198	-32.5	50	292	44.8
400	31	7,027	-37.8		290	53.0
350	31	7,935	-44.1		290	57.1
300	31	8,957	-50.2		292	63.1
250	31	10,133	-55.2		293	67.2
200	31	11,553	-55.8		288	51.6
175	31	12,405	-54.7		284	50.1
150	31	13,393	-54.1		282	49.3
125	31	14,564	-54.3		285	44.8
100	31	15,990	-55.9		290	38.8
80	31	17,406	-57.1		291	35.7
60	31	19,227	-57.3		298	33.6
50	30	20,370	-58.6		300	33.0
40	29	21,765	-59.3		306	37.3
30	24	23,584	-59.0		314	36.5
25	17	24,790	-59.2		318	34.7
20	10	26,161	-59.7			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

GREEN BAY, WIS (993 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	210	-14.3	80	312	5.6
1,000	31	157				
950	31	549	-12.7	70	319	9.3
900	31	961	-12.7	63	315	10.8
850	31	1,398	-11.5	54	306	14.1
800	31	1,863	-11.2	51	301	19.8
750	31	2,357	-12.6	51	296	22.7
700	31	2,883	-14.4	53	293	26.4
650	31	3,441	-17.0	51	289	30.1
600	31	4,040	-20.2	47	285	33.2
550	31	4,674	-24.0	47	275	33.4
500	31	5,370	-28.4	47	271	37.4
450	31	6,111	-33.4	48	264	40.0
400	31	6,936	-39.1		262	40.2
350	31	7,840	-44.6		272	43.9
300	31	8,858	-50.3			
250	31	10,038	-54.0			
200	31	11,469	-54.0			
175	30	12,332	-53.9			
150	30	13,323	-53.7			
125	30	14,494	-54.1			
100	30	15,919	-56.3			
80	30	17,330	-57.9			
60	30	19,139	-59.0			
50	30	20,281	-59.4			
40	25	21,661	-59.9			
30	22	23,454	-60.3			
25	17	24,570	-60.1			
20	11	26,003	-58.3			
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GREENSBORO, N. C. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	273	- 0.7	76	291	2.7
1,000	31	170				
950	31	583	1.7	57	276	10.8
900	31	1,019	.9	54	290	14.3
850	31	1,479	.8	45	294	16.5
800	31	1,964	- .9	45	[illegible]	21.7
750	31	2,479	- 2.5	45	270	26.0
700	31	3,024	- 4.6	43	266	30.5
650	31	3,604	- 7.4	44	263	33.6
600	31	4,225	-10.5	39	266	37.1
550	31	4,887	-14.3	36	265	41.3
500	31	5,607	-18.8	35	267	41.9
450	31	6,379	-24.0	39		
400	31	7,234	-30.2			
350	31	8,171	-37.0			
300	31	9,221	-44.6			
250	31	10,421	-51.9			
200	31	11,850	-56.2			
175	31	12,698	-56.5			
150	30	13,675	-57.6			
125	30	14,821	-60.0			
100	30	16,203	-63.2			
80	30	17,576	-63.3			
60	28	19,344	-62.4			
50	26	20,475	-60.8			
40	26	21,870	-58.6			
30	26	23,691	-56.0			
25	25	24,852	-54.1			
20	24	26,291	-51.6			
15	21	28,164	-50.0			
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HILO, T. H. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	20.1	86	229	3.3
1,000	31	118	21.5	81	235	3.1
950	31	558	19.4	81	141	4.2
900	31	1,027	16.5	83	145	6.6
850	31	1,512	13.7	84	174	7.3
800	31	2,022	11.5	74	199	9.3
750	31	2,561	10.4	49	211	9.3
700	31	3,134	7.5	42	226	10.1
650	31	3,736	4.6		240	8.5
600	31	4,389	1.2		255	10.2
550	31	5,076	- 3.0		261	13.0
500	31	5,833	- 7.8		262	19.0
450	31	6,637	-13.0		259	23.3
400	31	7,534	-18.8		270	26.6
350	31	8,516	-25.3		284	35.5
300	31	9,619	-32.6		278	36.3
250	31	10,880	-41.4		271	41.7
200	31	12,360	-52.1		272	43.7
175	31	13,212	-58.2		280	37.3
150	31	14,169	-64.4		283	30.3
125	31	15,266	-71.3		268	20.2
100	31	16,560	-78.2		282	12.6
80	30	17,828	-79.0		266	3.3
60	28	19,495	-71.0		120	7.7
50	28	20,592	-65.0		94	5.6
40	28	21,968	-60.4		88	7.3
30	28	23,780	-56.5		86	10.6
25	27	24,941	-54.8		78	9.1
20	20	26,361	-55.0		70	7.3
15	15	28,202	-53.0			
10	11	30,842	-49.2			

INTERNAT. FALLS, MINN. (975 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	360	-22.0	61	252	2.3
1,000	31	169				
950	31	549	-20.0	63	254	6.0
900	31	951	-17.5	64	280	11.2
850	31	1,380	-15.9	55	288	16.1
800	31	1,837	-15.6	49	291	18.8
750	31	2,322	-16.3	49	290	22.9
700	31	2,842	-18.0	50	290	26.6
650	31	3,393	-20.0	51	289	30.8
600	31	3,985	-22.8	49	288	34.0
550	31	4,612	-26.5	46	288	36.5
500	31	5,301	-30.9	45	289	40.9
450	31	6,038	-35.6	47	287	45.8
400	31	6,854	-41.0		286	51.2
350	31	7,751	-46.4		288	54.9
300	31	8,764	-51.1		290	57.5
250	30	9,940	-54.0		292	57.5
200	30	11,373	-53.4		290	55.3
175	30	12,234	-53.0		290	52.4
150	30	13,228	-52.7		290	48.9
125	30	14,404	-53.4		287	47.6
100	30	15,838	-54.7		288	47.9
80	30	17,261	-56.0		289	46.8
60	29	19,079	-58.0		289	44.1
50	29	20,225	-58.8		290	45.0
40	28	21,616	-60.4		287	46.4
30	22	23,407	-60.8		291	46.8
25	18	24,534	-61.4		290	48.5
20	10	26,004	-59.2			
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JACKSON, MISS (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	101	3.3	81	26	0.1
1,000	31	177			360	.3
950	31	600	5.7	60	[illegible]	6.4
900	31	1,040	5.6	54	251	10.1
850	31	1,506	4.5	49	263	13.6
800	31	1,999	2.7	48	270	17.8
750	31	2,520	1.4	[illegible]	274	21.5
700	31	3,074	- .6		270	25.2
650	[illegible]	3,662	- 3.4		[illegible]	29.1
600	31	4,292	- 7.1		270	32.4
550	31	4,963	-11.3		268	36.7
500	31	5,690	-16.4		269	41.7
450	31	6,471	-22.0		268	46.4
400	31	7,332	-27.4		266	55.9
350	31	8,280	-34.1		265	63.1
300	31	9,342	-41.8		265	70.5
250	31	10,554	-50.6		266	75.1
200	30	11,989	-56.7		270	69.3
175	30	12,832	-58.1		270	65.2
150	30	13,800	-59.8		270	60.8
125	29	14,923	-63.4		267	50.5
100	29	16,283	-67.0		268	52.8
80	28	17,626	-66.8		281	34.7
60	27	19,374	-63.7		272	25.2
50	25	20,498	-62.0		276	19 4
40	23	21,886	-59.4		273	19 2
30	23	23,702	-56.3		267	22.7
25	23	24,868	-53.9		272	23.8
20	18	26,326	-50.6		[illegible]	28.5
15	14	28,210	-47.9			
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JACKSONVILLE, FLA. (1021 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	7.5	87	315	3.1
1,000	31	181	10.1	72	304	3.3
950	31	606	9.4	69	264	4.4
900	31	1,055	7.7	65	261	9.1
850	31	1,526	6.9	54	273	13.2
800	31	2,024	5.6	47	274	18.2
750	31	2,548	4.0	39	272	22.9
700	31	3,109	1.3	39	270	27.3
650	31	3,698	- 1.7	37	267	33.4
600	31	4,335	- 5.1	35	266	37.8
550	31	5,007	- 9.1	35	268	42.1
500	31	5,746	-13.9	32	267	46.8
450	31	6,530	-19.0	34	266	51.4
400	31	7,405	-25.4	36	264	60.8
350	31	8,361	-32.4	37	264	68.7
300	31	9,430	-40.7		265	74.6
250	31	10,648	-49.7		268	80.0
200	31	12,081	-57.3		267	81.2
175	31	12,923	-59.0		265	84.9
150	31	13,885	-61.0		264	75.7
125	30	15,014	-65.1		266	64.8
100	30	16,360	-69.0		268	65.6
80	29	17,691	-69.5		269	44.6
60	28	19,424	-64.6		271	28.9
50	27	20,548	-61.7		270	19.6
40	26	21,942	-59.1		269	18.2
30	24	23,764	-54.8		273	12.4
25	24	24,938	-52.5		255	16.1
20	18	26,394	-51.5		256	17.4
15	6	28,336	-47.7			

KING SALMON, ALASKA (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	-12.3	72	32	8.7
1,000	31	67			15	10.8
950	31	468	- 8.0	62	51	12.4
900	31	886	- 6.9	60	44	12.4
850	31	1,333	- 6.6	56	38	9.7
800	31	1,805	- 8.6	51	42	7.1
750	31	2,304	-11.1	49	42	9.1
700	31	2,831	-14.0	47	45	9.1
650	31	3,386	-17.2	45	23	9.5
600	31	3,987	-20.4	44	30	11.0
550	31	4,621	-23.8	43	15	11.0
500	31	5,318	-28.2	42	1	12.4
450	31	6,061	-32.9		4	13.4
400	31	6,889	-38.1		360	15.5
350	31	7,796	-44.2		356	14.1
300	31	8,816	-50.5		336	10.6
250	31	9,994	-53.5		313	18.0
200	30	11,440	-50.3		303	10.8
175	30	12,315	-48.9		304	9.7
150	30	13,328	-48.6		287	9.9
125	29	14,524	-49.5		290	9.9
100	28	15,983	-50.0		271	12.2
80	27	17,446	-50.0		275	12.4
60	27	19,327	-50.3		273	14.5
50	26	20,517	-50.0		276	14.7
40	24	21,978	-51.0		290	11.6
30	17	23,838	-50.7		291	16.9
25	17	25,027	-50.8		298	21.9
20	14	26,498	-50.4			
15						

KOTZEBUE, ALASKA (1023 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	-20.0	66	73	9.1
1,000	31	179	-15.3	59	86	10.8
950	31	571	-12.1	51	93	11.4
900	31	984	-10.7	45	103	9.5
850	31	1,424	-10.8	45	97	6.2
800	31	1,890	-11.6	45	54	4.8
750	31	2,380	-13.4	43	29	5.0
700	31	2,906	-15.9	43	5	4.6
650	31	3,456	-19.1	41	358	6.0
600	31	4,054	-22.3	42	329	7.1
550	31	4,685	-26.2	42	326	7.9
500	31	5,372	-31.0	41	317	8.1
450	31	6,100	-36.0		301	11.2
400	31	6,921	-41.5		304	13.7
350	31	7,815	-47.7		292	13.0
300	31	8,820	-53.7		273	11.4
250	31	9,983	-56.4		261	13.0
200	31	11,404	-54.5		261	19.8
175	31	12,263	-52.8		264	20.9
150	31	13,260	-52.0		252	19.0
125	30	14,439	-52.3		251	23.1
100	29	15,891	-51.8		258	26.6
80	29	17,338	-52.0		261	26.6
60	28	19,196	-52.9		263	37.6
50	27	20,380	-53.8		270	38 8
40	27	21,813	-53.9		270	39.4
30	26	23,640	-55.0			
25	20	24,789	-55.1			
20	5	26,241	-53.1			
15						

LAKE CHARLES, LA. (1021 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	6.3	84	43	2.9
1,000	31	173	7.8	74	86	3.3
950	31	598	8.2	64	237	2.9
900	31	1,044	8.1	54	278	5.2
850	31	1,516	6.7	53	284	8.7
800	31	2,012	5.2	48	276	11.6
750	31	2,538	3.8	41	265	16.3
700	31	3,097	1.7		271	19.8
650	31	3,685	- 1.3	34	262	21.5
600	31	4,325	- 5.0		267	25.0
550	31	4,994	- 8.9		267	28.1
500	31	5,735	-13.8		265	35.5
450	31	6,516	-19.3		266	38.8
400	31	7,393	-25.7	40	265	42.5
350	31	8,348	-32.5	37	267	39.6
300	31	9,418	-40.4			
250	31	10,638	-49.5			
200	31	12,068	-58.2			
175	28	12,905	-60.3			
150	23	13,859	-60.8			
125	21	14,981	-64.0			
100	19	16,346	-68.7			
80	17	17,675	-69.0			
60	15	19,414	-65.8			
50	14	20,529	-63.8			
40	13	21,911	-61.6			
30	13	23,707	-58.8			
25	12	24,866	-56.1			
20	11	26,302	-53.3			
15	10	28,158	-51.8			

LANDER, WYO. (827 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,696	- 9.2	69	239	1.1
1,000	31	201				
950	31	603				
900	31	1,028				
850	31	1,481				
800	31	1,955	- 3.4	53	293	1.5
750	31	2,461	- 5.0	48	299	6.2
700	31	3,004	- 7.5	46	292	17.0
650	31	3,574	-11.0	45	293	23.1
600	31	4,189	-14.4	41	296	26.8
550	31	4,835	-18.6	40	295	29.3
500	31	5,548	-23.2	37	292	29.9
450	31	6,302	-28.3		279	31.2
400	31	7,146	-34.2		279	27.9
350	31	8,068	-40.9		273	29.5
300	31	9,100	-47.9		282	37.1
250	30	10,277	-54.6		286	39.0
200	30	11,698	-56.1		278	41.3
175	29	12;545	-55.3		278	44.1
150	28	13,525	-54.2		280	41.5
125	28	14,691	-55.6		280	36.5
100	28	16,107	-57.4			
80	27	17,524	-57.9			
60	26	19,335	-58.8			
50	26	20,482	-58.4			
40	26	21,885	-58.7			
30	25	23,690	-58.8			
25	23	24,842	-58.6			
20	20	26,249	-58.0			
15	9	28,123	-54.5			

LAS VEGAS, NEV. (942 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	660	3.9	51	315	2.5
1,000	31	172				
950	31	591				
900	31	1,038	8.1	34	6	4.6
850	31	1,508	6.3	33	350	5.2
800	31	2,003	4.2	34	312	6.8
750	31	2,525	1.9	33	294	9.7
700	31	3,081	- .7	32	294	12.6
650	31	3,660	- 3.9		296	16.5
600	31	4,297	- 7.4	29	293	21.9
550	31	4,962	-11.6	31	294	27.9
500	31	5,694	-16.5		294	31.0
450	31	6,470	-22.1	35	292	34.0
400	31	7,334	-28.6		289	36.7
350	31	8,278	-35.7		289	41.9
300	31	9,332	-43.8		288	47.4
250	31	10,534	-52.6		289	50.1
200	31	11,951	-59.2		286	52.4
175	30	12,788	-59.5		285	50.5
150	30	13,755	-59.2		284	48.1
125	30	14,893	-61.4		287	40.8
100	29	16,265	-63.9		286	34.3
80	29	17,628	-64.8		290	24.0
60	29	19,394	-62.5		302	16.7
50	27	20,523	-61.2		309	12.0
40	26	21,909	-60.2		328	7.5
30	20	23,703	-59.3		334	10.2
25	18	24,849	-58.4		334	11.8
20	13	26,238	-57.5		326	9.1
15	[illegible]	28,074	-54.6			

LITTLE ROCK, ARK (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	79	1.2	74	308	2.3
1,000	31	174			279	2.9
950	31	590	1.8	69	256	10.2
900	31	1,026	2.8	64	272	14.5
850	31	1,489	2.1	60	276	15.3
800	31	1,978	.7	53	286	17.2
750	31	2,498	- 1.1	46	275	22.3
700	31	3,045	- 2.6	35	274	26.0
650	31	3,629	- 5.6		279	31.4
600	31	4,254	- 9.1		278	27.5
550	31	4,919	-13.2		283	31.2
500	30	5,641	-18.1		273	38.6
450	30	6,413	-23.6		277	43.1
400	30	7,272	-30.0			
350	30	8,210	-37.0			
300	29	9,266	-44.0			
250	29	10,469	-51.8			
200	22	11,920	-56.1			
175	20	12,770	-56.9			
150	18	13,749	-58.9			
125	18	14,885	-62.1			
100	15	16,258	-65.4			
80	12	17,629	-67.1			
60	10	19,376	-64.6			
50	10	20,496	-61.8			
40	8	21,868	-60.6			
30	8	23,670	-58.1			
25	7	24,807	-57.0			
20	5	26,203	-56.5			
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McGRATH, ALASKA (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	103	-25.8	59	18	1.7
1,000	31	147			38	3.4
950	31	532	-17.0	57	53	11.0
900	31	938	-13.3	54	50	15.1
850	31	1,376	-11.0	53	46	14.5
800	31	1,842	-11.1	52	41	12.6
750	31	2,334	-13.2	51	37	11.4
700	31	2,859	-15.8	50	42	9.1
650	31	3,409	-19.0	49	46	8.7
600	31	4,006	-22.4	46	43	6.9
550	31	4,632	-26.2	42	43	4.8
500	31	5,324	-30.3	38	27	3.4
450	31	6,059	-35.4		357	3.4
400	31	6,878	-40.9		305	6.4
350	31	7,776	-46.1		284	10.6
300	31	8,789	-51.5		246	13.6
250	31	9,963	-54.2		261	9.3
200	31	11,402	-51.5		278	9.1
175	31	12,271	-50.8		288	12.0
150	31	13,275	-50.5		284	11.4
125	31	14,464	-50.6		262	15.1
100	31	15,917	-51.1		272	15.7
80	31	17,368	-51.3		251	20.4
60	30	19,236	-52.1		272	20.2
50	30	20,416	-52.7		277	21.1
40	30	21,857	-53.2		282	23.5
30	26	23,710	-53.4		290	35.3
25	17	24,852	-54.2			
20	9	26,175	-54.6			
15	5	28,103	-48.2			

MEDFORD, OREG. (971 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	401	3.3	90	169	2.5
1,000	31	163				
950	31	580	3.9	84	201	2.7
900	31	1,021	4.3	73	187	4.8
850	31	1,485	2.3	65	225	8.9
800	31	1,972	- .6	64	241	14.5
750	31	2,483	- 3.3	62	254	19.2
700	31	3,029	- 5.7	57	266	25.2
650	31	3,602	- 8.3	55	277	26.0
600	31	4,225	-11.7	56	285	28.3
550	31	4,882	-15.5	55	278	31.2
500	31	5,601	-20.1	56	279	34.5
450	31	6,367	-25.3	55		
400	31	7,221	-31.3	49		
350	31	8,153	-38.5			
300	31	9,195	-46.5			
250	31	10,385	-54.4			
200	31	11,801	-57.6			
175	31	12,645	-57.2			
150	31	13,620	-57.2			
125	31	14,771	-58.6			
100	31	16,169	-59.8			
80	31	17,566	-59.5			
60	31	19,364	-59.8			
50	30	20,501	-59.8			
40	29	21,893	-59.4			
30	28	23,697	-58.5			
25	18	24,873	-57.2			
20	9	26,310	-55.8			
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MIAMI, FLA. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	16.0	87	3	1.3
1,000	31	166	17.3	78	55	3.6
950	31	603	16.2	79	101	5.0
900	31	1,063	13.5	76	138	4.8
850	31	1,543	11.7	63	233	3.6
800	31	2,050	10.5	50	269	8.7
750	31	2,585	8.3	46	268	13.2
700	31	3,154	5.1	48	270	14.9
650	31	3,752	1.8	46	266	18.2
600	31	4,396	- 2.1	40	268	21.3
550	31	5,076	- 5.6		263	22.7
500	31	5,825	-10.3		264	25.6
450	31	6,619	-15.8		263	31.0
400	31	7,508	-22.4		267	34.5
350	31	8,475	-29.6		264	39.8
300	31	9,556	-37.8		265	41.7
250	31	10,788	-47.2		268	47.7
200	31	12,234	-56.4		260	45.8
175	31	13,075	-59.9		257	54.2
150	30	14,036	-63.3		254	50.7
125	30	15,146	-67.7		256	43.1
100	30	16,472	-73.1		259	29.5
80	30	17,771	-74.5		261	21.5
60	26	19,464	-68.5		273	11.0
50	26	20,572	-63.2		277	3.1
40	22	21,954	-59.6		256	2.9
30	21	23,776	-55.0			
25	20	24,950	-52.7			
20	19	26,397	-50.7			
15	17	28,274	-48.5			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

MIDLAND, TEX. (918 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	871	- 0.1	77	176	0.5
1,000--	31	179				
950----	31	596				
900----	31	1,031	3.8	62	198	2.1
850----	31	1,499	7.0	39	264	7.7
800----	31	1,998	6.3	36	269	13.2
750----	31	2,525	3.5	33	273	17.4
700----	31	3,082	.7	29	273	20.4
650----	31	3,674	- 2.4		274	20.5
600----	31	4,306	- 5.9		274	23.7
550----	31	4,977	-10.3		277	27.5
500----	31	5,709	-15.1		277	31.2
450----	31	6,490	-21.0		272	32.4
400----	31	7,357	-27.3		270	36.7
350----	31	8,305	-34.6		275	37.8
300----	31	9,365	-42.1		278	35.1
250----	31	10,578	-50.5			
200----	31	12,007	-57.8			
175----	31	12,847	-59.1			
150----	31	13,812	-60.3			
125----	31	14,942	-63.1			
100----	30	16,306	-66.9			
80-----	30	17,652	-67.2			
60-----	29	19,397	-64.4			
50-----	29	20,515	-63.0			
40-----	29	21,895	-61.0			
30-----	27	23,691	-58.7			
25-----	26	24,834	-57.7			
20-----	23	26,249	-55.5			
15-----	14	28,132	-52.1			
10-----						

MONTGOMERY, ALA. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	4.0	78	340	0.7
1,000--	31	180	5.8	68	337	.9
950----	31	602	6.3	62	272	5.6
900----	31	1,045	5.5	57	287	9.5
850----	31	1,511	4.2	52	284	12.6
800----	31	2,004	3.0	47	281	17.8
750----	31	2,528	1.6	41	278	23.5
700----	31	3,080	- .7		268	27.2
650----	31	3,666	- 3.4		269	31.8
600----	31	4,299	- 6.8		270	34.9
550----	31	4,966	-11.3		268	39.2
500----	31	5,699	-15.9		268	43.7
450----	31	6,478	-21.3		266	50.5
400----	31	7,346	-27.0	38	265	58.8
350----	30	8,296	-33.8	41	260	69.5
300----	30	9,359	-41.5		262	75.9
250----	30	10,574	-49.8		264	82.5
200----	29	12,011	-56.0		265	87.8
175----	29	12,855	-57.7		262	83.9
150----	29	13,824	-59.6		262	80.0
125----	29	14,955	-63.3		264	72.2
100----	28	16,314	-66.7		264	61.7
80-----	26	17,651	-67.2		266	51.2
60-----	24	19,397	-64.9		264	32.2
50-----	23	20,517	-62.2		266	26.6
40-----	23	21,902	-60.4		269	22.5
30-----	20	23,694	-57.9		265	25.8
25-----	19	24,845	-56.4		266	29.9
20-----	19	26,269	-53.6		263	34.9
15-----	15	28,141	-50.1		267	44.8
10-----	5	30,741	-47.6			

NANTUCKET, MASS. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	14	- 2.5	76	281	8.1
1,000--	29	116	- 2.1	69	298	9.9
950----	29	523	- 3.3	64	290	12.8
900----	29	951	- 4.2	60	274	16.3
850----	29	1,401	- 5.5	54	272	21.7
800----	29	1,876	- 6.4	50	271	28.7
750----	29	2,379	- 8.0	49	272	31.6
700----	29	2,913	-10.6	50	271	34.5
650----	29	3,480	-13.6	49	278	34.3
600----	29	4,086	-17.1	46	275	46.0
550----	29	4,731	-20.8	44		
500----	29	5,433	-25.2	42		
450----	29	6,183	-30.6	39		
400----	29	7,018	-36.2			
350----	29	7,933	-42.0			
300----	29	8,963	-47.9			
250----	29	10,152	-52.9			
200----	28	11,575	-54.3			
175----	28	12,432	-53.7			
150----	28	13,424	-53.8			
125----	28	14,588	-56.4			
100----	28	16,000	-57.9			
80-----	28	17,403	-58.9			
60-----	27	19,203	-58.5			
50-----	27	20,349	-58.4			
40-----	27	21,756	-57.0			
30-----	27	23,581	-56.0			
25-----	26	24,744	-54.9			
20-----	26	26,173	-54.1			
15-----	22	28,055	-51.9			
10-----	9	30,709	-48.9			

NASHVILLE, TENN. (1000 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	177	0.2	79	252	1.9
1,000--	31	174			299	3.1
950----	31	585	.6	64	267	10.1
900----	31	1,020	- .1	63	282	14.7
850----	31	1,478	- .7	63	285	20.4
800----	31	1,962	- 1.6	58	279	23.8
750----	31	2,474	- 3.6	54	287	25.4
700----	31	3,019	- 5.3	46	288	27.3
650----	31	3,595	- 7.8	42	278	29.1
600----	31	4,218	-10.8	39	274	33.6
550----	31	4,876	-14.6	34	280	38.8
500----	31	5,598	-19.5	34	279	42.1
450----	31	6,366	-24.8			
400----	31	7,221	-31.2			
350----	31	8,154	-37.8			
300----	31	9,200	-44.9			
250----	31	10,399	-52.5			
200----	28	11,824	-56.2			
175----	28	12,671	-56.8			
150----	26	13,653	-57.4			
125----	22	14,789	-60.0			
100----	17	16,177	-63.4			
80-----	16	17,542	-65.2			
60-----	12	19,302	-63.1			
50-----	11	20,418	-62.5			
40-----	11	21,798	-61.0			
30-----	10	23,589	-58.9			
25-----	9	24,732	-57.0			
20-----	7	26,119	-56.3			
15-----	6	27,944	-53.5			

N. Y. INT. AP, IDLEWILD (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	- 2.2	62	292	9.1
1,000--	31	125	- 3.3	58	294	12.4
950----	31	530	- 3.8	62	280	18.8
900----	31	957	- 4.8	62	282	22.5
850----	31	1,407	- 5.0	58	278	25.2
800----	31	1,883	- 6.4	53	277	29.1
750----	31	2,386	- 8.3	49	274	33.8
700----	31	2,919	-10.8	48	274	37.3
650----	31	3,485	-13.4	48	273	41.5
600----	31	4,092	-16.7	46	271	46.2
550----	31	4,737	-20.7	43	269	52.6
500----	31	5,441	-24.9	41	270	58.8
450----	31	6,195	-29.7	40	271	64.8
400----	31	7,031	-35.2		271	68.1
350----	31	7,950	-41.0		271	74.8
300----	31	8,984	-47.4		274	80.4
250----	31	10,174	-52.7		274	82.1
200----	31	11,604	-55.1		271	77.3
175----	31	12,459	-54.4		272	72.8
150----	31	13,447	-54.6		273	71.3
125----	31	14,609	-56.5		273	64.5
100----	31	16,017	-58.8		274	57.1
80-----	31	17,417	-59.5		276	48.9
60-----	30	19,223	-59.5		275	45.0
50-----	28	20,363	-59.3		275	40.8
40-----	27	21,765	-57.9		274	35.7
30-----	26	23,592	-56.2		274	34.0
25-----	24	24,765	-54.[illegible]		271	36.5
20-----	21	26,186	-53.2		270	38.8
15-----	14	28,095	-48.6			

NOME, ALASKA (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	-14.6	74	70	9.3
1,000--	31	153	-11.4	68	69	4.4
950----	31	546	- 9.4	57	57	4.6
900----	31	967	- 8.4	49	38	4.2
850----	31	1,411	- 9.0	48	42	5.2
800----	31	1,879	-10.1	47	35	6.8
750----	31	2,371	-12.1	46	12	7.7
700----	31	2,901	-14.7	46	8	10.1
650----	31	3,450	-18.0	46	360	5.4
600----	31	4,053	-21.3	45	333	5.2
550----	31	4,681	-24.9	43	319	6.6
500----	31	5,379	-29.2	40	315	8.7
450----	31	6,114	-34.4		302	10.8
400----	31	6,939	-40.4		279	13.2
350----	31	7,837	-46.6		265	16.1
300----	31	8,847	-52.5		255	18.8
250----	31	10,013	-56.3		255	7.9
200----	31	11,436	-53.9		246	10.4
175----	31	12,297	-52.1		230	10.8
150----	31	13,299	-51.0		244	14.5
125----	31	14,485	-51.1		231	13.7
100----	31	15,937	-51.2		246	19.0
80-----	31	17,389	-51.1		250	21.7
60-----	31	19,262	-51.5		261	27.0
50-----	30	20,439	-51.9		271	31.6
40-----	30	21,887	-52.2		270	38.2
30-----	29	23,749	-52.4		277	46.8
25-----	28	24,931	-52.8		285	48.1
20-----	27	26,379	-52.3		286	59.0
15-----	23	28,239	-51.9		292	72.4
10-----						

NORFOLK, VA. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	9	1.9	71	277	4.6
1,000--	31	154	2.1	61	280	7.7
950----	31	571	2.1	55	271	15.9
900----	31	1,005	.9	52	274	18.6
850----	31	1,463	- .2	50	275	23.7
800----	31	1,947	- 1.7	46	276	26.4
750----	31	2,460	- 3.8	42	274	31.8
700----	31	3,001	- 5.9	42	272	34.5
650----	31	3,580	- 8.6	44	271	41.9
600----	31	4,196	-11.7	41	268	46.6
550----	31	4,856	-15.3	37	271	51.4
500----	31	5,572	-19.7	36	269	58.8
450----	31	6,341	-24.5	36	271	61.9
400----	31	7,195	-30.5	37	269	70.3
350----	31	8,131	-37.5	42	270	76.9
300----	31	9,178	-45.1		270	84.5
250----	31	10,376	-52.3		270	92.4
200----	31	11,804	-56.1		271	88.4
175----	31	12,653	-56.0		270	88.6
150----	31	13,633	-56.8		271	86.2
125----	31	14,781	-59.3		269	74.0
100----	31	16,169	-62.4		266	62.3
80-----	31	17,544	-62.6		269	55.5
60-----	30	19,327	-61.2		269	38.4
50-----	30	20,462	-60.2		270	35.9
40-----	29	21,858	-58.0		269	32.2
30-----	28	23,677	-55.7		266	35.1
25-----	28	24,845	-53.5		261	33.8
20-----	27	26,286	-51.2		253	36.9
15-----	25	28,167	-48.5		258	40.4
10-----	7	30,818	-45.6			

NORTH PLATTE, NEBR. (918 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	848	-10.1	84	346	3.1
1,000--	31	178				
950----	31	577				
900----	31	999	- 5.4	74	324	5.2
850----	31	1,453	- 1.9	56	304	13.4
800----	31	1,935	- 2.7	52	304	17.0
750----	31	2,445	- 4.7	48	302	20.2
700----	31	2,986	- 7.5	48	300	23.8
650----	31	3,556	-10.8	47	296	24.2
600----	31	4,172	-14.5	47	282	23.8
550----	31	4,820	-18.6	48	275	23.5
500----	31	5,531	-23.3	46	273	28.3
450----	31	6,285	-28.8	43	272	30.6
400----	31	7,128	-35.1	43	269	33.4
350----	31	8,045	-41.8		264	32.2
300----	31	9,075	-48.6		271	28.1
250----	31	10,259	-54.1		269	36.1
200----	31	11,683	-55.5		276	42.7
175----	30	12,536	-55.0			
150----	30	13,524	-54.7			
125----	29	14,680	-56.4			
100----	29	16,094	-57.9			
80-----	29	17,497	-59.2			
60-----	27	19,291	-59.8			
50-----	27	20,431	-59.6			
40-----	26	21,825	-60.0			
30-----	24	23,623	-60.0			
25-----	23	24,765	-59.4			
20-----	19	26,178	-58.6			
15-----	12	27,992	-57.1			

OAKLAND, CALIF. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	8.5	84	152	3.1
1,000--	31	163	10.3	70	134	2.9
950----	31	590	9.7	59	158	1.1
900----	31	1,039	8.9	49	260	3.8
850----	31	1,511	6.8	49	263	7.9
800----	31	2,007	4.3	45	270	10.8
750----	31	2,532	1.9	39	281	15.1
700----	31	3,085	- .8	36	288	19.6
650----	31	3,672	- 4.0	39	284	23.3
600----	31	4,301	- 8.2	41	283	24.6
550----	31	4,968	-12.1	39	282	29.3
500----	31	5,696	-16.9	38	279	33.0
450----	31	6,473	-22.7	36	280	36.1
400----	31	7,333	-29.2	38	281	41.3
350----	31	8,274	-36.3		283	47.0
300----	31	9,326	-44.1		284	51.2
250----	31	10,526	-53.2		285	53.4
200----	31	11,939	-59.6		286	54.9
175----	31	12,776	-59.0		287	53.0
150----	29	13,752	-59.3		291	49.1
125----	29	14,891	-60.9		289	41.7
100----	28	16,277	-63.2		294	33.8
80-----	27	17,649	-63.6		295	21.9
60-----	26	19,421	-62.4		310	14.7
50-----	26	20,549	-60.9		326	9.7
40-----	25	21,936	-60.3		356	7.9
30-----	20	23,736	-58.4		7	7.5
25-----	19	24,884	-57.5		14	11.2
20-----	17	26,290	-57.1		14	13.6
15-----	10	28,133	-55.4			

OKLAHOMA CITY, OKLA. (973 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	392	- 2.1	87	208	0.7
1,000--	31	174				
950----	31	581	- .3	74	251	4.0
900----	31	1,017	1.3	61	255	8.5
850----	31	1,478	2.2	47	275	8.1
800----	31	1,967	1.6	37	268	12.8
750----	31	2,484	- .1	35	276	17.0
700----	31	3,035	- 2.6		283	20.9
650----	31	3,614	- 5.9		286	25.4
600----	31	4,242	- 9.4		279	29.3
550----	31	4,904	-13.7		264	33.0
500----	31	5,627	-18.5		259	36.1
450----	31	6,399	-24.3		262	40.2
400----	31	7,251	-30.7	36	266	42.9
350----	31	8,185	-37.7		267	48.9
300----	31	9,232	-45.3		280	37.6
250----	30	10,433	-52.4		270	42.3
200----	30	11,859	-56.7			
175----	29	12,712	-56.9			
150----	29	13,686	-58.0			
125----	29	14,828	-60.8			
100----	29	16,206	-63.6			
80-----	28	17,575	-64.4			
60-----	25	19,337	-62.8			
50-----	24	20,463	-61.6			
40-----	23	21,851	-60.6			
30-----	17	23,661	-58.0			
25-----	17	24,814	-56.8			
20-----	14	26,243	-55.2			
15-----	7	28,096	-53.1			

OMAHA, NEBR. (971 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	403	-11.4	78	317	1.1
1,000--	31	176				
950----	31	576	- 8.6	69	288	3.8
900----	31	994	- 6.2	59	314	9.5
850----	30	1,441	- 4.2	52	311	12.2
800----	30	1,919	- 4.6	47	300	16.1
750----	30	2,425	- 6.4	46	293	17.4
700----	30	2,963	- 9.0	46	290	20.9
650----	30	3,533	-12.2	45	288	24.2
600----	30	4,142	-15.7	41	292	27.3
550----	30	4,791	-19.6	38	290	31.6
500----	30	5,496	-24.4	38	288	35.9
450----	30	6,251	-29.7		286	38.8
400----	30	7,088	-35.4		284	41.5
350----	30	8,005	-41.8		282	44.3
300----	30	9,034	-48.8		283	47.7
250----	30	10,216	-54.4		281	52.6
200----	29	11,642	-55.1		280	53.6
175----	29	12,496	-54.4		277	51.6
150----	29	13,485	-54.3		277	51.1
125----	29	14,650	-55.5		278	46.2
100----	29	16,065	-57.9		280	41.7
80-----	29	17,466	-59.4		281	35.9
60-----	28	19,262	-59.1		286	29.5
50-----	28	20,402	-59.8		283	26.0
40-----	28	21,796	-59.9		291	27.7
30-----	27	23,594	-59.3		288	27.2
25-----	25	24,739	-59.2		288	30.5
20-----	23	26,127	-58.7		286	32.2
15-----	15	27,959	-56.0		276	40.9

PEORIA, ILL. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	201	- 9.6	80	299	3.6
1,000--	30	168				
950----	30	567	- 8.5	67	293	8.7
900----	30	986	- 7.7	65	292	12.8
850----	30	1,432	- 6.4	59	285	16.1
800----	30	1,907	- 6.4	53	281	20.0
750----	30	2,406	- 7.9	49	284	23.7
700----	30	2,945	-10.2	46	288	28.7
650----	30	3,509	-13.0	46	285	32.0
600----	30	4,120	-16.2	44	285	38.6
550----	30	4,767	-19.8	40	283	42.9
500----	30	5,472	-24.3	36	281	48.3
450----	30	6,226	-29.6		280	51.2
400----	30	7,063	-35.3		275	54.5
350----	30	7,981	-41.7		272	61.7
300----	30	9,011	-48.4		271	70.7
250----	30	10,195	-53.5		274	69.5
200----	30	11,626	-54.5		281	69.3
175----	30	12,482	-54.3		281	67.0
150----	30	13,470	-54.7		279	67.0
125----	29	14,634	-55.7		280	59.6
100----	29	16,050	-57.7		280	54.0
80-----	29	17,449	-59.0		280	46.4
60-----	29	19,249	-59.6		283	39.0
50-----	29	20,389	-59.5		282	36.1
40-----	26	21,781	-59.7		287	34.1
30-----	20	23,586	-58.8		288	29.5
25-----	16	24,716	-58.6		283	36.3
20-----	13	26,116	-57.7			

PITTSBURGH, PA. (975 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	353	- 5.9	78	263	5.2
1,000--	30	156				
950----	30	556	- 5.5	74	266	9.5
900----	30	982	- 6.4	74	262	19.6
850----	30	1,428	- 7.6	73	271	24.2
800----	30	1,899	- 8.5	72	276	28.7
750----	30	2,399	-10.2	64	277	32.0
700----	30	2,929	-11.6	59	277	38.8
650----	30	3,491	-14.3	50	277	42.1
600----	30	4,099	-17.3	48	278	46.0
550----	30	4,744	-20.8	46	275	51.2
500----	30	5,447	-25.0	45	273	57.7
450----	30	6,200	-30.0	45	272	65.6
400----	30	7,037	-35.6		272	68.5
350----	30	7,953	-41.8		276	68.0
300----	30	8,983	-48.3		275	71.6
250----	30	10,169	-53.4		274	67.6
200----	30	11,595	-55.6		277	68.1
175----	30	12,448	-54.8		278	68.5
150----	28	13,437	-55.4		285	63.9
125----	25	14,586	-57.5		285	55.9
100----	25	15,988	-59.7		283	52.2
80-----	23	17,382	-59.9			
60-----	22	19,177	-60.2			
50-----	21	20,312	-60.5			
40-----	19	21,705	-59.4			
30-----	15	23,517	-55.5			
25-----	14	24,677	-55.3			

PORTLAND, ME. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	20	- 9.0	79	273	6.2
1,000--	31	92			268	5.8
950----	31	494	- 6.7	59	267	9.3
900----	31	915	- 7.8	60	272	13.0
850----	31	1,360	- 8.0	60	274	18.0
800----	31	1,830	- 8.8	55	274	23.5
750----	31	2,325	-10.5	53	274	28.3
700----	31	2,858	-12.8	53	270	32.4
650----	31	3,416	-15.7	49	268	36.5
600----	31	4,021	-18.7	43	270	41.9
550----	31	4,658	-22.4	41	270	46.0
500----	31	5,360	-26.8	41	271	47.6
450----	31	6,103	-31.9		269	52.2
400----	31	6,937	-37.5		270	58.4
350----	31	7,848	-43.2		267	62.5
300----	31	8,873	-48.5		265	68.7
250----	31	10,061	-52.4		268	67.8
200----	31	11,498	-53.1		268	67.8
175----	31	12,359	-52.9		269	64.8
150----	31	13,355	-52.9		268	57.1
125----	31	14,528	-54.1		265	56.5
100----	31	15,954	-55.6		264	51.4
80-----	31	17,371	-57.2		264	50.5
60-----	30	19,196	-57.7		261	46.2
50-----	28	20,343	-57.9		262	46.2
40-----	27	21,756	-57.8		261	46.8
30-----	23	23,583	-56.0		259	48.9
25-----	22	24,764	-54.3		254	50.7
20-----	19	26,214	-53.3		254	50.5
15-----	7	28,158	-52.1			

RAPID CITY, S. DAK. (904 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	966	- 8.8	75	356	4.4
1,000--	31	175				
950----	31	577				
900----	31	998			350	6.0
850----	31	1,447	- 3.7	52	315	13.6
800----	31	1,924	- 5.4	53	318	21.5
750----	31	2,425	- 7.7	52	314	25.4
700----	31	2,963	-10.4	53	308	27.2
650----	31	3,528	-13.4	52	305	28.1
600----	31	4,134	-17.2	52	298	31.2
550----	31	4,781	-21.2	46	295	35.1
500----	31	5,478	-25.7	41	291	37.8
450----	31	6,231	-31.1	37	290	44.3
400----	31	7,059	-36.8		289	48.5
350----	31	7,970	-43.5		286	51.2
300----	31	8,993	-49.7		286	52.2
250----	31	10,171	-55.0		290	54.7
200----	31	11,590	-56.0		287	54.4
175----	31	12,441	-55.6		281	51.8
150----	31	13,427	-54.0		281	53.2
125----	31	14,595	-55.5		278	51.4
100----	31	16,012	-57.1		280	46.4
80-----	31	17,422	-57.6		283	40.2
60-----	28	19,226	-59.0		283	38.2
50-----	27	20,369	-59.8		284	32.8
40-----	25	21,774	-60.1		289	30.8
30-----	21	23,564	-61.2		296	36.5
25-----	19	24,700	-60.6		293	38.4
20-----	14	26,140	-59.5			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

JANUARY 1959

ST. CLOUD, MINN. (981 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	316	-16.9	73	291	2.1
1,000	31	173				
950	31	566	-15.1	69	299	4.6
900	31	970	-13.1	62	302	9.3
850	31	1,407	-11.4	56	293	13.0
800	31	1,872	-10.6	47	295	18.8
750	31	2,369	-12.0	45	290	22.9
700	31	2,894	-14.1	49	289	26.2
650	31	3,454	-17.0	49	291	28.3
600	31	4,051	-20.3	49	289	33.2
550	31	4,690	-23.8	46	291	35.7
500	31	5,383	-28.2	41	284	33.4
450	31	6,131	-33.5	40	282	35.1
400	31	6,950	-39.0		279	37.4
350	31	7,853	-45.1			
300	31	8,870	-50.9			
250	31	10,044	-54.8			
200	31	11,471	-54.8			
175	31	12,327	-53.8			
150	31	13,319	-53.4			
125	31	14,490	-54.5			
100	31	15,914	-56.1			
80	31	17,331	-56.8			
60	30	19,153	-58.6			
50	30	20,297	-59.4			
40	28	21,701	-59.8			
30	27	23,494	-60.5			
25	26	24,634	-60.3			
20	26	26,025	-60.4			
15	15	27,900	-56.8			

ST. PAUL IS., ALASKA (1011 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	-0.9	87	65	6.2
1,000	31	92			7	7.1
950	31	502	-2.9	77	47	7.1
900	31	927	-4.0	69	34	7.5
850	31	1,377	-5.3	65	23	6.8
800	31	1,852	-7.3	62	11	8.5
750	31	2,354	-9.4	58	12	10.1
700	31	2,885	-11.7	51	350	9.1
650	31	3,446	-15.0	49	332	9.7
600	31	4,050	-18.6	48	312	9.1
550	31	4,689	-22.5	47	314	6.0
500	31	5,388	-27.0	45	330	4.4
450	31	6,134	-32.1	45	235	1.5
400	31	6,963	-38.0		222	3.3
350	31	7,870	-44.6		264	2.9
300	31	8,886	-51.7		255	5.8
250	31	10,053	-56.4		272	5.6
200	31	11,469	-55.5		268	10.1
175	31	12,328	-52.3		200	9.1
150	30	13,339	-50.7		194	10.8
125	30	14,530	-49.9		214	13.2
100	29	15,984	-49.8		206	12.6
80	27	17,437	-49.3		217	10.8
60	27	19,325	-49.1		210	12.0
50	26	20,519	-49.3		224	12.2
40	22	21,978	-49.2		249	11.8
30	17	23,880	-49.0			
25	9	25,053	-48.9			

SALEM, OREG. (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	5.0	90	185	4.6
1,000	31	143			205	6.0
950	31	559	4.0	81	216	13.4
900	31	1,000	2.5	77	222	16.3
850	31	1,460	-.1	77	233	19.6
800	31	1,944	-2.9	78	241	21.5
750	31	2,453	-5.2	74	249	22.9
700	31	2,993	-7.8	61	256	24.0
650	31	3,562	-10.9	53	261	25.4
600	31	4,178	-14.5	52	266	29.3
550	31	4,828	-18.1	52	270	34.9
500	31	5,540	-22.3	49	279	38.8
450	31	6,296	-27.3	45	281	42.9
400	31	7,145	-33.3	44	281	48.9
350	31	8,070	-40.1		287	59.2
300	31	9,105	-47.8		286	60.2
250	29	10,288	-55.0		277	64.1
200	29	11,702	-57.0		281	63.3
175	28	12,557	-55.9		278	58.6
150	28	13,538	-55.6		283	49.5
125	28	14,698	-56.9		281	50.5
100	28	16,106	-58.1		288	40.4
80	28	17,512	-58.0		289	31.2
60	24	19,344	-58.5		301	21.1
50	22	20,508	-57.6		319	15.1
40	22	21,914	-58.1		340	13.0
30	19	23,749	-57.1		354	13.4
25	18	24,908	-57.0		18	18.6
20	9	26,373	-57.1			

SALT LAKE CITY, UTAH (874 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,288	-1.2	78	159	3.8
1,000	31	198				
950	31	612				
900	31	1,051				
850	31	1,508	.4	60	179	6.6
800	31	1,993	-1.4	54	212	8.3
750	31	2,506	-4.7	58	243	9.7
700	31	3,045	-8.0	62	275	15.1
650	31	3,613	-11.1	60	280	19.2
600	31	4,229	-14.5	56	284	23.5
550	31	4,884	-17.5	49	287	30.1
500	31	5,594	-21.9	45	290	32.0
450	31	6,360	-27.0	44	290	36.9
400	31	7,203	-32.9	43	292	41.7
350	31	8,130	-39.7		288	46.6
300	31	9,168	-46.9		296	46.2
250	31	10,357	-53.7		288	51.4
200	31	11,778	-56.9		284	54.2
175	31	12,624	-56.9		281	50.7
150	31	13,603	-56.3		281	48.5
125	31	14,756	-58.2		280	44.8
100	31	16,153	-60.3		279	38.0
80	31	17,544	-60.3		281	31.0
60	31	19,341	-60.3		286	21.1
50	31	20,479	-60.0		286	18.6
40	28	21,871	-59.8		294	17.8
30	27	23,673	-59.4		293	17.2
25	26	24,819	-58.9		292	18.6
20	23	26,235	-58.3		302	14.5
15	11	28,078	-56.9			

SAN ANTONIO, TEX. (992 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	243	5.9	82	3	3.1
1,000	31	173				
950	31	597	6.7	75	155	3.8
900	31	1,040	8.1	67	205	9.5
850	31	1,512	7.9	58	224	11.0
800	31	2,011	6.5	49	237	12.8
750	31	2,541	4.9	36	252	14.3
700	31	3,100	2.2	32	257	18.2
650	31	3,693	-.6		258	22.3
600	31	4,332	-4.1		266	22.9
550	31	5,004	-8.6		262	23.7
500	31	5,745	-13.4		261	30.3
450	31	6,532	-19.2		266	35.5
400	31	7,406	-25.5		263	32.2
350	31	8,361	-32.3		286	34.1
300	31	9,431	-40.2		283	33.4
250	31	10,652	-49.3			
200	30	12,083	-57.9			
175	29	12,923	-59.9			
150	28	13,887	-61.2			
125	28	15,010	-64.7			
100	26	16,358	-68.5			
80	24	17,683	-69.0			
60	23	19,418	-64.9			
50	22	20,537	-63.1			
40	21	21,921	-60.9			
30	21	23,724	-57.9			
25	20	24,874	-56.7			
20	19	26,293	-54.6			
15	7	28,113	-53.0			

SAN DIEGO, CALIF. (1002 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	124	8.7	85	79	1.9
1,000	31	142			47	1.9
950	31	571	13.8	47	72	.9
900	31	1,028	12.0	43	277	1.5
850	31	1,505	9.7	38	264	3.8
800	31	2,007	8.0	26	283	6.8
750	31	2,532	5.6	24	290	9.9
700	31	3,099	2.8		299	14.1
650	31	3,688	-.7	28	297	17.4
600	31	4,331	-4.7	27	292	20.0
550	31	5,001	-9.3	28	290	20.9
500	31	5,741	-14.5	31	284	23.8
450	31	6,518	-20.5	34	283	26.0
400	31	7,394	-27.0		287	29.7
350	31	8,343	-34.3		284	32.6
300	31	9,403	-42.8		290	34.5
250	31	10,608	-52.0		290	37.6
200	31	12,026	-59.7		287	41.1
175	31	12,860	-60.3		284	43.9
150	31	13,821	-61.1		283	40.8
125	31	14,947	-63.7		287	34.7
100	31	16,305	-67.1		283	29.9
80	31	17,649	-67.6		287	22.9
60	30	19,390	-64.5		302	12.8
50	29	20,513	-62.6		327	6.8
40	28	21,896	-60.5		323	4.6
30	25	23,696	-59.0		332	5.8
25	24	24,843	-57.0		314	7.5
20	11	26,255	-55.5			

SAN JUAN, P. R. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	21.6	86	91	2.3
1,000	31	148	22.6	77	85	9.5
950	31	594	19.9	78	76	14.7
900	31	1,059	16.9	79	76	14.7
850	31	1,545	14.1	73	77	13.6
800	31	2,056	12.4	56	74	12.4
750	31	2,597	10.1	49	73	11.4
700	31	3,168	7.4	42	73	9.1
650	31	3,777	5.3		59	7.5
600	31	4,426	1.8		43	6.0
550	31	5,119	-2.0		1	5.2
500	31	5,875	-6.3		324	4.8
450	31	6,682	-12.1		307	6.0
400	31	7,581	-18.9		311	12.0
350	31	8,561	-26.2		292	18.0
300	31	9,657	-34.6		284	23.8
250	31	10,907	-43.8		270	34.5
200	31	12,373	-54.1		261	46.0
175	31	13,218	-59.6		265	46.8
150	31	14,169	-65.5		269	40.2
125	31	15,263	-71.1		277	31.8
100	30	16,564	-77.4		282	19.6
80	30	17,832	-79.8		301	5.6
60	30	19,493	-71.0		71	7.7
50	29	20,591	-63.9		77	9.1
40	28	21,975	-59.0		76	13.7
30	28	23,802	-53.9		72	19.8
25	27	24,978	-52.0		87	19.4
20	26	26,423	-51.1		106	14.9
15	21	28,294	-49.8		108	11.4

SANTA MARIA, CALIF. (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	74	8.7	77	36	1.9
1,000	31	158	11.2	67	47	3.4
950	31	586	12.4	53	43	5.2
900	31	1,041	11.2	48	25	5.4
850	31	1,517	8.9	41	340	7.7
800	31	2,017	7.1		317	11.4
750	31	2,547	4.9		303	14.3
700	31	3,106	2.0		290	14.1
650	31	3,698	-2.0	33	292	16.7
600	31	4,332	-6.1	34	289	17.6
550	31	5,002	-10.5	33	296	18.2
500	31	5,734	-15.7	33	296	22.3
450	31	6,510	-21.5		298	25.2
400	31	7,379	-28.0		301	26.0
350	31	8,324	-35.0		296	28.3
300	31	9,382	-43.2		301	29.5
250	31	10,585	-52.4		292	27.0
200	31	12,002	-59.7		282	28.3
175	31	12,836	-60.0		287	30.5
150	31	13,798	-60.2			
125	31	14,930	-62.3			
100	31	16,297	-65.4			
80	31	17,651	-66.2			
60	31	19,403	-64.1			
50	31	20,522	-62.4			
40	29	21,900	-60.7			
30	28	23,698	-59.0			
25	28	24,843	-58.1			
20	24	26,242	-57.0			
15	15	28,065	-55.4			

SANTA MONICA, CALIF. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	38	11.9	70	55	3.6
1,000	31	146	13.4	58	59	3.8
950	31	582	13.4	44	49	2.7
900	31	1,032	11.6	39	341	2.5
850	31	1,508	9.3	37	301	3.8
800	31	2,007	6.9	29	297	6.8
750	31	2,537	4.7	26	306	11.8
700	31	3,096	2.0	28	297	14.9
650	31	3,689	-1.8	27	294	15.3
600	31	4,322	-6.0	29	290	17.0
550	30	4,995	-10.6		291	20.9
500	30	5,726	-15.5	32	289	24.6
450	30	6,507	-21.3	34	283	26.2
400	30	7,373	-27.6		282	29.9
350	30	8,319	-34.8		283	34.0
300	30	9,376	-43.2		283	36.3
250	30	10,580	-52.1		283	40.4
200	30	11,999	-59.1		281	40.2
175	30	12,834	-59.5		279	42.5
150	30	13,798	-60.2		281	40.8
125	30	14,930	-62.2		281	34.9
100	30	16,297	-65.8		282	31.4
80	30	17,648	-66.4		286	23.5
60	30	19,398	-64.4		301	16.9
50	30	20,519	-62.5		318	9.5
40	29	21,902	-60.9		334	7.7
30	24	23,693	-59.4		326	8.1
25	23	24,841	-58.0		344	6.9
20	21	26,253	-57.2		315	12.4
15	19	28,077	-55.4		308	13.7
10	11	30,646	-53.8			
7	6	32,999	-50.3			

SAULT STE. MARIE, MICH. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	221	-13.5	82	318	3.6
1,000	31	139				
950	31	529	-12.6	72	313	8.9
900	31	942	-13.5	70	312	14.9
850	31	1,376	-14.4	70	306	16.1
800	31	1,835	-14.6	63	297	18.4
750	31	2,324	-15.3	56	293	22.1
700	31	2,843	-16.9	50	294	25.8
650	31	3,394	-19.6	47	293	27.7
600	31	3,987	-22.9	45	293	31.8
550	31	4,618	-26.8	45	292	37.1
500	31	5,303	-30.7	45	291	42.1
450	31	6,040	-35.4	44	288	46.6
400	31	6,856	-40.7		284	50.1
350	31	7,754	-46.1		280	54.4
300	31	8,767	-51.4		279	58.6
250	31	9,942	-54.3		280	59.4
200	31	11,374	-53.7		279	58.8
175	31	12,235	-52.4		277	55.7
150	31	13,232	-52.6		278	56.7
125	31	14,407	-53.8		278	56.3
100	31	15,835	-55.6		278	54.2
80	30	17,253	-56.9		280	50.1
60	29	19,069	-58.5		278	46.0
50	29	20,212	-59.4		279	46.6
40	24	21,614	-59.8		276	47.7
30	22	23,400	-60.9		274	51.8
25	19	24,542	-60.0		273	56.7
20	15	25,925	-60.4			
15	5	27,734	-58.0			

SEATTLE, WASH. (1000 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	125	3.8	86	147	3.3
1,000	31	123			136	3.1
950	31	540	3.4	76	189	10.6
900	31	978	1.2	76	213	14.3
850	31	1,436	-1.3	78	221	17.2
800	31	1,917	-4.1	78	230	20.0
750	31	2,421	-7.0	78	239	20.9
700	31	2,960	-9.7	71	248	22.7
650	31	3,525	-12.9	62	254	25.6
600	31	4,136	-16.2	58	260	28.5
550	31	4,780	-20.4	55	261	32.0
500	31	5,486	-24.7	52	265	36.9
450	31	6,238	-29.3	52	271	42.7
400	31	7,079	-34.6	54	272	50.1
350	31	8,000	-41.0		274	57.5
300	31	9,032	-48.1		274	65.8
250	31	10,215	-54.4		275	68.3
200	31	11,641	-54.8		279	62.7
175	31	12,497	-54.5		281	54.0
150	30	13,473	-54.0		281	48.1
125	29	14,632	-54.9		283	44.1
100	28	16,052	-56.1		289	40.6
80	27	17,470	-56.3		292	32.4
60	24	19,280	-56.5		296	28.1
50	23	20,424	-56.7		306	25.8
40	18	21,849	-57.2		315	25.0
30	14	23,650	-57.8		314	25.2
25	9	24,887	-56.1			
20	6	26,281	-56.7			

SHREVEPORT, LA. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	76	3.5	77	192	0.9
1,000	31	173			180	1.5
950	31	595	4.6	64	240	9.3
900	31	1,033	4.7	59	259	13.2
850	31	1,500	4.6	50	265	16.1
800	31	1,993	2.9	46	267	18.0
750	31	2,514	1.3	37	269	20.5
700	31	3,068	-.9	33	265	23.5
650	31	3,653	-4.0		265	28.1
600	31	4,284	-6.9		265	33.6
550	31	4,952	-11.1		265	37.1
500	31	5,684	-15.9		265	40.4
450	31	6,460	-21.6		266	47.6
400	31	7,329	-27.8		264	54.0
350	31	8,275	-34.7		263	62.1
300	31	9,334	-42.6		264	69.7
250	31	10,543	-50.7		263	82.1
200	31	11,973	-57.2		263	86.4
175	31	12,815	-58.2		263	78.3
150	31	13,784	-59.2		261	74.0
125	31	14,917	-62.9		264	67.6
100	30	16,278	-65.8		269	51.6
80	29	17,628	-67.1		268	38.6
60	28	19,379	-64.0		268	27.3
50	28	20,497	-62.5		270	22.1
40	28	21,880	-60.6		271	20.9
30	25	23,685	-58.3		269	20.9
25	24	24,837	-56.2		268	28.9
20	19	26,269	-54.4		263	31.8
15	13	28,099	-53.1		260	48.7

SPOKANE, WASH. (931 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	722	-2.4	82	136	1.9
1,000	31	153				
950	31	562				
900	31	993	-2.0	76	177	4.4
850	31	1,448	-3.1	70	228	10.2
800	31	1,926	-5.2	67	244	16.3
750	31	2,430	-7.7	66	253	19.6
700	31	2,966	-10.6	65	263	21.9
650	31	3,527	-14.0	63	269	24.4
600	31	4,136	-17.4	59	274	31.4
550	31	4,776	-21.3	53	277	33.6
500	31	5,481	-25.9	48	276	37.6
450	31	6,226	-30.8	48	278	43.9
400	31	7,063	-36.2	48	277	49.1
350	31	7,979	-42.1		280	55.3
300	31	9,007	-48.8		281	64.1
250	31	10,188	-55.2		281	65.8
200	31	11,609	-55.3		287	55.9
175	31	12,464	-53.9		287	54.4
150	30	13,455	-53.2		287	47.2
125	29	14,623	-54.7		287	42.1
100	29	16,047	-56.2		290	38.0
80	26	17,472	-56.5		292	32.4
60	25	19,287	-56.4		304	27.5
50	23	20,442	-56.8		311	26.8
40	21	21,873	-56.9		325	23.3
30	16	23,716	-56.9		330	26.8
25	16	24,869	-57.2		337	29.1
20	11	26,284	-56.2		333	31.6

SWAN ISLAND, W. I. (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	25.0	84	63	10.1
1,000	31	132	24.1	83	66	11.6
950	31	576	20.6	84	80	14.9
900	31	1,047	17.4	83	89	15.5
850	31	1,534	14.4	76	91	14.5
800	31	2,045	12.1	64	93	12.6
750	31	2,583	10.1	48	87	11.6
700	31	3,157	7.8	42	87	9.9
650	31	3,759	4.8	34	99	8.9
600	31	4,414	1.6		120	7.1
550	31	5,105	-2.3		179	6.6
500	31	5,862	-7.4		199	8.5
450	31	6,668	-12.9		235	12.0
400	31	7,563	-19.4		237	15.5
350	31	8,541	-26.8		243	18.8
300	31	9,633	-35.6		242	25.8
250	31	10,875	-45.7		242	28.9
200	31	12,330	-55.4		233	37.6
175	30	13,176	-60.1		238	38.2
150	29	14,130	-64.7		241	37.3
125	29	15,227	-70.6		233	32.6
100	28	16,530	-77.1		228	22.7
80	22	17,802	-78.9		193	5.2
60	20	19,467	-70.4		88	10.4
50	20	20,569	-64.0		82	13.6
40	19	21,952	-59.7		81	16.3
30	19	23,771	-55.1		81	20.4
25	19	24,943	-52.4		74	19.6
20	17	26,392	-51.0		76	22.7
15	13	28,269	-48.4			

TAMPA, FLA. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	10.5	83	25	3.6
1,000	31	174	12.0	71	46	6.2
950	31	608	11.8	68	91	.7
900	31	1,059	10.8	60	263	6.4
850	30	1,536	9.4	52	262	12.0
800	30	2,038	8.0	46	260	15.1
750	30	2,571	6.1		261	19.2
700	30	3,132	3.3		264	20.5
650	30	3,729	-.1		263	25.8
600	30	4,367	-4.2	38	258	27.3
550	30	5,046	-8.0		259	29.1
500	30	5,785	-12.4		261	35.1
450	30	6,575	-17.9		260	35.9
400	30	7,453	-24.4		260	41.3
350	30	8,412	-31.6		263	42.3
300	30	9,485	-39.8		260	44.1
250	28	10,709	-49.0		261	42.1
200	28	12,143	-58.0		260	54.4
175	26	12,992	-60.5			
150	24	13,945	-63.1			
125	24	15,055	-67.8			
100	24	16,384	-71.8			
80	23	17,695	-72.8			
60	22	19,399	-67.2			
50	22	20,510	-63.4			
40	21	21,889	-60.2			
30	19	23,708	-56.0			
25	17	24,870	-53.7			
20	15	26,314	-52.1			
15	11	28,190	-49.9			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

JANUARY 1959

Standard pressure surface (mb)	TATOOSH IS., WASH. (1009 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	TOPEKA, KANS. (989 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	31	5.9	85	119	6.9	31	269	- 6.6	77	350	3.1
1,000--	31	106			139	4.0	31	180				
950----	31	520	3.1	76	196	9.9	31	583	- 5.7	72	317	4.0
900----	31	961	.2	80	216	12.6	31	1,007	- 4.2	66	306	7.3
850----	31	1,417	- 2.7	79	226	13.6	31	1,460	- 2.0	51	306	9.7
800----	31	1,896	- 5.1	73	238	16.9	31	1,942	- 2.4	43	292	13.6
750----	31	2,395	- 7.8	66	252	17 4	31	2,455	- 4.0	39	287	18.4
700----	31	2,935	-10.5	56	256	20.9	31	2,996	- 6.5	37	289	23.1
650----	31	3,494	-13.7	54	258	23.7	31	3,570	- 9.6	37	286	26.8
600----	31	4,107	-16.8	54	259	27.9	31	4,186	-13.5	40	287	30.8
550----	31	4,748	-20.9	50	257	30.1	31	4,838	-17.7	40	285	35.3
500----	31	5,453	-25.4	48	257	31.8	31	5,552	-22.1	36	280	39.0
450----	31	6,200	-30.2	47	258	38.2	31	6,310	-27.5	36	277	41.3
400----	31	7,040	-36.0	45	256	42.9	31	7,156	-33.8	34	278	48.3
350----	31	7,956	-42.2		258	47.6	31	8,080	-40.2		278	53.4
300----	31	8,982	-49.2		252	56.5	31	9,116	-47.4		275	58.6
250----	31	10,161	-55.2		249	60.2	31	10,304	-53.6		276	65.0
200----	31	11,585	-54.5		257	51.1	30	11,739	-55.4		280	64.7
175----	31	12,442	-53.4		260	45.8	30	12,592	-54.7		273	70.9
150----	31	13,436	-53.1		262	39.6	30	13,577	-55.3		276	63.3
125----	31	14,608	-54.1		259	40.4	30	14,736	-57.2		277	56.9
100----	30	16,040	-55.5		269	33.4	30	16,140	-59.2		277	48.5
80-----	30	17,460	-55.9		272	26.4	30	17,534	-60.6		281	40.8
60-----	29	19,293	-56.3		276	23.3	29	19,323	-60.8		280	31.8
50-----	29	20,450	-56.2		284	17.6	28	20,458	-60.8		281	28.3
40-----	29	21,863	-57.3		294	18.0	28	21,848	-60.1		283	27.3
30-----	24	23,665	-57.6		293	17.8	24	23,641	-59.2		277	31.2
25-----	23	24,819	-57.7		300	19.6	21	24,791	-57.9		278	32.4
20-----	15	26,227	-57.1		306	24.4	17	26,212	-57.0		277	35.5
15-----	5	27,779	-59.6				9	28,050	-56.0			

Standard pressure surface (mb)	WASHINGTON, D. C. (1008 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	WINNEMUCCA, NEV. (871 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	88	- 1.5	69	273	4.2	31	1,310	- 1.4	78	178	1.9
1,000--	31	147			269	5.0	31	194				
950----	31	557	- 1.6	63	280	19.4	31	610				
900----	31	986	- 2.4	60	282	23.1	31	1,046				
850----	31	1,440	- 3.2	55	285	25.4	31	1,503	1.9	60	183	5.6
800----	31	1,919	- 4.4	52	282	27.3	31	1,991	.0	56	238	8.3
750----	31	2,423	- 6.1	47	278	32.0	31	2,500	- 2.9	58	263	14.3
700----	31	2,965	- 8.6	45	276	37.1	31	3,049	- 6.2	60	271	19.0
650----	31	3,533	-11.2	45	274	40.0	31	3,621	- 8.7	52	282	23.7
600----	31	4,148	-14.4	42	271	46.4	31	4,244	-12.4	49	285	29.5
550----	31	4,797	-18.2	39	273	51.8	31	4,897	-16.3	47	283	31.8
500----	31	5,510	-22.2	37	272	54.9	31	5,616	-20.6	50	284	37.1
450----	31	6,273	-27.0		271	59.4	31	6,379	-25.3	48	291	39.6
400----	31	7,119	-32.7		273	64.8	31	7,233	-31.5	46	293	40.2
350----	31	8,046	-39.3		277	68.5	31	8,165	-38.5		282	40.2
300----	31	9,086	-46.6		275	78.3	31	9,208	-46.1		280	49.3
250----	31	10,277	-53.1		280	75.7	31	10,401	-53.5		281	52.0
200----	30	11,696	-56.5		278	76.1	30	11,824	-58.1		284	50.1
175----	30	12,545	-55.7		280	70.7	30	12,667	-57.5		289	49.3
150----	30	13,527	-56.0		281	69.3	29	13,650	-57.0		286	43.5
125----	30	14,682	-57.9		282	64.7	29	14,801	-58.5		285	41.1
100----	30	16,084	-60.1		278	54.5	28	16,198	-60.8		283	36.5
80-----	30	17,471	-61.7		276	48.7	27	17,581	-61.4		285	33.8
60-----	28	19,257	-60.8		279	46.4	27	19,367	-60.4		300	20.9
50-----	28	20,393	-60.1		274	36.5	27	20,504	-60.0		311	13.7
40-----	28	21,792	-58.6		269	44.4	26	21,902	-59.3		318	13.9
30-----	28	23,607	-56.8		267	41.9	22	23,705	-58.6		351	16.3
25-----	26	24,761	-55.1		265	41.9	21	24,855	-58.1		3	20.0
20-----	24	26,192	-52.7		257	50.1	13	26,280	-57.6			
15-----	14	28,013	-51.7									

Standard pressure surface (mb)	YAKUTAT, ALASKA (1008 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	12	- 5.0	69	81	8.1
1,000--	31	74			91	7.5
950----	31	479	- 2.7	57	100	10.1
900----	31	908	- 4.8	61	116	8.3
850----	31	1,356	- 7.3	63	113	7.1
800----	31	1,826	- 9.8	63	105	7.3
750----	31	2,321	-12.7	63	112	6.6
700----	31	2,845	-15.8	61	97	3.4
650----	31	3,396	-18.9	57	87	.3
600----	31	3,992	-22.8	52	1	2.3
550----	31	4,623	-26.9	51	330	5.6
500----	31	5,308	-31.3	51	314	11.8
450----	31	6,043	-36.3	49	317	13.9
400----	31	6,855	-42.0		283	10.6
350----	31	7,749	-47.4		280	17.4
300----	31	8,758	-51.4		281	25.8
250----	31	9,937	-52.9		280	24.0
200----	31	11,384	-50.7		296	21.9
175----	31	12,257	-49.8		306	16.3
150----	31	13,266	-49.5			
125----	31	14,459	-50.1			
100----	31	15,915	-50.9			
80-----	31	17,368	-51.2			
60-----	31	19,233	-52.5			
50-----	31	20,410	-53.1			
40-----	31	21,847	-53.9			
30-----	30	23,690	-55.4			
25-----	28	24,847	-56.5			
20-----	26	26,259	-57.3			
15-----	12	28,183	-54.7			

Standard pressure surface (mb)	YUCCA FLAT, NEV. (884 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,196	- 2.7	73	339	1.3
1,000--	31	200				
950----	31	613				
900----	31	1,051				
850----	31	1,512	5.0	42	352	3.6
800----	31	2,006	3.1	39	279	3.8
750----	31	2,526	1.4	37	268	10.1
700----	31	3,080	- 1.2	35	281	13.4
650----	31	3,661	- 4.5	33	286	16.5
600----	31	4,294	- 8.1	34	291	22.9
550----	31	4,957	-12.2	34	290	28.1
500----	31	5,688	-16.8	35	291	32.4
450----	31	6,460	-22.3		294	36.1
400----	31	7,328	-28.6	38	296	40.2
350----	31	8,271	-35.6		293	44.1
300----	31	9,326	-43.7		288	50.9
250----	31	10,528	-52.3		289	54.5
200----	31	11,948	-58.5		285	55.5
175----	31	12,787	-58.8		288	51.4
150----	30	13,763	-58.7		288	48.3
125----	24	14,927	-61.0		299	41.1
100----	10	16,331	-64.4			

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun. JANUARY 1959

ALBUQUERQUE, N. MEX.

Date	Sun's zenith distance A.M. 78.7°	75.7°	70.7°	60.0°	*	P.M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Jan.									
7-----	0.93	1.13	1.29	1.40	1.41	1.39	1.21	1.08	0.97
8-----	1.01	1.13	1.18	1.37	----	----	----	----	----
9-----	.94	1.02	1.06	1.35	1.42	----	----	----	----
10----	.99	1.06	----	----	----	----	----	----	----
11----	----	----	----	1.35	----	----	----	----	.98
12----	1.04	1.13	1.22	1.35	1.38	1.36	1.22	1.11	1.00
13----	1.03	1.08	1.22	1.37	1.36	1.36	1.19	1.07	.96
15----	.99	1.14	1.31	1.44	1.45	1.43	1.28	1.17	1.05
18----	----	----	----	1.43	1.46	1.41	----	----	----
20----	----	----	----	----	1.46	----	1.31	1.20	1.09
21----	1.05	1.15	1.27	----	----	----	----	----	----
23----	----	----	----	----	----	----	----	1.09	.99
24----	1.06	1.19	1.30	1.41	----	----	----	----	----
25----	1.09	1.18	1.29	1.42	1.46	1.40	1.25	1.13	1.02
26----	1.06	1.16	1.27	1.39	1.35	1.36	1.21	1.09	.99
27----	1.05	1.15	1.27	1.41	1.45	----	----	----	1.02
28----	1.10	1.17	1.30	1.42	1.47	1.41	1.23	1.09	.95
29----	1.12	1.22	1.29	1.43	1.49	1.43	1.27	1.15	1.06
30----	.99	1.11	1.18	1.37	1.41	1.33	1.15	----	----
31----	----	1.12	1.27	1.41	1.49	1.42	1.26	1.17	1.04
Averages	1.07	1.16	1.27	1.40	1.44	1.40	1.24	1.14	1.02

MADISON, WIS.

Date	Sun's zenith distance A.M. 78.7°	75.7°	70.7°	60.0°	*	P.M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Jan.									
5-----	K 1.04	K 1.12	----	----	----	----	----	----	----
8-----	----	S 1.11	S 1.26	----	S 1.35	----	M 1.13	----	----
9-----	----	----	S 1.22	----	S 1.29	----	S 1.25	S 1.07	S 1.02
19----	----	----	----	----	M 1.43	----	S 1.32	S 1.21	S 1.07
23----	S .95	S 1.02	----	----	----	----	----	----	----
27----	----	----	K 1.03	----	H 1.12	----	H .99	H .80	----
30----	----	----	S 1.29	----	S 1.40	----	S 1.15	S .95	S .78
Averages	1.00	1.08	1.20	----	1.32	----	1.17	1.01	0.95

* Values corresponding to true solar noon
H Haze
K Smoke
M Moderate haze - indeterminable
S Slight haze - indeterminable
I Intense haze - indeterminable

BLUE HILL, MASS.

Date	Sun's zenith distance A.M. 78.7°	75.7°	70.7°	60.0°	*	P.M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Jan.									
3-----	H 0.58	H 0.78	H 1.00	----	H 1.14	----	H 1 00	H 0.90	H 0.83
4-----	.81	.88	----	----	----	----	----	----	----
5-----	----	----	----	----	----	----	1.28	1.17	1.06
6-----	----	----	----	----	----	----	1.15	1.01	.90
7-----	1.04	1.14	1.25	----	1.35	----	1.24	1.12	1.01
8-----	1.04	1.13	1.25	----	1.35	----	1.24	1.10	.99
9-----	1.03	1.12	1.23	----	----	----	----	----	----
11----	.94	1.06	1.20	----	1 33	----	----	----	.96
12----	1.01	1.10	1.22	----	----	----	----	----	----
14----	----	1.09	1.18	----	----	----	----	----	----
18----	84	94	1.10	----	1.20	----	1 07	.93	.84
23----	.94	1 07	----	----	----	----	----	----	----
Averages	0.91	1.03	1.18	----	1.27	----	1.16	1.04	0.94

OMAHA, NEBR.

Date	Sun's zenith distance A.M. 78.7°	75.7°	70.7°	60.0°	*	P.M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Jan.									
4-----	0.84	0.94	1.06	----	1.19	----	S 1.11	S 0.99	----
5-----	.80	.91	1.05	----	M 1.06	----	M 1.01	M .86	----
6-----	M .72	M .83	M .96	----	S 1.08	----	M .96	M .85	M 0.69
9-----	----	H .55	H .71	----	----	----	----	----	----
12----	----	----	----	----	M 1.04	----	M .93	M .69	M .48
15----	----	S .93	S 1.06	----	----	----	----	----	.77
16----	----	----	S 1.11	----	S 1.24	----	----	----	----
21----	----	----	----	----	S 1.14	----	S 1.12	S 1.00	S .89
30----	.78	.88	M .99	----	----	----	----	----	----
Averages	0.79	0.84	0.99	----	1.13	----	1.03	0.88	0.71

GUAM, M. I.

Date	Sun's zenith distance A.M. 78.7°	75.7°	70.7°	60.0°	*	P.M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Jan.									
8-----	----	----	S 0.97	----	----	----	----	----	----
9-----	----	----	----	M 1.08	----	----	----	----	----
13----	----	----	----	----	M 1.39	----	----	----	----
22----	----	----	----	M 1.15	----	----	----	----	----
26----	----	----	----	----	----	I 1.19	M 1.00	----	----

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

JANUARY 1959

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21	
Langleys	73	45	479	195	341	462	552	307	564	296	92	495	---	---	---	(370)	---	18	343	548	341	43	30	200
Date	22	23	24	25	26	27	28		29	30	31	1	2	3	4									
Langleys	112	495	478	30	515	34	575	320	476	118	552	472	595	588	49	407								

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21	
Langleys	63	36	38	45	75	53	29	49	25	63	83	29	---	82	41	54	20	9	73	29	54	67	18	39
Date	22	23	24	25	26	27	28		29	30	31	1	2	3	4									
Langleys	45	50	44	35	43	37	48	43	78	41	43	91	29	30	57	52								

Note: Langley is the unit used to denote one gram calorie per square centimeter.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

JANUARY 1959

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys	*-23	29	123	31	-1	27	58	*-16	-101	-77	2	53	49	*72	68	*-73	24	61	58	61	*14	*89	90	77	81	61	*90	*51	72	54	*94	39

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

** Radiometer inoperative.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

Net radiation in langleys per day (midnight to midnight) at Columbia, Mo., during the month

Date	1	2	3	4	5	[illegible]	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys		5		-106	-71																											

Readings are omitted during precipitation periods.

The measurement is made with a Beckman and Whitley net exchange radiometer 6 feet above a plot of short grass. Temperature of the plate of the radiometer is estimated using air temperature measured in a standard shelter and empirically derived relationship between air temperature and plate temperature.

These data are of an experimental nature and are published as received from the University of Missouri at Columbia. The instrument with which they are measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N.Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	* Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Maine	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Davis, Calif.	Dodge City, Kans.	El Paso, Tex.	Ely, Nev.
Jan. 1	313	102	93	76	46	---	8	90	83	94	62	164	596	115	177	52	35	103	118	294	365	261
Jan. 2	383	85	48	160	129	---	9	167	51	148	41	391	497	72	65	28	134	99	244	112	362	131
Jan. 3	317	91	201	180	313	---	13	158	215	223	184	376	405	258	100	153	199	156	267	169	352	283
Jan. 4	350	72	---	39	241	---	13	198	103	133	97	56	177	237	138	202	119	293	168	---	357	---
Jan. 5	343	64	274	34	316	---	16	179	199	35	165	41	458	359	99	163	238	272	21	315	---	166
Jan. 6	299	68	197	56	---	---	41	148	223	88	200	69	586	358	150	227	218	125	161	312	331	116
Jan. 7	334	35	263	32	---	---	---	179	242	71	217	160	592	281	149	321	52	65	67	250	340	145
Average	334	74	179	82	209	---	17	160	160	113	138	180	473	240	125	164	142	159	149	242	351	184
Jan. 8	323	11	66	59	---	---	33	180	241	183	214	330	615	112	150	113	197	212	42	(310)	360	205
Jan. 9	336	27	321	103	---	---	36	174	166	69	149	350	624	378	149	315	185	243	70	309	358	195
Jan. 10	336	22	388	71	---	---	35	94	106	90	99	375	656	376	124	336	121	240	119	291	357	115
Jan. 11	257	95	---	25	---	---	28	160	239	166	207	366	658	366	117	334	217	219	104	204	265	230
Jan. 12	337	19	394	88	---	---	64	183	219	21	192	102	590	324	119	328	185	237	108	---	334	265
Jan. 13	337	79	368	78	---	---	72	83	---	215	139	144	598	346	168	297	116	79	267	---	304	170
Jan. 14	250	37	372	133	---	---	51	193	236	210	207	362	628	347	227	249	50	43	190	---	367	210
Average	311	41	318	80	---	---	45	153	201	136	172	290	624	321	151	282	153	182	129	(280)	335	199
Jan. 15	358	62	310	52	---	---	47	213	35	161	26	362	675	326	108	264	20	229	148	---	375	234
Jan. 16	318	31	386	34	308	---	53	163	35	16	27	435	634	55	35	206	180	287	49	---	354	248
Jan. 17	327	26	237	66	---	---	48	(154)	196	121	169	166	538	353	70	314	---	255	48	---	378	284
Jan. 18	345	100	409	217	---	---	45	125	256	139	233	229	662	362	184	353	---	266	139	---	375	257
Jan. 19	283	145	396	115	---	---	46	162	192	---	166	338	646	369	186	341	---	154	228	---	327	233
Jan. 20	296	47	231	139	119	---	35	212	80	---	80	240	603	281	217	301	---	17	288	---	181	255
Jan. 21	367	17	145	36	48	---	28	218	38	148	19	378	529	228	61	156	---	104	206	---	394	293
Average	328	61	302	94	---	---	43	(178)	119	117	103	307	613	282	123	277	---	187	158	---	341	258
Jan. 22	340	22	413	46	---	---	---	144	80	122	77	352	371	90	47	330	---	279	127	---	372	242
Jan. 23	327	18	431	26	369	---	56	130	246	160	235	176	392	254	175	314	---	253	234	---	314	270
Jan. 24	373	17	297	109	339	1	33	136	256	77	239	74	540	392	213	321	---	306	49	---	415	308
Jan. 25	376	11	---	117	326	2	34	112	54	117	52	345	586	315	(182)	264	---	53	236	---	---	257
Jan. 26	375	11	244	28	347	1	38	184	273	154	241	388	443	399	245	284	---	96	238	---	401	219
Jan. 27	374	77	272	60	307	4	91	196	53	36	38	196	561	---	171	209	---	339	90	---	403	259
Jan. 28	389	23	209	113	278	3	43	80	291	149	268	115	470	79	187	19	---	85	295	---	405	205
Average	365	26	311	71	328	2	49	140	179	116	164	235	480	255	(174)	249	---	202	181	---	385	251
Jan. 29	400	43	178	196	95	3	53	170	261	---	215	277	268	368	164	53	---	72	150	---	352	255
Jan. 30	384	26	253	---	54	5	35	217	98	252	109	82	---	288	45	224	129	308	323	---	417	172
Jan. 31	396	24	144	66	103	6	47	204	309	124	270	58	---	110	205	22	211	233	324	---	425	305
Feb. 1	81	18	65	242	127	4	28	201	274	82	275	52	550	134	262	23	302	271	338	---	59	245
Feb. 2	101	23	72	89	63	6	35	227	319	232	298	65	160	373	161	34	322	320	348	---	142	362
Feb. 3	330	126	56	99	56	5	43	190	314	85	297	106	526	77	229	38	168	38	317	---	343	344
Feb. 4	418	37	99	139	41	4	61	165	68	272	112	465	331	99	72	36	118	237	327	---	437	323
Average	301	43	124	138	77	5	43	196	235	174	225	158	367	207	162	61	208	211	304	---	311	287

1959	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.
Jan. 1	348	237	62	84	256	69	29	44	32	---	78	254	220	228
Jan. 2	338	234	58	91	139	96	182	101	164	---	32	192	154	164
Jan. 3	231	188	142	173	292	180	275	319	32	---	198	97	258	255
Jan. 4	310	233	347	174	283	119	275	200	251	---	47	265	273	270
Jan. 5	311	15	273	115	252	121	329	297	285	---	124	292	194	243
Jan. 6	54	178	302	136	51	66	306	247	237	---	146	114	236	261
Jan. 7	215	120	337	165	110	61	238	257	153	---	168	158	210	247
Average	258	172	217	134	198	102	233	209	165	---	113	196	221	238
Jan. 8	309	196	113	158	222	117	45	46	196	---	123	160	246	257
Jan. 9	241	130	290	115	294	78	359	343	161	326	74	---	161	291
Jan. 10	355	136	413	117	271	103	325	347	283	316	96	388	172	225
Jan. 11	302	253	418	102	276	101	329	340	238	325	71	344	225	241
Jan. 12	116	44	417	108	303	144	260	303	217	306	134	317	267	258
Jan. 13	160	98	398	173	220	166	277	290	214	338	36	343	127	239
Jan. 14	275	28	386	111	188	55	233	155	23	356	174	221	113	124
Average	251	127	348	126	253	109	261	261	190	328	101	295	187	234
Jan. 15	134	83	371	188	301	90	260	66	21	358	12	67	238	284
Jan. 16	335	52	300	82	209	52	227	338	200	361	63	347	223	66
Jan. 17	340	35	314	193	225	88	318	343	227	370	256	184	224	225
Jan. 18	352	22	425	128	268	87	355	245	290	331	252	373	211	193
Jan. 19	234	60	432	126	138	99	325	340	71	292	71	208	175	177
Jan. 20	185	98	457	222	279	206	260	119	20	374	64	85	133	267
Jan. 21	370	234	383	187	345	158	55	73	32	362	13	283	299	305
Average	279	84	383	161	252	111	257	218	123	350	104	221	215	217
Jan. 22	(216)	168	305	206	267	91	356	382	278	287	71	416	272	182
Jan. 23	305	276	437	117	313	140	357	390	230	394	176	411	257	263
Jan. 24	94	280	357	89	308	68	315	332	254	397	143	311	215	256
Jan. 25	365	---	172	173	313	142	324	232	47	402	45	391	258	85
Jan. 26	67	243	352	228	128	141	293	409	79	373	310	287	279	287
Jan. 27	86	229	230	228	238	141	232	388	271	424	206	186	248	295
Jan. 28	170	287	301	114	157	---	99	317	327	420	335	376	197	268
Average	(186)	247	308	165	246	121	282	350	212	385	184	340	246	234
Jan. 29	350	301	161	164	233	---	139	136	23	419	119	103	293	312
Jan. 30	261	204	397	216	129	209	145	75	43	429	43	48	289	272
Jan. 31	253	280	250	266	262	244	266	129	305	419	195	93	288	221
Feb. 1	193	302	343	237	111	253	196	138	283	397	208	78	277	303
Feb. 2	59	305	84	161	284	145	247	101	268	441	332	37	321	340
Feb. 3	133	313	281	142	309	105	68	47	43	446	244	163	215	233
Feb. 4	446	318	283	181	247	154	41	46	298	447	461	362	151	199
Average	242	289	257	195	225	185	157	96	181	428	229	126	262	269

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

* The daily total solar radiation amounts for Boise, Idaho, should be reduced by 2%, from July 1, 1957 through December 1958.

NOTE: Effective with July 1957 records, U. S. Weather Bureau solar radiation data have been recorded in the International Pyrheliometer Scale of 1956. This scale provides values that are 2.0% less than those based on the Smithsonian Scale of 1913, the standard previously in use. The 1951-1955 means of daily hemispheric solar radiation, on which the percentages given in the inset map on Chart VIII are based, were not corrected at that time. These means have been replaced by a new set of means based on 1953-1957 data, and corrected to the International Pyrheliometer Scale of 1956.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

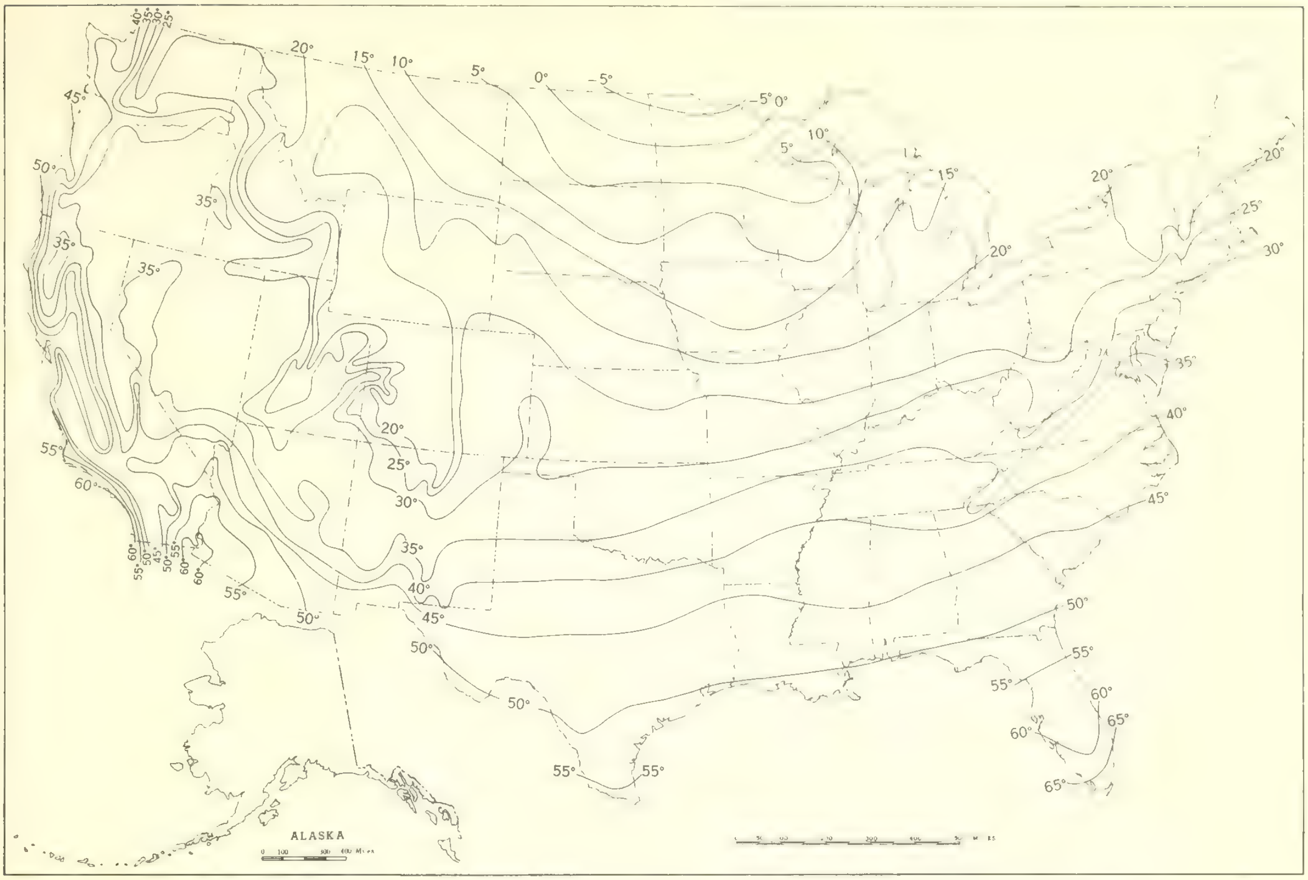
1959	Las Vegas, Nev.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Madison, Wis.	Matanuska, Alaska	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Texas	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.
Jan. 1------	284	---	297	277	292	55	8	545	88	286	---	33	163	54	126	40	343
Jan. 2------	302	148	240	226	238	85	10	431	110	310	---	275	119	188	144	221	165
Jan. 3------	314	219	401	276	264	153	6	498	206	244	311	286	201	215	215	295	240
Jan. 4------	283	297	305	268	285	(135)	10	433	70	116	322	267	76	34	284	273	361
Jan. 5------	233	284	284	119	77	---	36	549	70	385	171	328	203	330	266	315	329
Jan. 6------	150	282	127	208	195	224	25	322	71	---	352	290	235	227	252	318	211
Jan. 7------	194	80	48	177	191	122	24	---	100	---	345	50	233	252	72	81	313
Average-------	251	218	243	222	220	(129)	17	463	102	268	300	218	176	171	194	220	280
Jan. 8------	261	197	85	275	281	275	27	---	110	---	369	26	221	244	211	39	202
Jan. 9------	243	---	312	261	256	(282)	29	494	55	---	373	202	198	173	234	204	172
Jan. 10------	129	207	315	201	182	213	41	364	111	438	346	320	188	220	166	320	354
Jan. 11------	300	178	307	224	(282)	225	28	340	82	426	358	323	232	247	96	312	319
Jan. 12------	293	271	122	142	---	165	23	418	153	337	271	176	237	222	242	125	242
Jan. 13------	163	---	110	187	---	228	11	145	55	398	269	189	99	151	210	195	210
Jan. 14------	302	173	57	256	---	78	22	235	34	372	348	169	226	207	179	73	132
Average-------	242	205	187	221	(250)	(209)	26	333	86	394	334	201	200	209	191	181	233
Jan. 15------	318	315	152	296	---	146	21	542	88	414	161	18	(48)	67	280	36	286
Jan. 16------	295	318	349	291	---	257	17	548	83	231	357	285	29	2	290	323	342
Jan. 17------	323	164	105	294	---	302	59	---	53	438	360	335	206	177	172	292	351
Jan. 18------	305	251	299	146	---	207	61	---	---	416	378	219	244	240	191	206	342
Jan. 19------	238	248	33	117	---	---	68	281	195	403	204	17	192	145	227	52	225
Jan. 20------	347	99	51	288	---	136	73	580	167	274	276	49	39	12	85	107	58
Jan. 21------	305	---	203	302	309	107	34	583	74	300	421	58	26	25	308	40	303
Average-------	304	233	170	248	---	192	48	507	110	354	308	140	(112)	95	222	151	273
Jan. 22------	246	339	372	251	274	---	31	581	64	282	356	350	43	170	292	356	374
Jan. 23------	339	304	373	332	348	---	18	548	115	131	250	343	264	220	275	345	338
Jan. 24------	338	74	269	300	334	192	18	585	173	79	398	290	270	244	287	326	148
Jan. 25------	343	317	321	198	299	172	32	596	75	259	423	222	145	108	106	342	326
Jan. 26------	237	119	197	309	304	216	42	586	86	323	390	87	222	169	158	290	76
Jan. 27------	354	128	75	335	346	330	38	593	149	278	274	88	32	47	179	109	151
Jan. 28------	351	215	91	333	326	140	79	596	172	411	418	89	289	254	236	218	313
Average-------	316	214	243	294	319	210	37	584	119	252	358	210	181	173	219	284	246
Jan. 29------	369	53	102	338	346	78	25	598	67	400	198	247	217	89	39	130	313
Jan. 30------	351	348	114	347	339	---	39	598	92	374	425	96	51	67	---	152	404
Jan. 31------	351	151	65	372	370	---	10	617	131	390	307	185	299	317	186	270	344
Feb. 1------	357	---	266	347	367	---	49	627	233	429	---	251	271	227	349	82	407
Feb. 2------	371	184	114	371	368	---	28	626	288	253	---	137	324	329	193	168	215
Feb. 3------	382	175	42	337	356	142	51	623	217	497	---	73	307	290	165	117	376
Feb. 4------	389	---	315	337	362	182	21	616	256	456	452	39	58	81	228	30	488
Average-------	367	182	146	350	358	---	32	615	184	400	346	147	218	200	193	135	364

1959	Portland, Maine	Pullman, Wash.	Raleigh, N. C.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Sayville, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Silver Hill Obs.)
Jan. 1------	78	75	51	127	309	39	379	319	42	85	82	123	340	75	32	68	---	465	30
Jan. 2------	40	137	149	136	259	143	366	313	76	158	90	159	252	107	53	63	325	287	246
Jan. 3------	191	171	218	179	290	180	310	307	106	238	200	157	208	158	237	127	---	446	253
Jan. 4------	131	138	232	251	324	195	275	276	208	65	95	44	304	122	72	357	---	521	150
Jan. 5------	146	56	314	(212)	128	177	101	52	207	273	235	76	308	65	192	359	---	533	276
Jan. 6------	193	104	291	167	228	160	51	279	161	277	216	35	83	128	235	340	---	511	264
Jan. 7------	208	59	264	210	252	126	124	129	183	267	206	25	99	220	97	273	333	475	50
Average-------	141	106	217	(183)	256	146	229	239	140	195	161	89	228	125	131	227	---	463	181
Jan. 8------	211	75	50	240	319	108	374	271	134	289	220	23	59	216	221	89	328	514	144
Jan. 9------	84	104	330	224	288	195	379	128	214	230	98	32	332	89	120	122	276	526	225
Jan. 10------	198	68	316	144	251	119	364	218	206	260	190	100	354	61	109	437	333	463	237
Jan. 11------	223	70	312	182	300	48	305	316	236	283	204	42	207	64	62	420	328	510	275
Jan. 12------	167	68	276	192	260	156	73	117	46	296	166	(60)	259	105	125	413	333	524	237
Jan. 13------	299	114	301	196	306	154	108	317	198	162	108	67	197	124	125	415	329	492	241
Jan. 14------	221	148	248	104	323	95	320	329	54	256	157	95	203	39	145	360	353	531	235
Average-------	200	93	262	183	292	125	275	242	155	254	163	(60)	230	100	130	322	326	509	228
Jan. 15------	26	57	268	240	341	164	301	335	125	72	23	33	50	41	33	405	355	488	196
Jan. 16------	18	30	93	88	307	207	387	335	178	21	22	53	357	64	50	314	341	540	28
Jan. 17------	191	39	332	248	342	217	280	332	180	238	136	63	346	54	185	363	344	487	307
Jan. 18------	238	207	315	143	300	83	271	345	168	303	180	106	353	136	207	427	354	451	278
Jan. 19------	405	93	296	109	222	211	199	343	159	210	95	146	85	136	79	395	359	459	139
Jan. 20------	125	207	262	215	356	148	288	357	237	43	98	79	99	212	34	405	382	538	77
Jan. 21------	28	105	89	270	333	224	310	303	75	49	16	36	332	80	40	357	389	328	69
Average-------	147	105	236	188	314	179	291	336	160	134	82	74	232	103	90	381	361	470	156
Jan. 22------	68	77	302	201	321	172	313	285	150	120	197	19	244	68	204	105	375	437	293
Jan. 23------	239	62	320	184	365	160	172	349	233	284	171	21	326	64	182	412	384	437	305
Jan. 24------	241	124	329	187	361	163	74	324	130	290	216	24	293	110	105	213	395	535	231
Jan. 25------	92	214	340	145	326	221	122	184	235	235	143	165	296	203	27	40	---	417	300
Jan. 26------	272	108	307	214	360	---	119	370	148	213	273	70	198	53	85	220	393	553	37
Jan. 27------	91	35	205	275	382	238	75	---	169	39	159	95	104	95	185	181	403	562	32
Jan. 28------	274	75	62	229	369	42	132	279	79	352	298	68	154	50	271	274	409	470	319
Average-------	182	99	266	205	355	166	144	299	163	219	208	66	231	92	151	206	393	487	217
Jan. 29------	241	162	116	194	375	121	112	289	46	150	203	154	84	132	47	423	391	340	71
Jan. 30------	82	99	118	154	378	255	219	284	129	113	73	31	72	71	49	392	---	481	116
Jan. 31------	298	---	207	254	410	282	145	293	191	365	281	97	177	111	289	419	417	459	255
Feb. 1------	298	---	119	209	312	281	47	290	202	269	290	203	38	245	265	212	---	582	207
Feb. 2------	287	---	285	322	414	265	84	303	180	371	300	112	29	37	336	396	315	589	320
Feb. 3------	294	78	51	164	386	215	101	300	48	351	279	26	---	53	269	345	430	551	246
Feb. 4------	77	253	35	239	397	153	452	301	207	89	119	99	409	262	45	396	433	495	74
Average-------	225	148	133	220	382	225	166	294	143	244	221	103	135	130	186	369	397	500	184

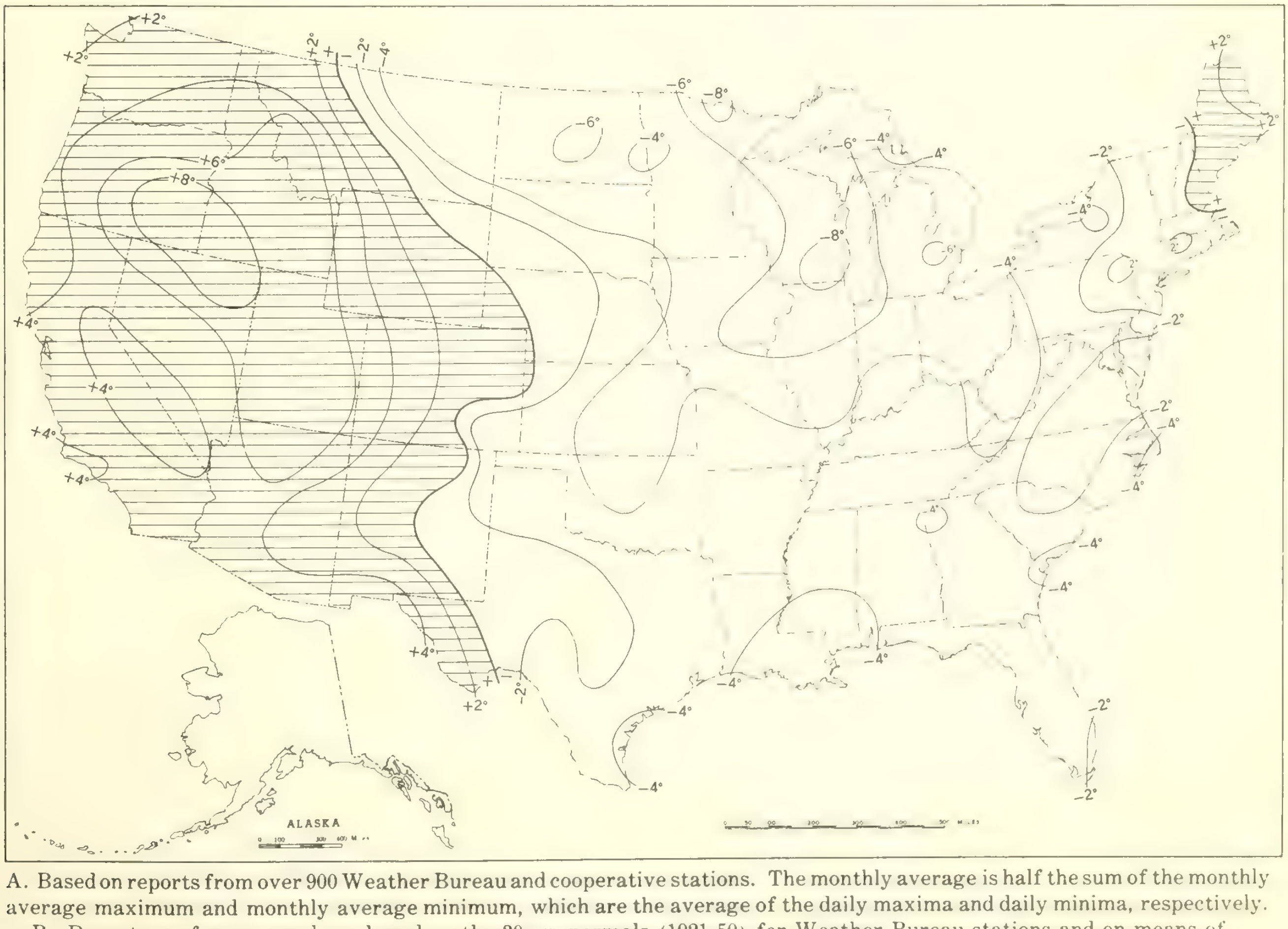
Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

USCOMM-WB-Asheville - 4/1/59 - 2400

Chart I. A. Average Temperature (°F.) at Surface, January 1959.



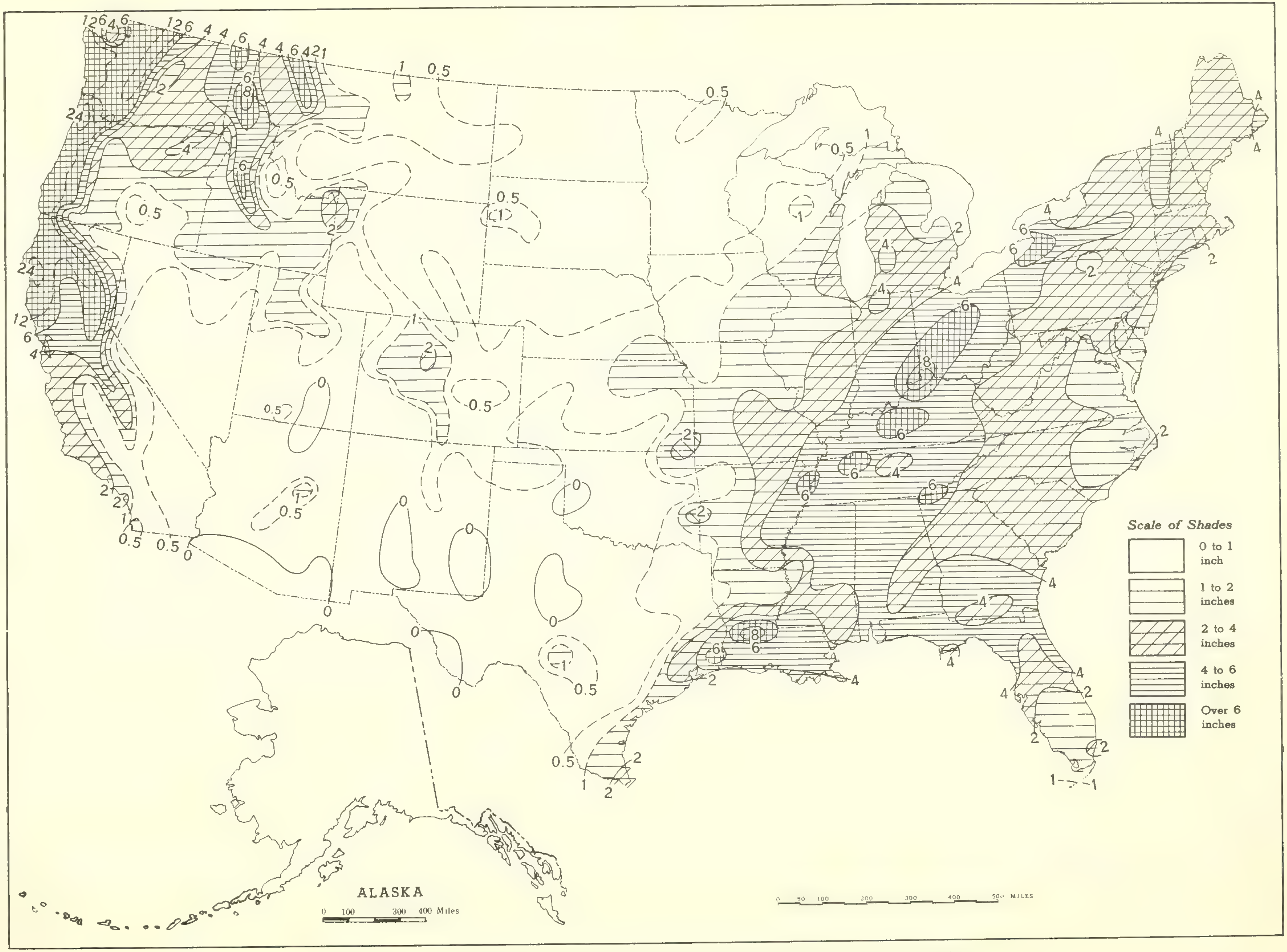
B. Departure of Average Temperature from Normal (°F.), January 1959.



A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

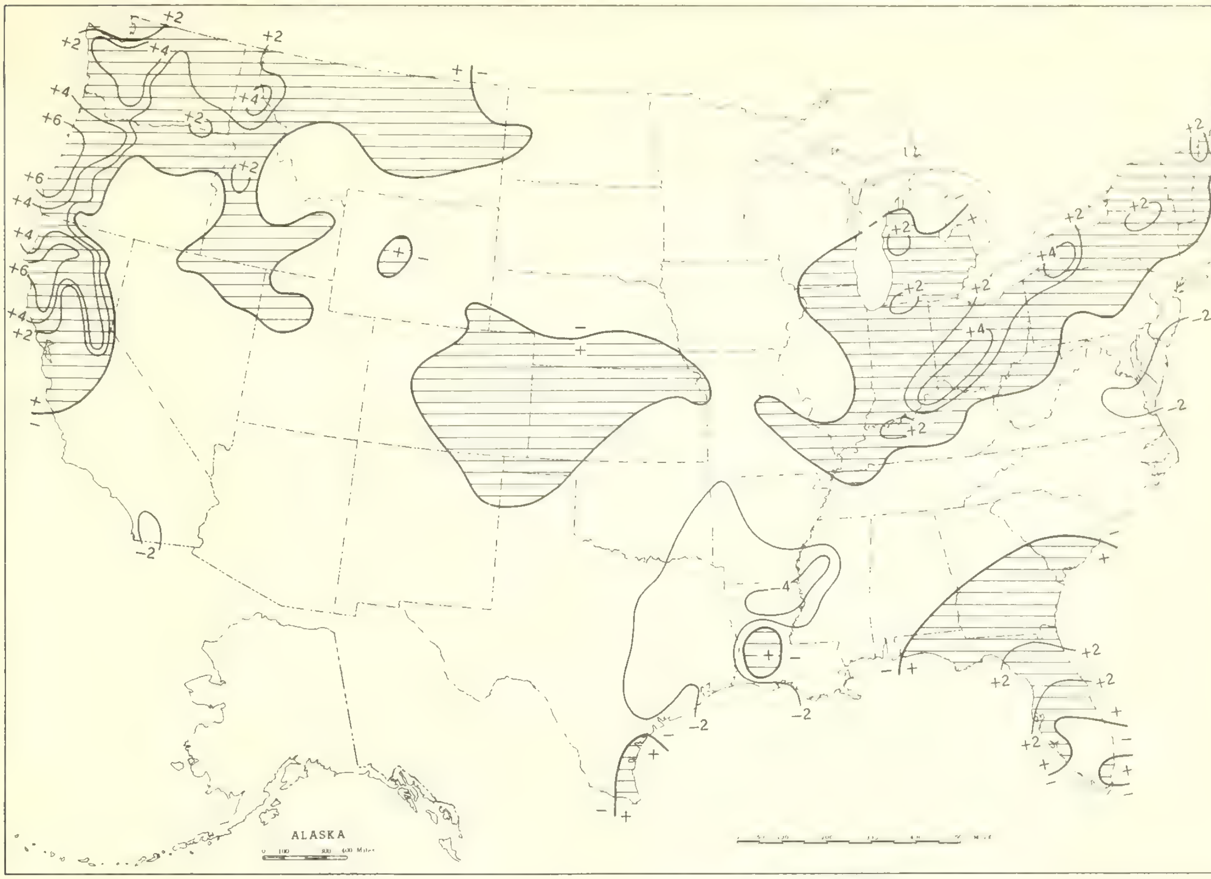
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), January 1959.

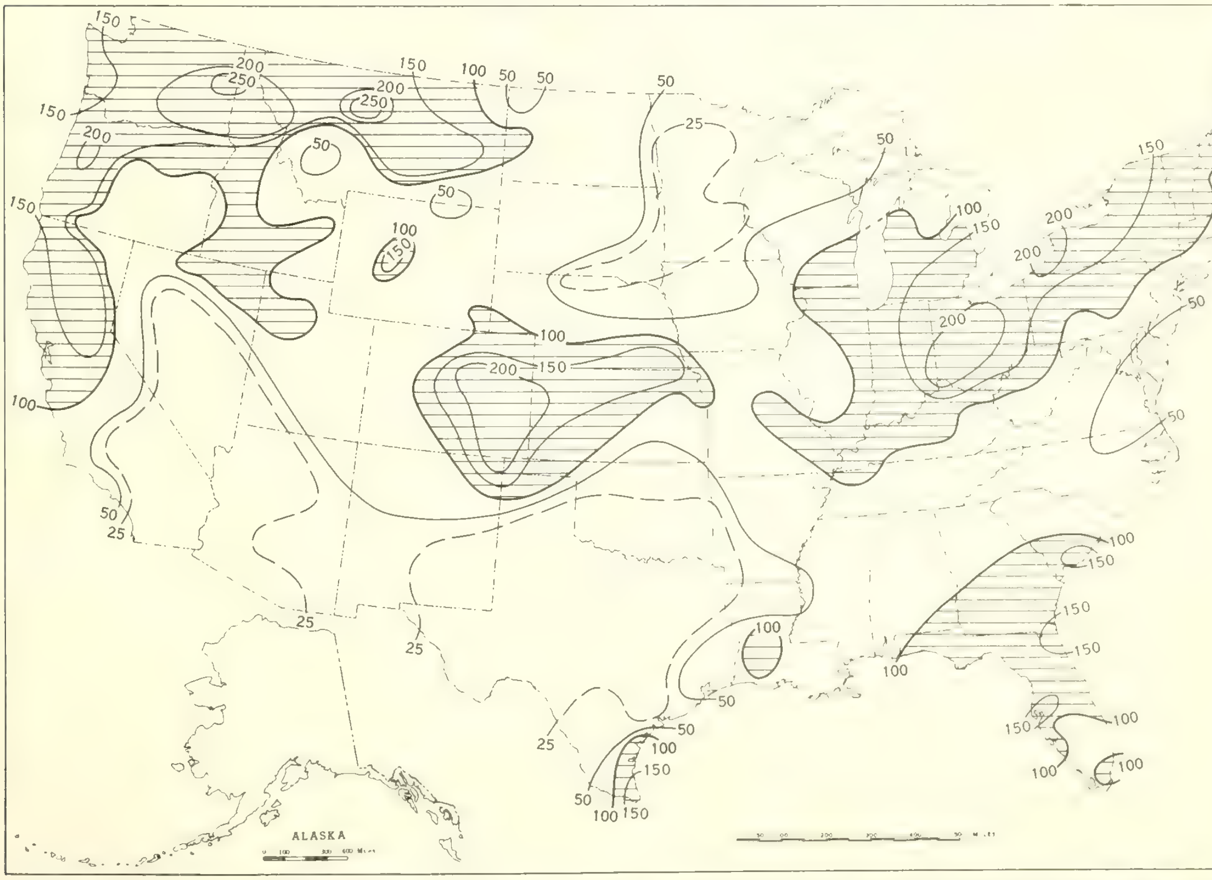


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), January 1959.

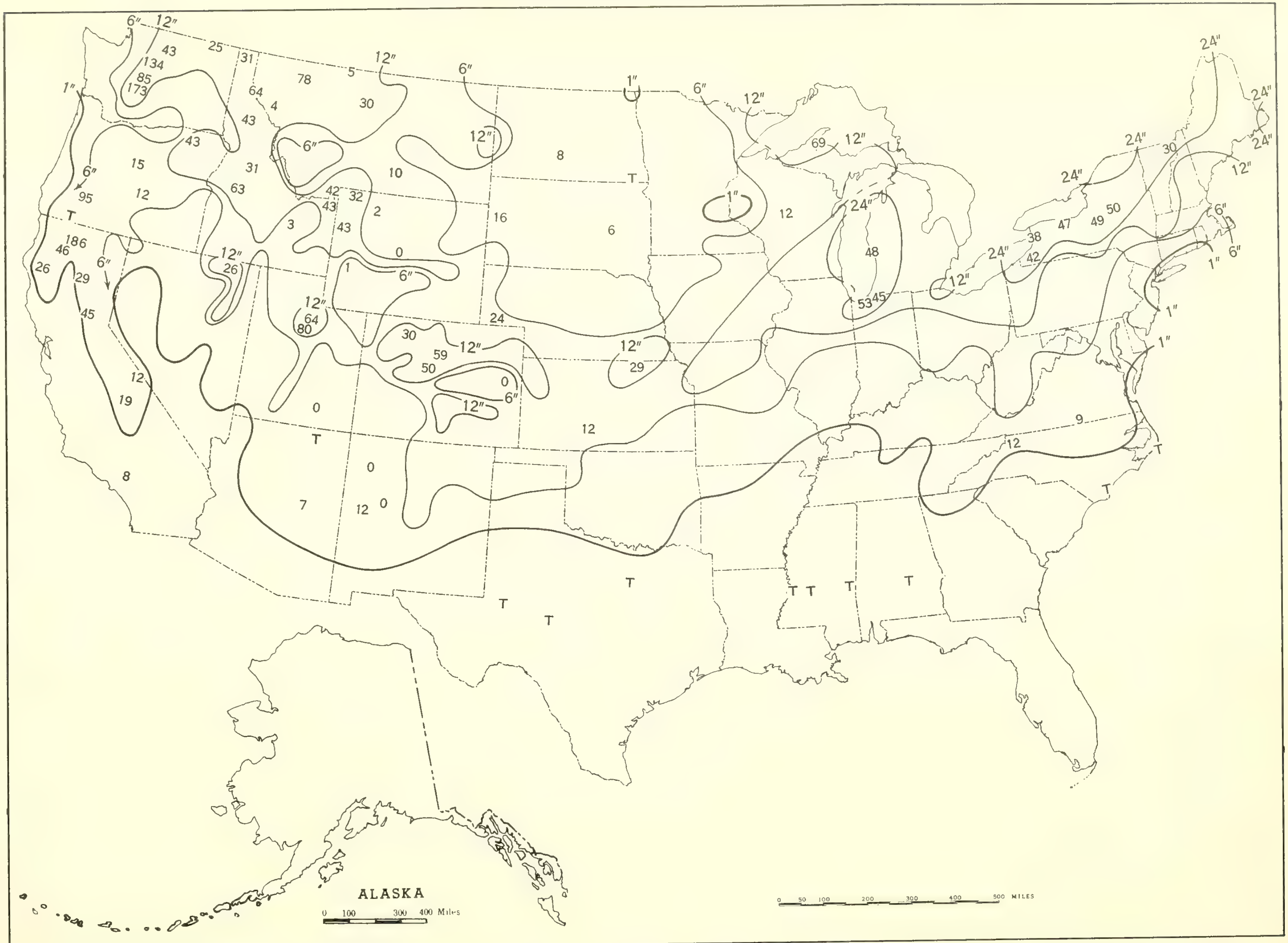


B. Percentage of Normal Precipitation, January 1959.



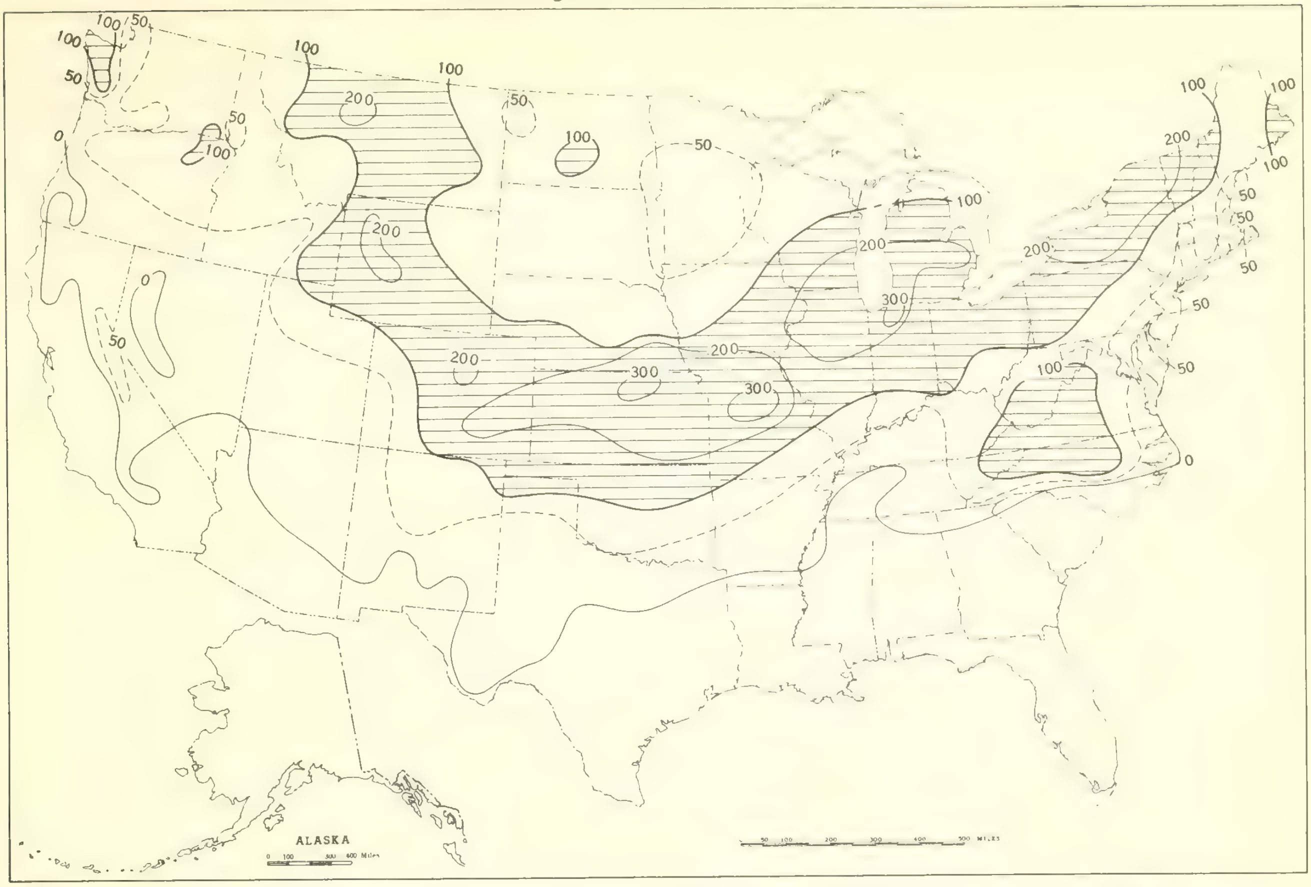
Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), January 1959.

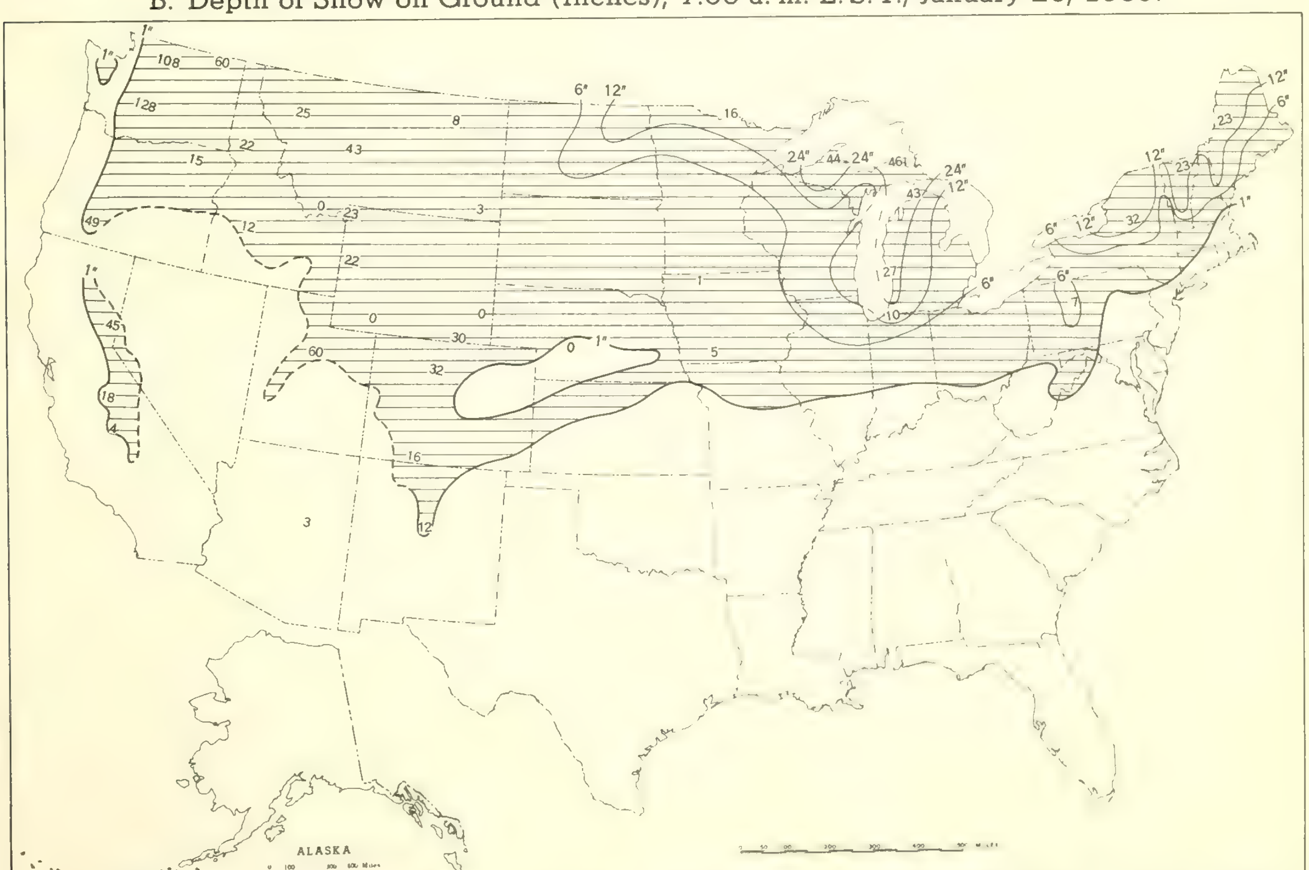


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, January 1959.

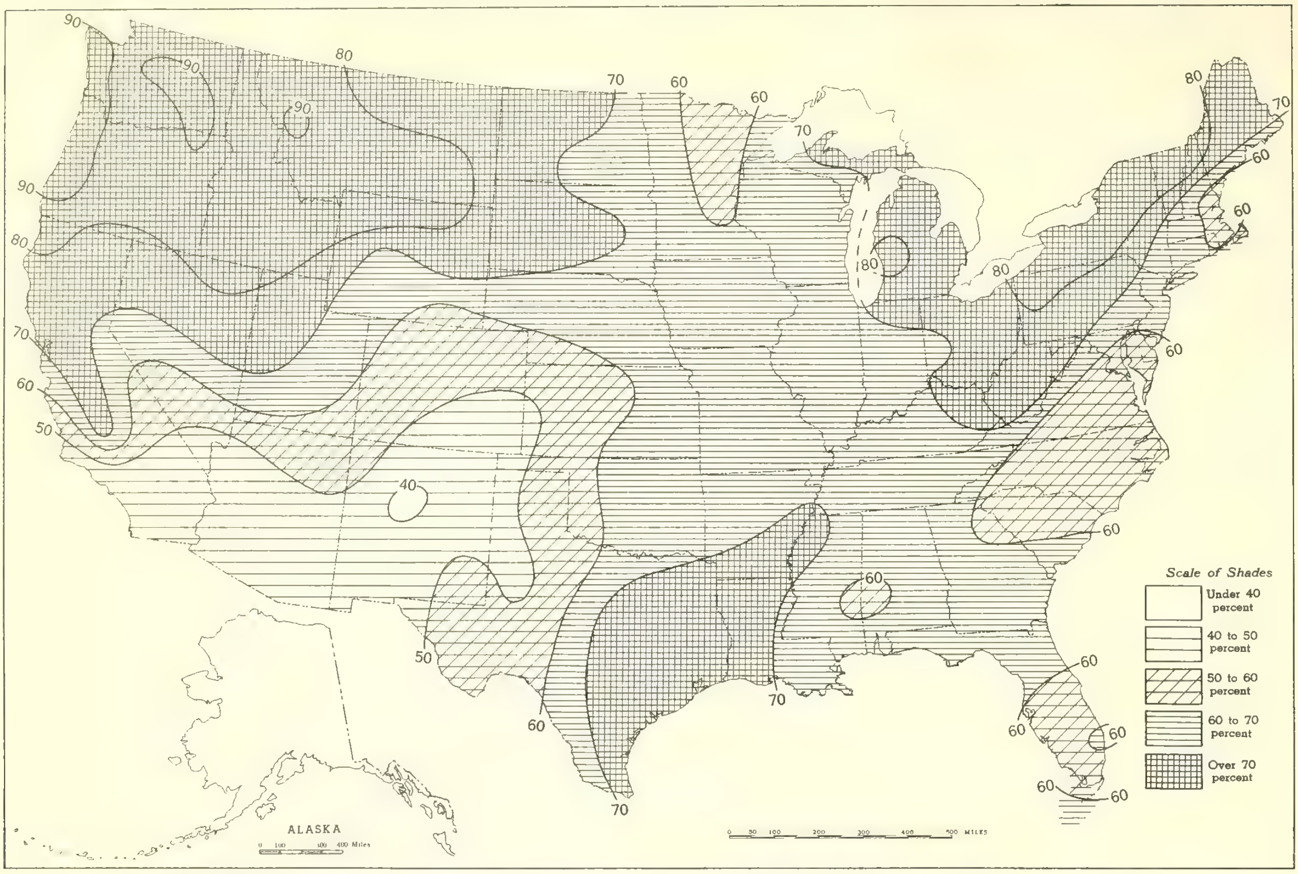


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., January 26, 1959.

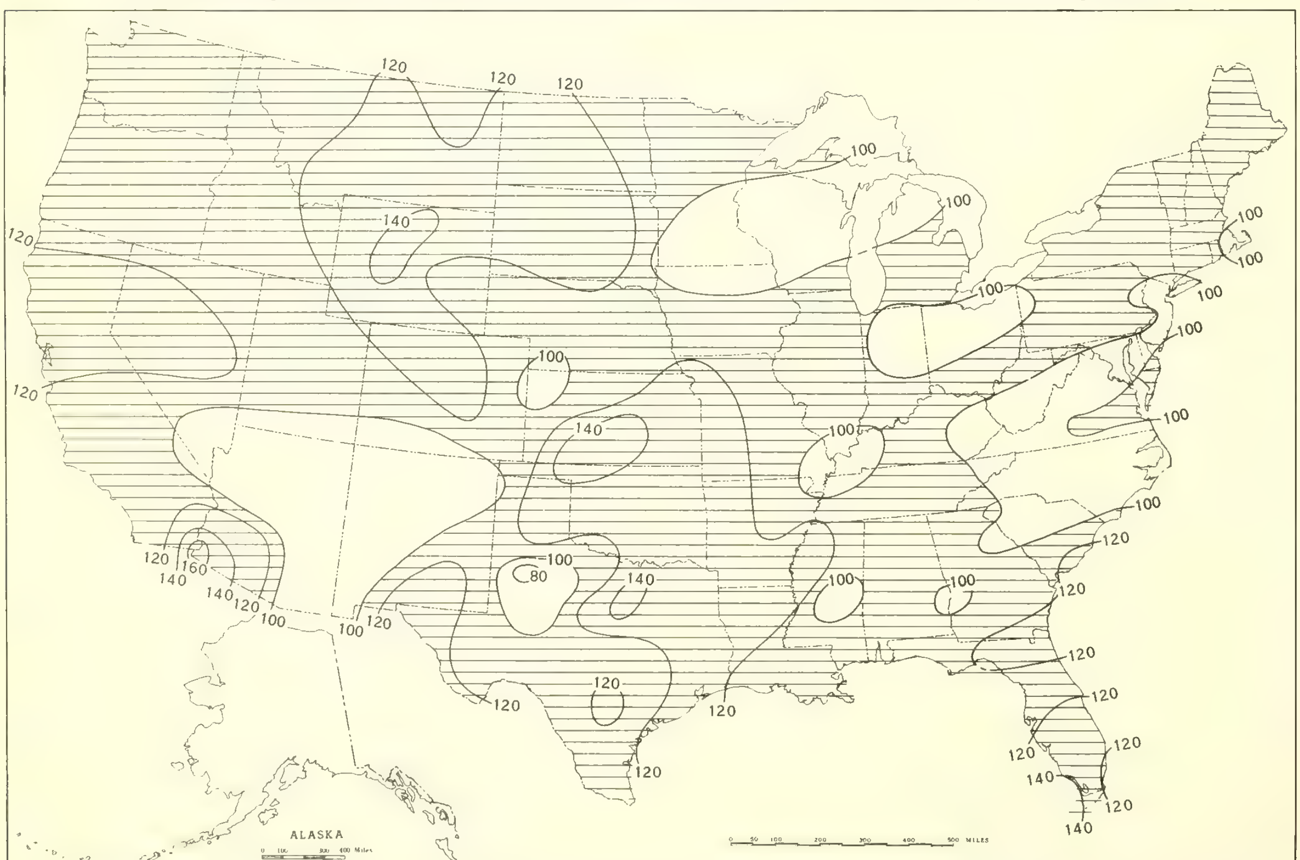


A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
B. Shows depth currently on ground at 7:00 a. m. E. S. T., of the Monday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, January 1959.

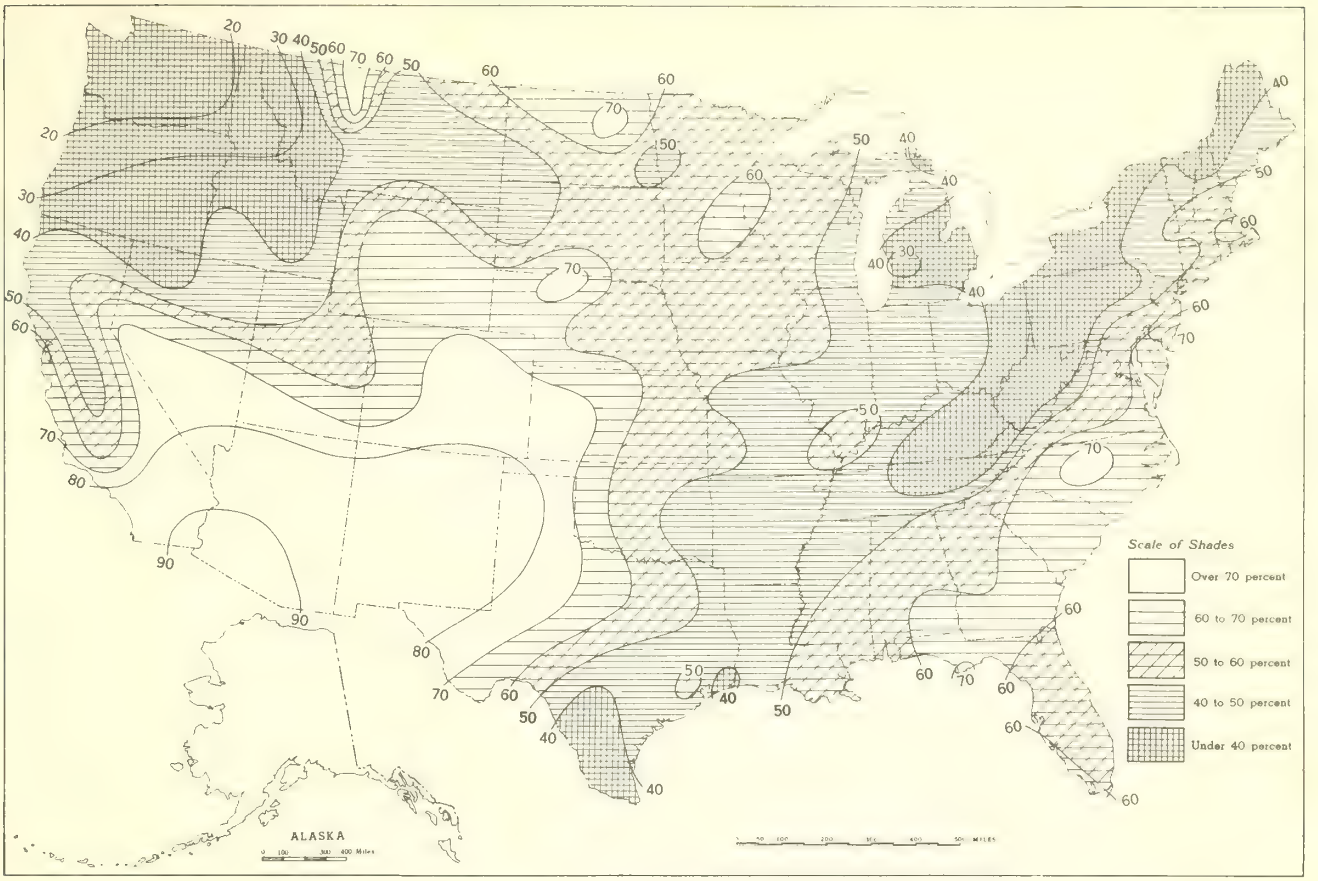


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, January 1959.

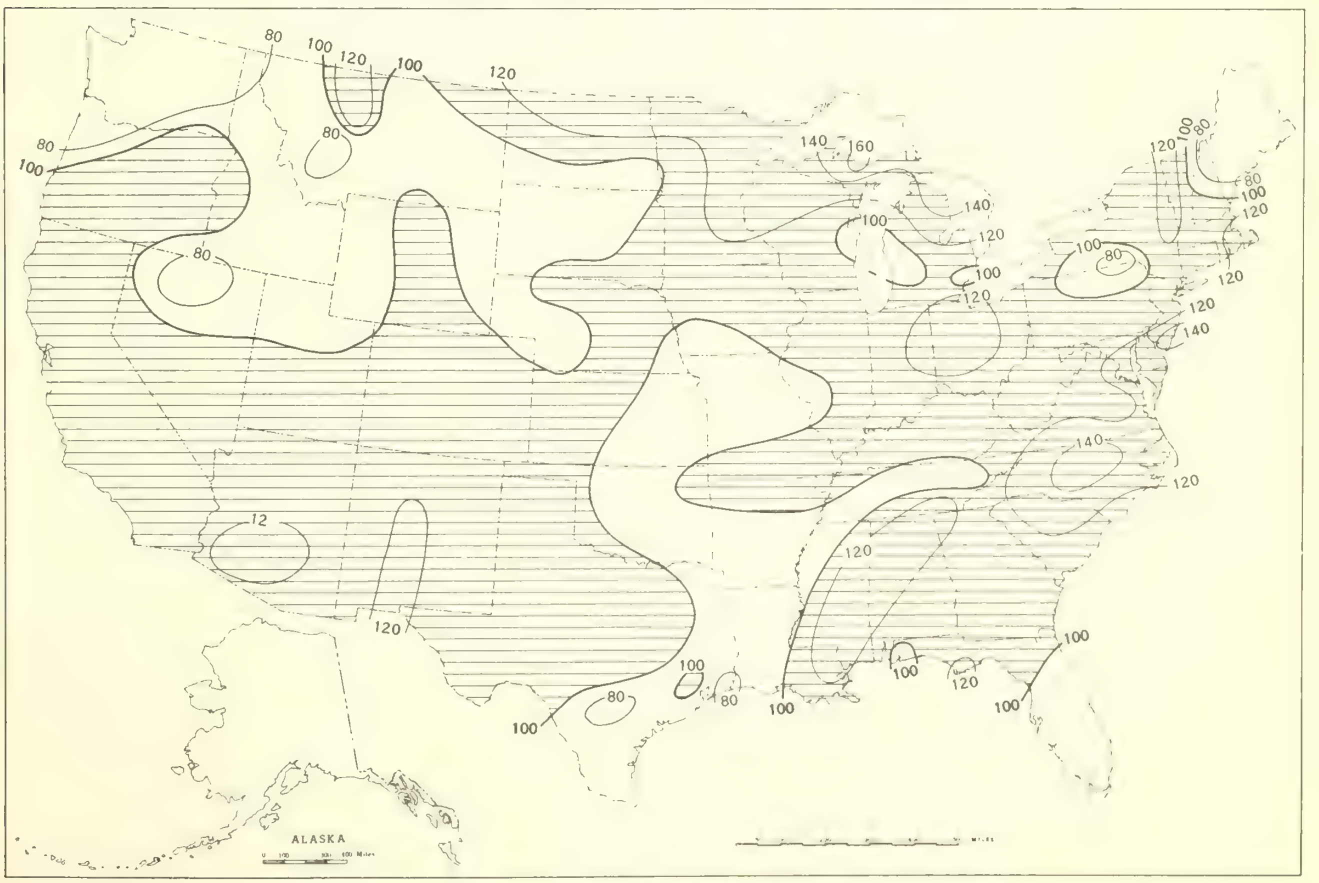


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, January 1959.

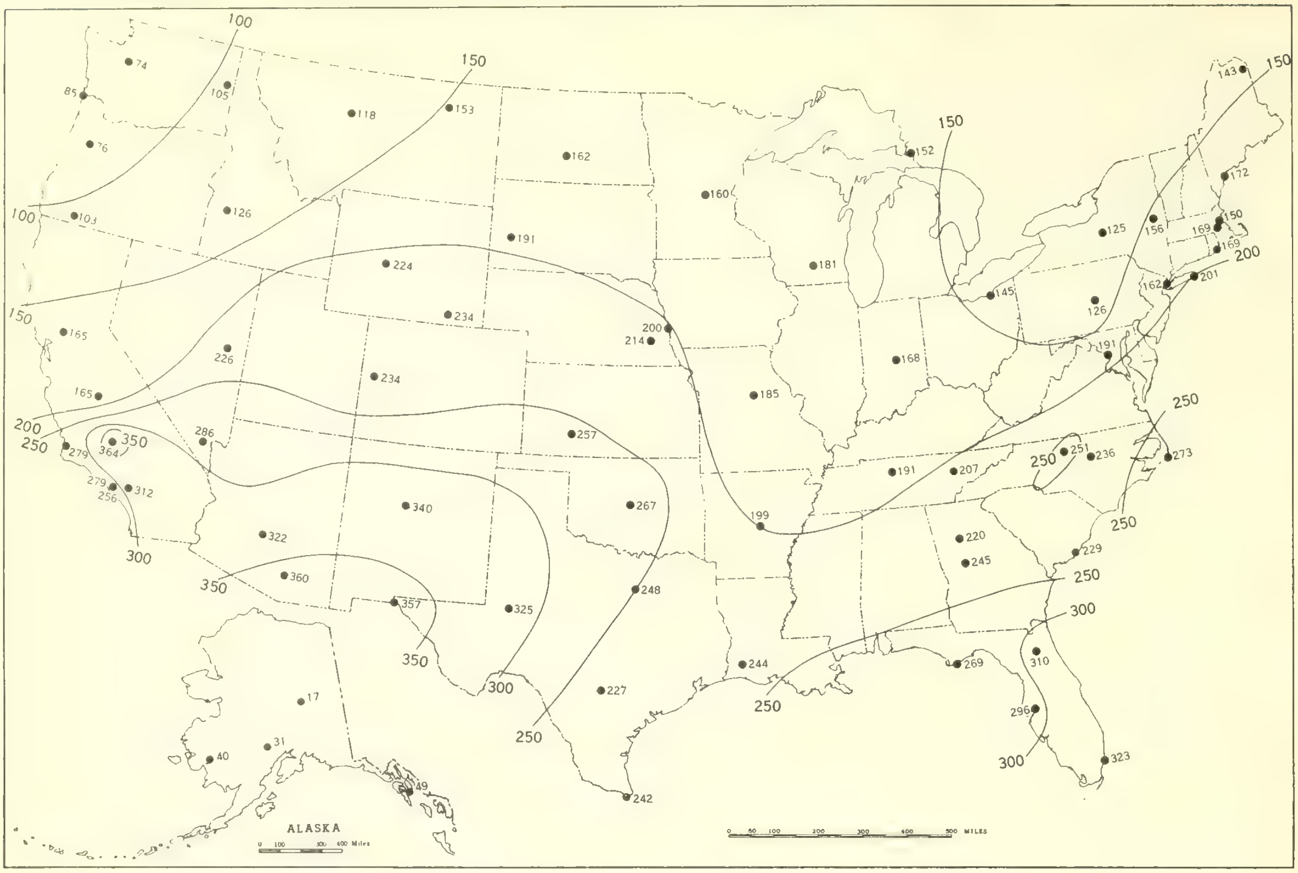


B. Percentage of Normal Sunshine, January 1959.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, January 1959.

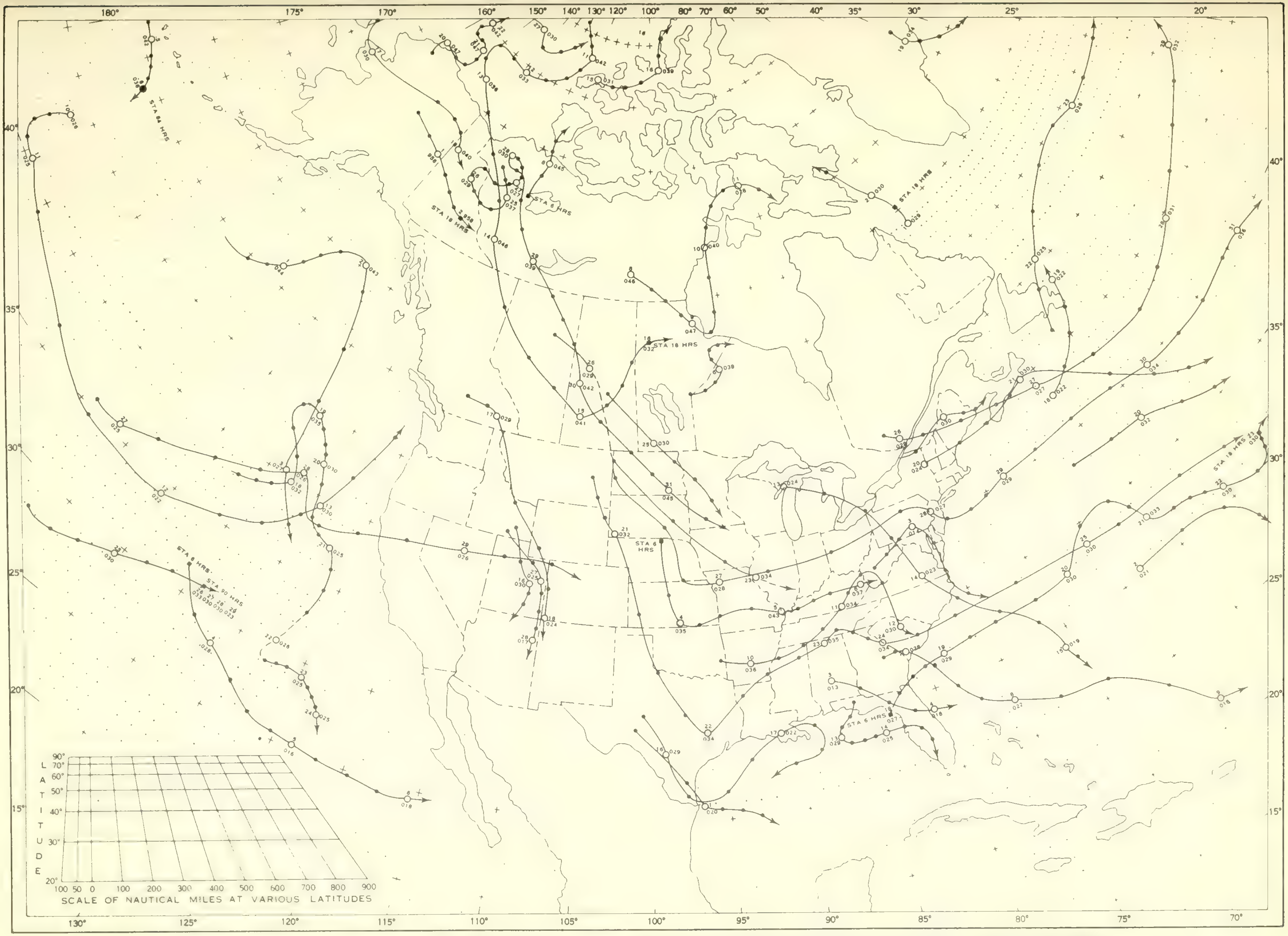


B. Percentage of Mean Daily Solar Radiation, January 1959.

A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. $^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

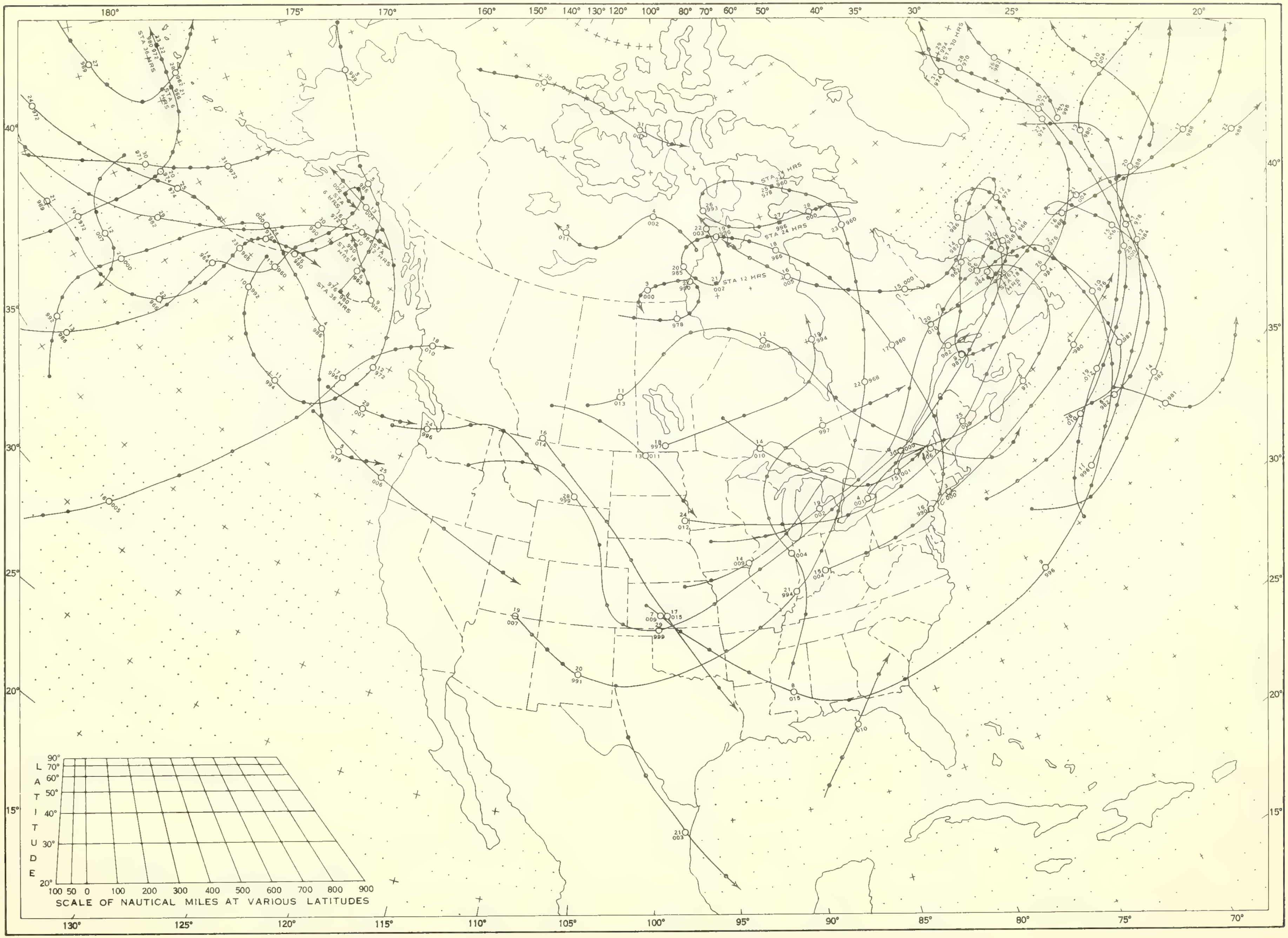
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, January 1959.



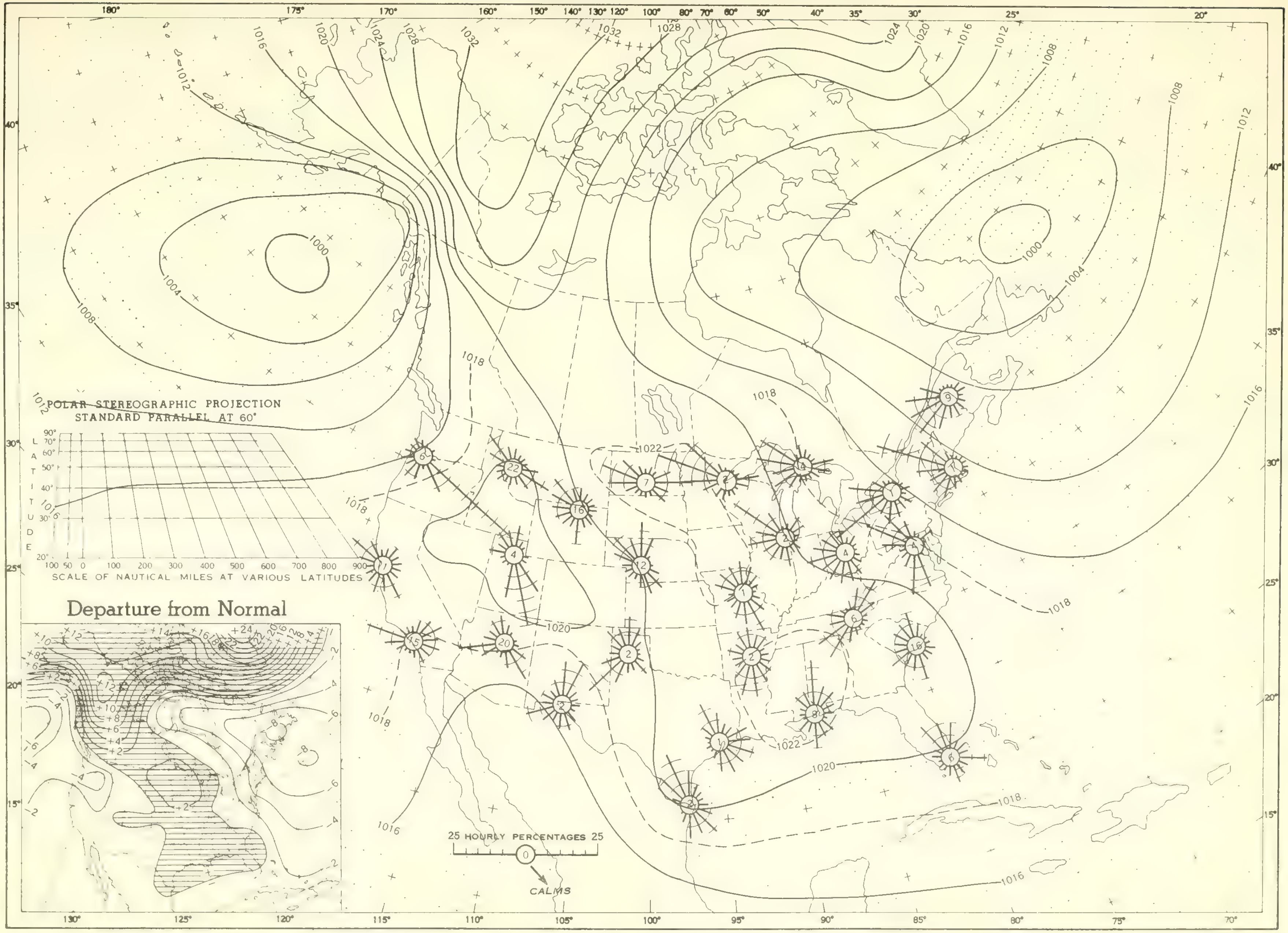
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, January 1959.



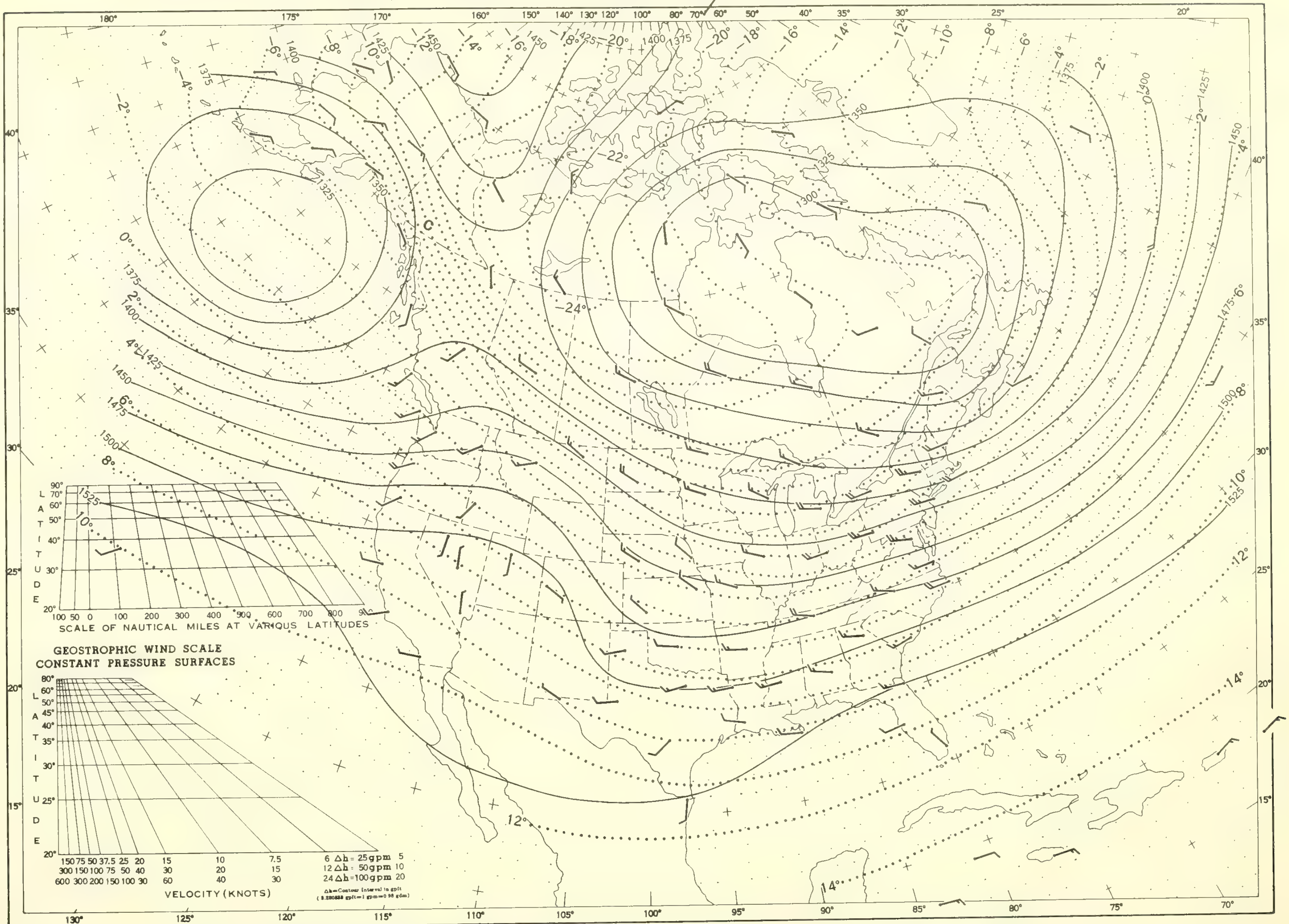
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, January 1959. Inset: Departure of Average Pressure (mb.) from Normal, January 1959.



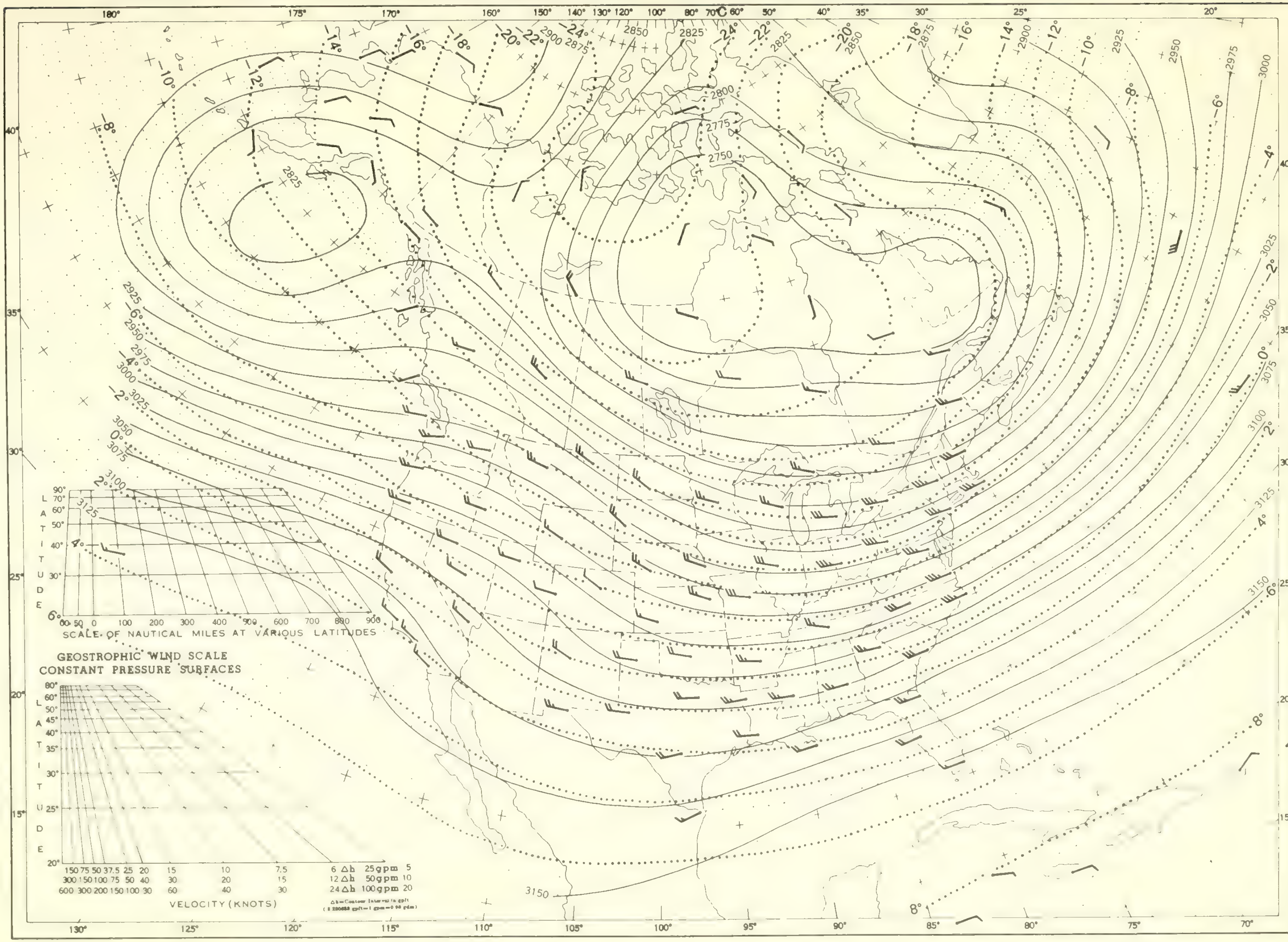
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, January 1959. Average Height and Temperature, and Resultant Winds.



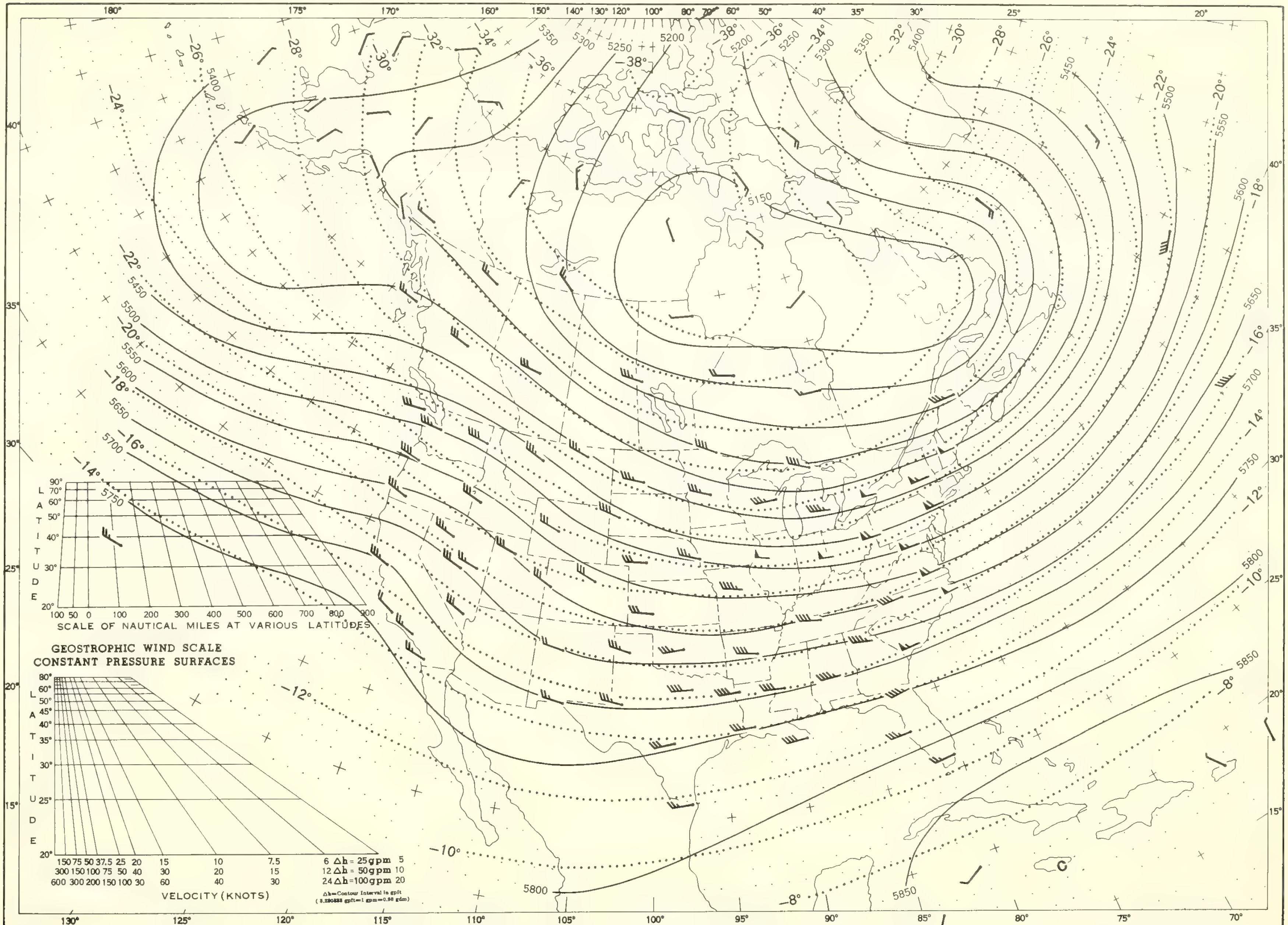
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, January 1959. Average Height and Temperature, and Resultant Winds.



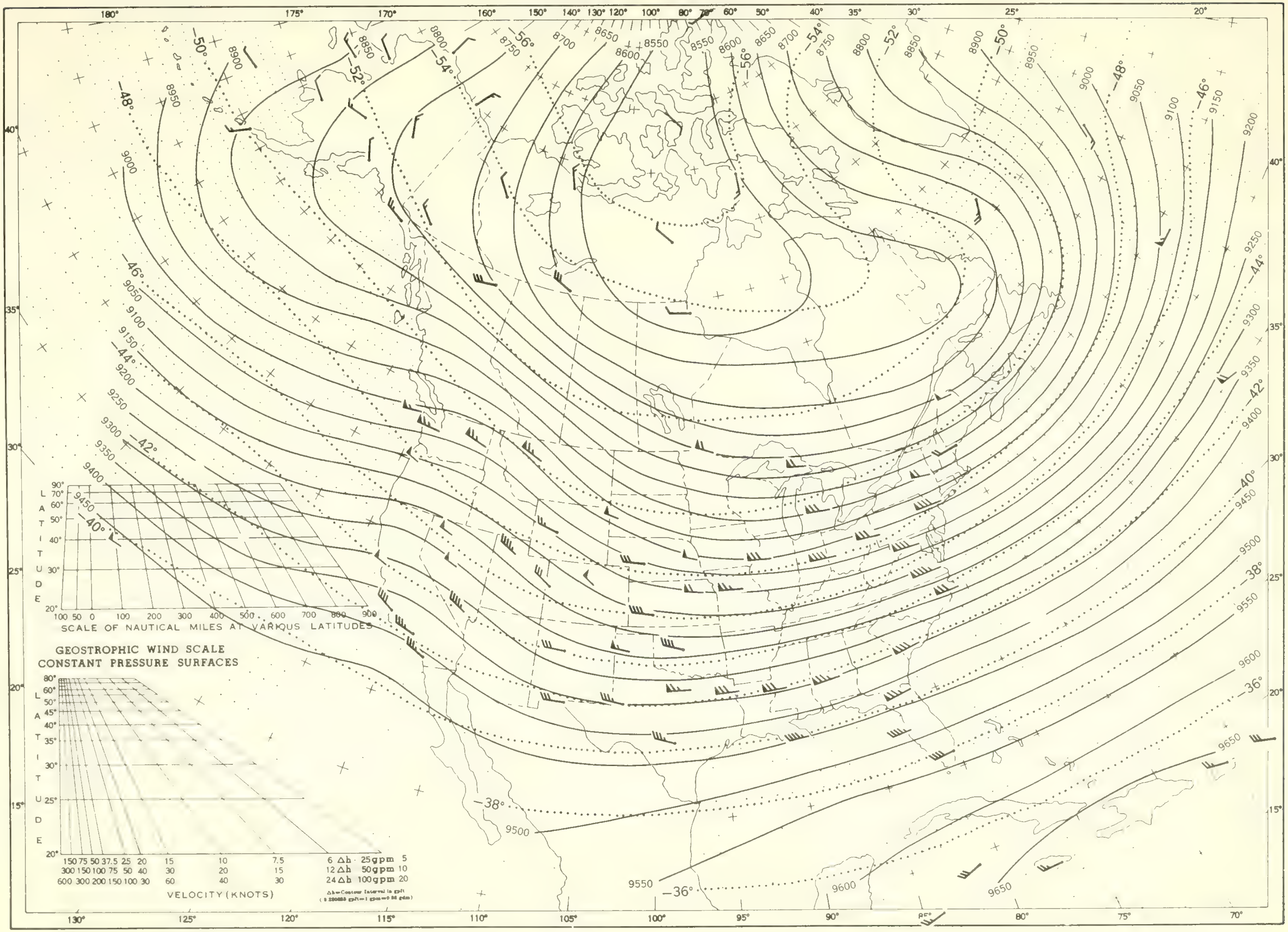
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, January 1959. Average Height and Temperature, and Resultant Winds.



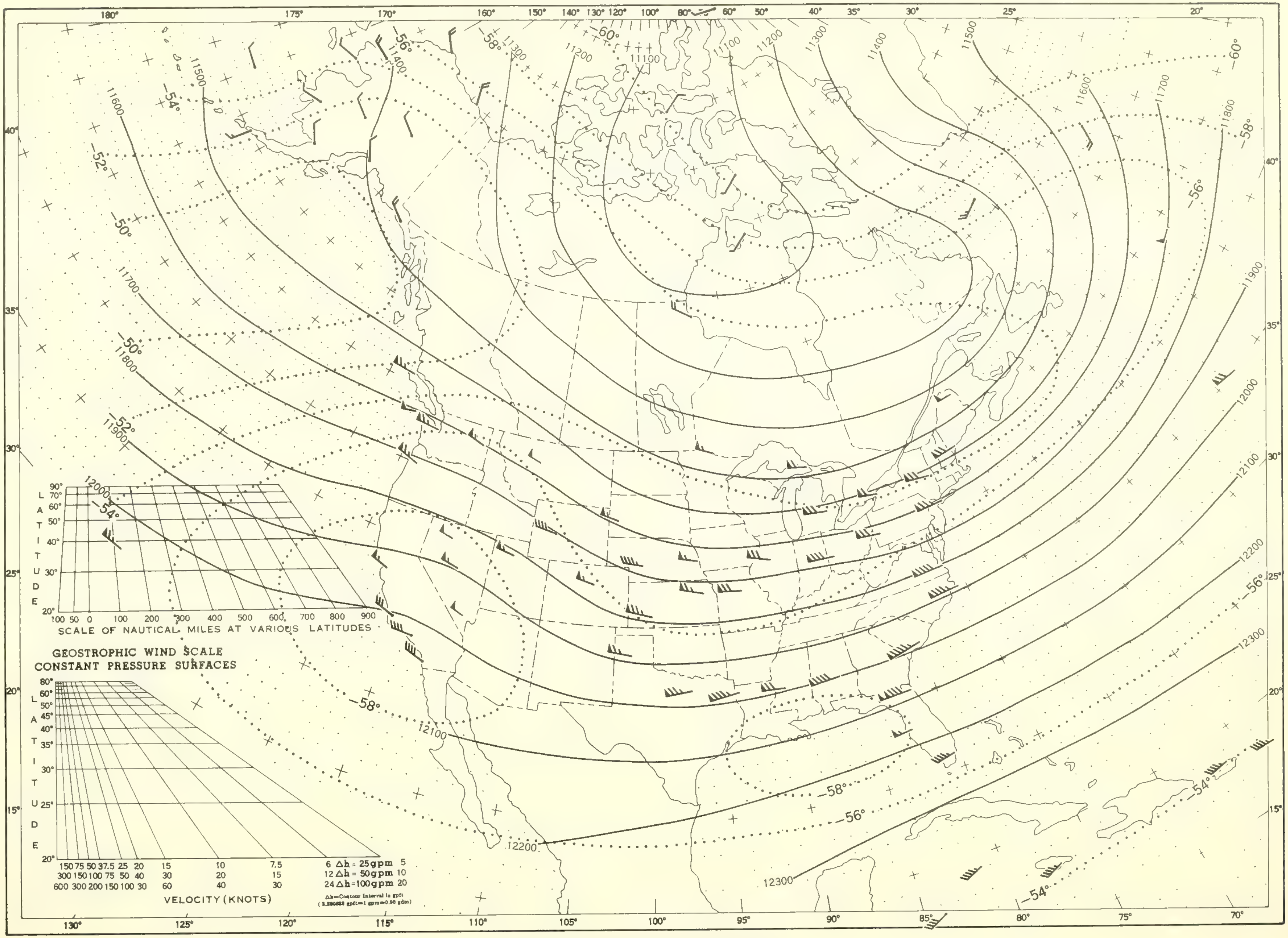
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, January 1959. Average Height and Temperature, and Resultant Winds.



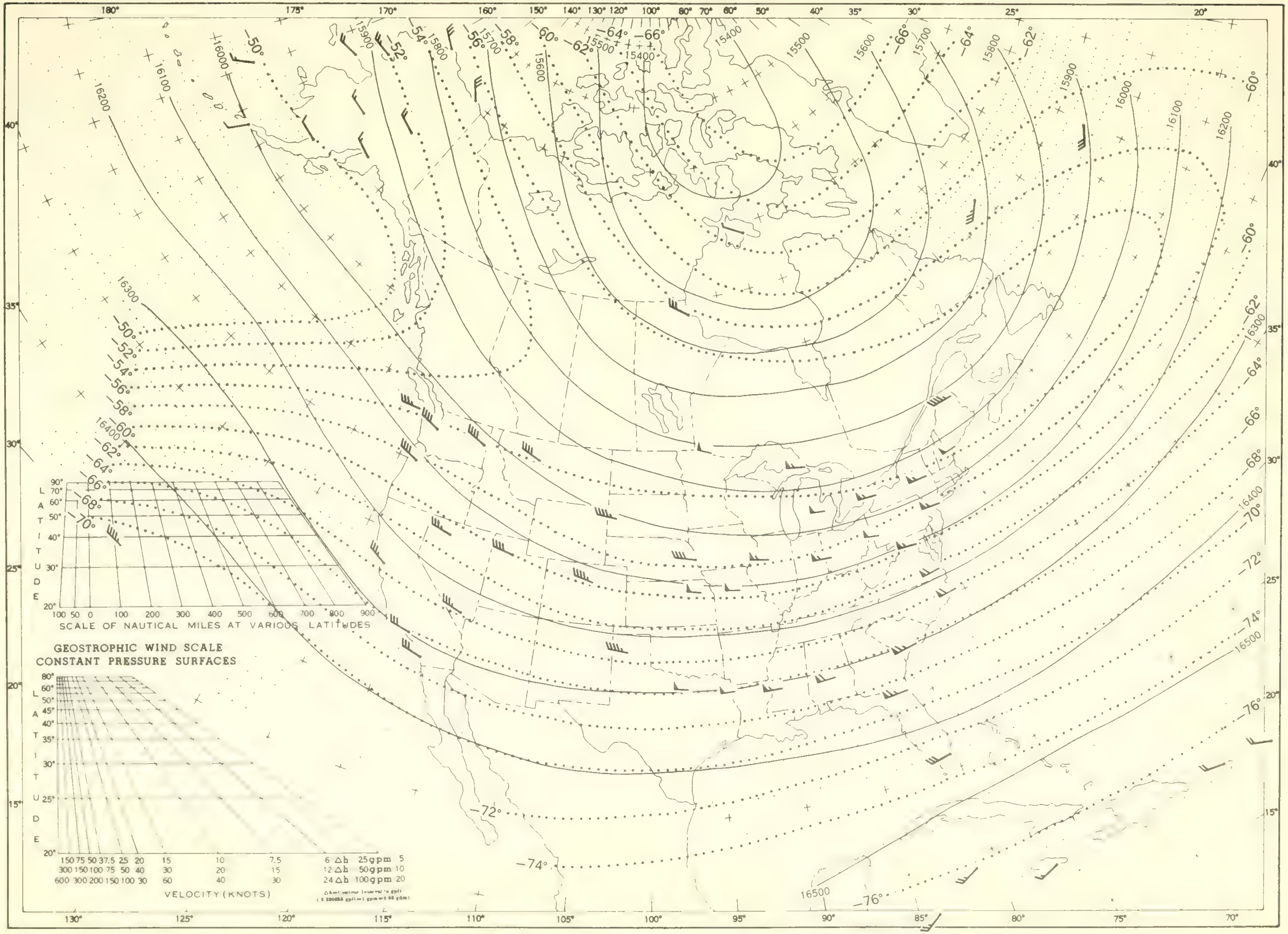
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, January 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, January 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE
LEWIS L. STRAUSS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

FEBRUARY 1959

Volume 10 No. 2

ASHEVILLE: 1959

CONTENTS

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

In the interest of economy, and to speed up publication, the 16 pages of maps formerly carried in color in this publication will hereafter appear in black and white.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 2 FEBRUARY 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

Weather conditions during February were highlighted by Ohio and Indiana floods, a St. Louis tornado, heavy rains which improved soil moisture conditions in California and relieved prolonged soil moisture shortages in sections of the South, severe glaze damage in Illinois, and extreme cold periods in northern areas east of the Rockies which produced unusually thick ice and deep frost penetration.

TEMPERATURE.--February was rather cold in the Great Plains and extreme Northeast, but unusually mild in the Florida Peninsula where February 1958 was the coldest on record. Elsewhere in the Nation monthly averages were near normal.

In northern areas east of the Rockies the month started off extremely cold with Bemidji, Minn., recording -40° on the 1st and Lone Rock, Wis., and Newport, Vt., -36° and -25°, respectively, on the 2d. In the midcontinent region temperatures for the week ending the 9th averaged 9° to 12° below normal, with subzero minima in extreme northern areas east of the Rockies the latter part of the week dipping to -36° at International Falls, Minn., on the 6th and to -34° in the northern Adirondacks and at Newport, Vt., on the 9th.

The following week was unusually mild in the Ohio Valley and Southeast. Rapid warming sent afternoon highs into the 60's in the Ohio Valley early in the week, and highs reached the 60's and 70's in the Southeast on several days. Weekly averages ranged up to 9° above normal in the Ohio Valley and up to 15° in the Southeast. In contrast, the week was as much as 9° colder than normal in the Great Basin and 15° in the northern Great Plains.

For the week ending the 23d temperatures averaged normal to slightly above in the Far West and below normal elsewhere. Cold air invaded all areas east of the Rockies in the course of the week, and subzero minima between the Great Lakes and the Rockies on the 18th, 19th, and 20th extended southward to southern Nebraska and northern portions of Missouri, Illinois, and Indiana with a low of -33° reported by Pukwana and LaDelle, S. Dak., on the 19th and -37° by Pellston, Mich., on the 20th. Subzero minima occurred in inland areas of the Northeast the last few days of the week, with a low of -31° at Presque Isle, Maine, on the 24th. Freezing extended southward to Jacksonville, Fla. Ahead of this oold air mass temperatures in the lower Great Plains rose to near record high levels for the season on the 17th, when highs ranged in the 80's and 90's in Texas and in the 80's in parts of Oklahoma.

The remainder of the month, following the 23d, generally was mild, dry, and sunny. Thawing occurred in northern areas on several days, and temperatures were above normal over almost the entire Nation.

In Wisconsin frost penetration into the ground ranged from 3 to 6 feet, and ice was about 15 inches thick in southern portions and 30 to 35 inches in northern portions of the State. Frost generally ranged from 4 1/2 to 5 1/2 feet deep in Minnesota, with an extreme of 7 feet reported at Wadena. In northern Connecticut frost was 40 to 60 inches deep.

Portland, Maine, had a monthly average temperature of 18.1°, the lowest there in 25 years, and Madison, Wis., had 16.3°, the lowest there in 30 years. In contrast, Fort Myers, Fla., with an average of 71.2°, had its second mildest February on record.

PRECIPITATION.--February precipitation was less than 50 percent of normal in large areas of the central and southwestern Great Plains and extreme upper Mississippi Valley. Areas with 200 percent or more of precipitation for the month included Gulf and south Atlantic coastal sections, a band extending from northeastern Iowa across northern portions of Illinois, Indiana, and Ohio, southern Montana, and a few other widely scattered small areas.

During a frontal passage the first 4 days of the month, precipitation was moderate to heavy in the Southern States from eastern Texas to the Carolinas and light to moderate elsewhere east of the Rockies. From the 8th to the 10th precipitation fell in virtually the entire country as fronts and storm areas were widespread. Moderate precipitation fell in the Ohio Valley and South again on the 12th, 13th, and 14th, with moderate amounts in the Northeast on the 14th. Moderate precipitation again fell east of the Mississippi River on the 22d and 23d, and heavy amounts in Gulf coastal sections on the 24th, 25th, locally again on the 27th in the extreme Southeast, and moderate amounts in the Ohio and mid-Mississippi Valleys on the 28th.

Heavy rains fell on frozen ground in the Ohio Valley on the 9th and 10th and caused severe flooding. Twenty-four hour amounts exceeded 2 inches at many stations including Akron, Ohio, where 2.57 inches set a new record for February.

Several stations scattered over the Nation reported unusually heavy totals for February. Prescott, Ariz., measured 2.14 inches for one of its wettest Februarys on record; Savannah, Ga., measured 5.17 inches for its wettest February since 1919; New Orleans, La., measured 10.86 inches for its wettest February since 1894; Port Arthur, Tex., had 11.76 inches for its second wettest February on record; and Houston, Tex., had 11.33 inches, a new February record.

SNOWFALL.--Few unusual snowstorms occurred during February. Falls, however, were frequent in extreme northern areas east of the Rockies and unusually deep covers accumulated locally. For example, in central portions of Wisconsin depths ranged from 15 to 20 inches and in Upper Michigan up to 50 inches. The cover in central areas remained north of the Ohio River, but in the Great Plains it extended into northern Texas at the beginning of the month and again on the 20th. In the Far West, a few inches of snow covered lower elevations in extreme northern areas after the first decade, and most areas east of the Sierras during the second week. A monthly total of 31 inches set a new February record at LaCrosse, Wis., where 6.4

inches fell from the 4th to the 6th, 9.6 inches from the 9th to the 11th, and 10.9 inches on the 22d and 23d.

DESTRUCTIVE STORMS.--The St. Louis tornado during the early morning of the 10th was the worst storm of the month. Twenty-one persons lost their lives, 345 others were injured, and 47 buildings or homes were destroyed and 1,000 more sustained major or minor damage. Early estimates of total property losses were placed at $10 to $12 million.

Glaze damage in Illinois on the 9th and 10th was estimated at $1 million. Less severe damage occurred on the same dates in other sections of a belt extending from Kansas to southern New England.

Several stations in north-central areas measured unusually high pressures on February 1. Among these were Des Moines, Iowa, which had 31.06 inches (m.s.l.) for a new record and Fargo, N. Dak., with 31.10 inches (m.s.l.) which was the highest there since December 28, 1917.

CONDENSED CLIMATOLOGICAL SUMMARY

FEBRUARY 1959

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	2 Stations	85	10	Waterloo	9	9	Atmore State Farm	8.56	Flat Rock	2.59
Arizona	Bouse	85	28	2 Stations	-12	15+	Camp Wood	5.68	Yuma Valley	.16
Arkansas	4 Stations	78	18+	Harrison	-7	6	Burdette	10.22	Camp Chaffee	1.00
California	Indio US Date Gar	89	28	Bridgeport	-25	13	Upper Mattole	22.69	Eagle Mtn	.01
Colorado	Springfield 8S	72	16	Fraser	-37	14	Wolf CR Pass 1E	7.02	Conejos 3NNW	.07
Connecticut	Norwich Pub Util Pl	52	5	Putnam	-9	25	Brooklyn	3.79	Bridgeport WB AP	2.08
Delaware	2 Stations	67	11+	3 Stations	8	21+	Middletown 2S	2.42	Georgetown 5SW	1.45
Florida	7 Stations	90	27+	Crestview Radio WJSB	25	21	Jasper 3SE	10.75	Canal Point USDA	.01
Georgia	Bainbridge	85	14	Blairsville Exp Sta	5	21	Flat Top	11.58	Ringgold	2.31
Idaho	Parma Exp Sta	65	28	Island Park Dam	-30	2	Island Park Dam	4.53	Chilly Barton Flat	.10
Illinois	Harrisburg	70	27+	Freeport	-26	2	Palestine	4.34	Antioch	1.27
Indiana	Bedford	72	10	Culver Experiment Fm	-13	20	Bluffton	5.40	Kendallville	1.61
Iowa	Keokuk L and D 19	60	27	2 Stations	-29	19+	Emmetsburg	2.47	Creston 2SW	.36
Kansas	Winfield	71	16	Lovewell Dam	-13	1	Girard	3.17	Lakin	T
Kentucky	3 Stations	75	28+	Hickman 1E	1	6	Hickman 1E	5.42	Louisa 2	1.79
Louisiana	Donaldsonville	85	13	Farmerville	20	21	Old Town Bay	14.71	Point Au Fer Reef	1.61
Maine	2 Stations	48	4	Squa Pan Dam	-32	21	Bar Harbor	3.91	Fort Kent	.88
Maryland	Snow Hill	70	10	Sines Deep Creek	-8	2	Sines Deep Creek	4.62	Owings Ferry Landing	1.34
Massachusetts	2 Stations	54	4	2 Stations	-13	25+	Hyannis 3NE	5.07	Pittsfield WB AP	1.73
Michigan	Dowagiac	47	23+	Vanderbilt Trout Sta	-40	20	Ludington 4SE	D 4.12	Eagle Harbor	.32
Minnesota	2 Stations	47	26+	Red Lake Falls	-44	1	Spring Grove 1NW	2.62	Litchfield	.09
Mississippi	Quitman	84	14	Ripley	13	21	Centreville 1S	10.41	Brooksville Exp Sta	2.05
Missouri	6 Stations	70	27+	Princeton	-12	2	Kennett Radio KBOA	5.71	King City	.50
Montana	2 Stations	55	28+	Culbertson	-38	1	Hebgen Dam	3.69	Saco Nelson Res	.02
Nebraska	Red Cloud	62	26	3 Stations	-19	20+	Syracuse	1.26	Haigler	.04
Nevada	Mesquite	77	28	Fish Creek Ranch	-24	13	Glenbrook	4.47	Denio	.20
New Hampshire	Durham	57	4	First Conn Lake	-32	9	Woodstock	3.87	Bethlehem	1.57
New Jersey	2 Stations	60	11+	High Point Park	-5	20	Leesburg State Farm	2.85	Phillipsburg	1.39
New Mexico	3 Stations	82	17	Gavilan	-20	4	Bateman Ranch	2.20	6 Stations	.00
New York	Fredonia	59	28	Paul Smiths	-32	9	Boonville 2SSW	5.49	Cairo	.83
North Carolina	3 Stations	80	10	Celo 2S	1	21	Clingmans Dome	7.42	Mast	1.39
North Dakota	Lisbon	44	22	Dunn Center 2SW	-46	1	New England	1.32	Hansboro	.11
Ohio	Chesapeake Huntg FAA	73	10	Mansfield 6W	-10	20	Hiram	6.18	Carroll 3SE	2.01
Oklahoma	Hollis	88	16	Waynoka	-3	1	Idabel	4.67	2 Stations	T
Oregon	Spray	70	28	Danner	-12	13	Illahe	15.42	00 Ranch	.27
Pennsylvania	Donora	68	10	Bradford 4W Res	-16	20	Corry	4.35	Covington 2WSW	1.26
Rhode Island	Providence WB AP	51	4	2 Stations	0	9+	Block Island WB AP	3.97	Kingston	2.47
South Carolina	Yemassee 4W	83	15+	Caesars Head	13	21	Yemassee 4W	8.08	Landrum 5ENE	2.44
South Dakota	Rapid City	58	6	Pollock	-37	19	Lead	2.08	Mission 14SSE	.15
Tennessee	Newport	78	10	Unicoi 2ESE	3	21	Bolton	7.85	Odomville	2.34
Texas	2 Stations	96	18	Follett	-1	1	Pasadena Houston	13.12	4 Stations	.00
Utah	St. George PH	67	28+	Woodruff	-30	14	Alta	11.54	Hanksville FAA AP	.05
Vermont	Bennington 2NW	50	28	2 Stations	-34	9	Rochester	3.46	Enosburg Falls	1.00
Virginia	Partlow 3WNW	78	11	Big Meadows	-1	20	Olinger	3.85	Allisonia	.35
Washington	Kennewick	68	28	2 Stations	-11	12	Clearwater	13.17	Moxee City 10E	.34
West Virginia	Moorefield McNeill	78	10	Hopemont	-13	2	Kumbrabow State Forest	5.61	Moorefield 1SSE	.40
Wisconsin	Crivitz High Falls	52	25	Gordon 2ESE	-40	1	Manitowoc	3.55	2 Stations	.18
Wyoming	Torrington Exp Farm	57	12	Lamar RS	-35	2	Moran	3.11	Bill	.05
Puerto Rico	San German	92	28	Coloso	47	7	Rio Blanco Upper	8.75	Ponce	.13

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch water equivalent to every 10 inches of new snowfall.

\+ And also on an earlier date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Date	Temperature: Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min. 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths, sunrise to sunset	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F		°F.				°F	%	In.	In.	In			In.	In.	M p. h.		M p. h.			0-3	4-7	8-10	0-10	%
ALABAMA																																
Birmingham	610	995.5	1021.5	58	38	48.1	0.4	78	14	18	21	0	8	38	72	3.52	-1.65	0.73	13	2	0.0	0	10.2	N	30	S	14	3	6	19	8.0	[illegible]
Huntsville	605	997.6	1021.4	56	36	45.5	---	75	14+	16	21	0	12	36	70	3.62	----	1.28	12	3	T	T	8.9	NNW	*21	ESE	12	3	7	18	7.6	--
Mobile	211	1006.0	1020.6	63	47	54.8	-.2	77	14+	29	21	0	2	48	80	7.19	2.38	2.22	14	0	T	0	11.7	N	28	N	18	3	3	22	8.5	--
Montgomery	195	1012.9	1021.3	61	43	52.2	.6	79	14	24	21	0	4	42	72	4.47	-.26	1.04	14	3	T	0	7.3	NE	23	SE	3	3	4	21	8.3	39
ARIZONA																																
Flagstaff	6993	------	------	42	13	27.2	-1.6	53	28	-7	14	0	27	-	-	3.63	1.89	1.51	8	0	33.5	19	-	--	-	-		12	4	12	5.4	
Phoenix	1109	976.6	1016.4	66	42	53.9	-.4	77	28	33	3+	0	0	36	53	.63	-.16	.43	4	0	.0	0	6.3	NE	*30	SSE	21	13	6	9	4.5	87
Prescott	5014	845.9	1017.3	51	25	38.3	-1.1	64	28	14	10	0	26	26	-	2.14	.81	1.21	6	0	3.9	3	9.2	S	38	S	21	13	3	12	4.8	67
Tucson	2584	926.2	1015.6	66	37	51.5	-1.7	75	20+	27	1	0	8	28	44	.28	-.64	.28	1	0	.0	0	8.6	SE	36	SW	9+	15	3	10	4.1	83
Winslow	4880	850.7	1016.4	55	25	39.7	-.1	66	6	16	1	0	25	18	46	.42	-.05	.22	6	0	2.0	1	8.8	SW	*37	SSW	22	14	6	8	4.5	
Yuma	199	1011.2	1016.6	72	44	58.2	-1.9	84	28	37	3+	0	0	31	39	.22	-.07	.13	0		.0	0	6.5	N	27	SW	21	16	6	6	3.6	89
ARKANSAS																																
Fort Smith	458	1003.4	1020.9	54	33	43.1	-1.5	71	9	16	6	0	17	32	68	1.36	-1.68	.45	10	1	.5	T	8.4	ENE	[illegible]	W	10	6	[illegible]	17	7.1	47
Little Rock	257	1008.1	1021.6	54	36	45.1	-.5	74	17+	24	21+	0	11	33	66	7.10	3.04	4.19	9	3	T	T	9.9	N	35	SW	9	7	4	17	6.9	[illegible]
Texarkana	361	------	1020.9	58	40	48.8	-.7	77	17	26	21	0	8	--	--	5.68	1.58	2.25	10	2	T	T	8.0	NE	--	-		-		--		-
CALIFORNIA																																
Bakersfield	494	1000.0	1018.4	62	41	51.7	-.8	75	28+	33	9	0	0	39	65	.88	-.24	.39	7	0	.0	0	6.4	ENE	*32	SSE	16+	11	7	10	5.1	--
Bishop	4108	873.0	1015.9	53	24	38.5	-2.8	70	28	14	13	0	27	--	--	2.53	1.62	1.63	6	0	1.2	1					-	13	6	9	4.6	
Blue Canyon	5280	836.4	1015.9	42	29	35.4	-.7	59	28+	17	13	0	20	-	—	14.41	4.94	3.59	16	0	105.0	41	11.0	---	45	SSW	16	9	4	15	6.2	
Burbank	699	991.2	1018.0	64	43	53.4	-.6	81	28	34	22	0	0	39	62	5.76	2.70	2.15	9	1	T	T	3.6	S	*25	NE	2	10	7	11	5.1	-
Eureka (U)	43	1014.9	1017.3	54	41	47.4	-1.0	61	16	33	8	0	0	--	--	10.65	5.00	4.88	15	1	.0	0	7.8	---	42	SE	15	5	9	14	6.9	56
Fresno	331	1005.8	1017.9	61	39	49.7	-1.0	74	28	29	9	0	3	40	74	3.66	2.00	1.91	9	2	.0	0	6.5	E	32	S	15	12	6	10	4.9	70
Los Angeles (U)	312	------	------	65	48	56.3	-.1	78	28+	43	13	0	0	42	63	3.32	-.05	1.12	10	2	.0	0	7.2	---	34	SE	16	14	3	11	4.5	73
Los Angeles	99	1014.2	1018.1	66	49	57.3	3.2	76	26+	44	22+	0	0	44	67	3.72	.97	1.65	11	0	0	0	7.3	WSW	*26	SSE	16+	12	6	10	5.0	--
Mt. Shasta (R)	3544	891.0	1016.9	44	28	36.0	-.9	61	28	10	12	0	23	-		10.32	5.10	2.59	12	0	73.2	33		---		--	--	10	4	14	6.1	
Oakland	3	1017.3	1017.7	59	43	51.1	.4	71	28	34	13+	0	0	41	73	3.95	.55	1.01	12	0	.0	0	9.0	SSE	*35	SE	16+	12	3	13	5.3	
Red Bluff	341	1004.4	1017.3	59	41	49.7	-.2	75	28	28	12	0	2	35	63	4.08	.55	2.66	10	2	.0	0	12.0	SSE	41	SE	14	10	4	14	5.9	60
Sacramento	17	1015.9	1017.1	58	41	49.4	-.3	70	28+	32	9	0	1	41	74	4.11	1.35	1.03	10	2	.0	0	9.6	SSE	51	SE	16+	11	5	12	5.8	63
Sandberg (R)	4517	861.8	1017.3	46	33	39.3	-1.5	61	28	23	22	0	12	--	--	3.39	.67	1.49	8	0	7.8	3	14.3	---	*37	N	9	14	5	9	4.6	--
San Diego	19	1014.2	1017.6	65	49	57.1	.8	73	28	43	13	0	0	45	67	3.76	1.50	1.07	8	0	.0	0	6.3	NE	30	S	11	12	8	8	4.7	71
San Francisco (U)	52	------	------	59	48	53.5	.5	69	28+	43	13+	0	0	--	--	4.04	.13	1.09	11	0	.0	0	7.8	---	34	SE	16	-	--	--	---	69
San Francisco	8	1016.6	1017.4	61	45	53.2	2.4	73	28	37	13	0	0	44	73	4.66	1.22	1.61	11	1	.0	0	9.1	WNW	47	S	16	11	3	14	5.4	
Santa Maria	238	1008.8	1017.9	62	39	50.6	-1.2	75	28+	29	9	0	4	42	72	4.37	1.90	1.78	11	0	.0	0	7.2	SE	*46	SE	15	13	5	10	4.9	--
COLORADO																																
Alamosa	7536	768.0	1019.1	39	7	23.1	.1	50	28	-15	4	0	28	--	--	.31	.13	.22	4	0	6.9	5	----	---	--	---	--	10	13	5	4.7	--
Colorado Springs	6173	806.6	1017.0	44	18	31.3	-.5	64	16	-10	2	0	27	17	60	.47	.14	.26	6	0	7.8	4	9.8	SE	*32	NNW	4	10	6	12	5.3	-
Denver	5292	834.4	1016.9	41	19	30.2	-1.8	58	15	4	5	0	28	18	65	1.31	.78	.54	6	0	17.5	8	10.2	SSW	33	NW	13	10	7	11	5.7	61
Grand Junction	4849	858.1	1017.3	45	26	35.7	3.7	56	17+	11	10	0	23	22	60	.90	.27	.42	11	0	5.9	2	9.0	ESE	40	S	12	6	6	16	6.6	47
Pueblo	4639	854.4	1016.8	48	20	33.7	-.4	68	16	-7	2	0	28	20	64	.36	-.12	.18	7	0	7.6	3	8.0	E	42	W	22+	11	7	10	5.5	69
CONNECTICUT																																
Bridgeport	7	1018.4	------	37	21	28.9	-.1	49	13	5	2	0	26	--	--	2.08	-.89	.98	8	0	.9	1		-		--	-	10	7	11	5.6	--
Hartford	169	1012.0	1018.4	35	13	24.0	-4.1	48	4	-2	9+	0	28	14	66	2.85	.28	1.47	9	0	6.9	4	10.6	NW	40	NW	19	9	5	14	5.9	56
New Haven	6	1017.9	1018.6	37	19	27.8	-1.3	47	4	3	2	0	26	--	--	2.50	-.80	1.11	10	0	1.9	1	9.2	---	32	NW	19	11	4	13	5.8	66
DELAWARE																																
Wilmington	78	1016.2	1019.7	42	24	33.0	-.7	57	11	9	2	0	26	24	70	1.80	-1.18	.60	9	0	.4	T	10.5	WNW	*42	WNW	6	9	7	12	6.1	--
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	48	30	38.9	1.4	67	10	13	20	0	17	--	--	1.87	-.77	.59	8	0	T	T	8.1	--	33	NW	11	-	--	-	---	--
Wash. Nat'l. AP	14	1015.7	1020.4	49	30	39.0	1.9	68	10	13	20	0	18	25	63	1.51	-.93	.54	7	0	T	T	10.7	S	42	NNW	11	8	6	14	6.5	54
FLORIDA																																
Apalachicola (U)	13	1019.9	------	65	54	59.5	2.6	75	24	36	21	0	0	-		3.42	-.52	1.21	7	0	.0	0	8.7	---	30	E	12	4	4	20	7.6	59
Daytona Beach	31	1018.7	1020.7	74	58	65.9	5.4	85	15+	46	21	0	0	58	81	2.13	-.27	.60	8	0	.0	0	11.0	NNW	*32	SSW	4	5	7	16	7.3	--
Fort Myers	15	1018.8	------	81	61	71.2	5.6	88	13	50	22	0	0	--	--	1.72	-.22	1.17	7	1	.0	0	9.3	---	*32	SSW	4	5	16	7	5.7	--
Jacksonville	24	1019.3	1020.7	70	54	61.9	4.4	86	14	32	22	0	1	53	78	5.22	2.56	1.95	9	0	.0	0	10.7	NE	37	SW	4	5	4	19	7.4	50
Key West	4	1017.9	------	81	73	77.1	5.5	84	19+	67	21	0	0	--	--	.06	-1.58	.04	2	0	.0	0	11.5	--	26	NE	6	11	16	1	3.9	83
Lakeland (U)	214	------	------	77	60	68.3	4.9	84	15+	45	21	0	0	--	--	3.45	1.13	2.27	8	3	.0	0	7.5	---	--	---	--	3	9	16	6.9	46
Miami	7	1018.2	1019.6	82	68	74.9	6.2	87	27	58	21	0	0	67	80	2.32	.54	.98	8	1	.0	0	7.9	S	*23	S	4	9	12	7	5.1	†70
Miami Beach	9	------	------	80	72	76.0	5.8	88	19	60	21	0	0	--	--	.85	-.90	.60	7	0	.0	0	----	---	†32	W	18	8	19	1	---	--
Orlando	106	1015.6	1020.4	77	58	67.6	4.4	86	15+	45	21	0	0	59	80	4.55	2.50	2.05	8	2	.0	0	8.6	NNE	*31	SSW	4	5	9	14	6.8	--
Pensacola (U)	13	------	------	64	50	56.9	.9	74	18+	33	21	0	0	--	--	4.37	.44	1.20	16	0	.0	0	10.7	---	25	NW	4	--	--	--	---	23
Tallahassee	64	1017.6	1020.5	68	51	59.4	3.8	81	15	33	21	0	0	51	77	6.15	2.11	2.32	9	1	T	0	7.1	S	-	-	-	3	4	21	8.0	--
Tampa	19	1018.2	1020.2	78	60	69.0	6.1	87	12	47	21	0	0	61	80	2.36	-.14	1.01	6	0	.0	0	9.5	SSW	*30	S	27	6	8	14	6.4	51
West Palm Beach	15	1018.5	1019.7	82	67	74.4	6.7	89	27	58	24	0	0	65	78	1.03	-1.18	.54	5	1	.0	0	11.7	SE	*29	SSW	4	4	15	9	5.9	--
GEORGIA																																
Athens	798	991.5	1021.4	57	39	47.3	.7	71	10	18	21	0	7	36	70	4.76	-.21	1.96	11	1	T	T	9.9	NW	*23	SW	23+	3	7	18	7.9	--
Atlanta	975	978.4	1021.3	56	39	47.7	1.0	73	14	22	21	0	5	38	73	3.61	-1.21	1.17	14	0	T	0	10.6	NW	40	WNW	10	2	8	18	8.1	37
Augusta	143	1013.9	1021.0	61	42	51.3	2.5	79	14+	20	21	0	4	41	72	4.54	.81	1.80	11	0	.0	0	6.4	ENE	*23	WSW	23	4	4	20	7.9	--
Columbus	385	1007.1	------	60	42	50.9	1.3	77	14+	23	21	0	3	--	--	6.16	1.49	1.78	13	1	.0	0	9.0	---	*23	S	14+	3	3	22	8.2	-
Macon	356	1007.1	1021.1	61	42	51.6	.1	79	14	24	21	0	4	40	69	7.38	3.11	2.48	14	0	.0	0	9.3	NE	27	S	10	3	4	21	7.9	37
Rome	637	997.3	------	56	35	45.3	.3	76	14	15	21	0	10	32	65	4.18	-1.22	1.74	13	4	.0	0	4.6	---	-	-	--	3	12	13	-	
Savannah	48	1018.5	1021.3	65	47	55.5	2.1	82	14+	24	21	0	2	46	75	5.17	2.35	1.69	13	0	.0	0	8.7	NE	25	SW	23+	4	4	20	7.9	39
Thomasville	283	------	------	66	50	57.9	2.0	79	15+	30	21	0	1	--	--	6.24	2.43	2.66	13	2	.0	0	---	---	-	--	--	--	-	-	-	-
IDAHO																																
Boise	2842	919.7	1017.5	45	30	37.2	3.2	59	28	20	2	0	22	29	73	.63	-.72	.18	8	0	3.0	1	9.0	SE	33	NW	4	1	5	22	8.5	42
Idaho Falls 46W (R)	4933	846.3	1018.3	35	16	25.7	5.1	47	28	-12	14	0	28	--		.49	-.08	.24	7	0	5.5	2	8.7	---	a30	N	4	-	—	--	---	-
Idaho Falls 42NW (R)	4790	------	------	35	13	24.1	5.6	44	22+	-20	13	0	28	--	--	.49	.12	.20	7	--	[illegible]	--	7.0	-	a32	SW	11				—	--
Lewiston	1413	965.1	1017.9	43	30	36.6	.7	55	28	22	2	0	22	--	--	1.30	.30	.93	9	0	1.5	T	---	---	--	---	--	0	7	21	8.8	--
Pocatello	4444	861.2	1017.5	38	24	30.8	2.3	50	21	6	2	0	25	25	78	.78	-.15	.23	9	0	4.6	3	14.8	SW	52	S	11	2	5	21	8.4	44
ILLINOIS																																
Cairo (U)	314	1007.8	------	48	32	40.0	-.6	69	10	15	6	0	15	--	--	3.94	.61	1.16	11	1	1.0	1	9.4	S	39	SW	10	5	9	14	6.9	52
Chicago (O'Hare)	656	993.6	1019.5	32	17	24.3	---	50	27	-9	2	0	27	18	76	1.66	----	.80	9	0	2.2	5	13.7	SSW	35	SW	20	9	4	15	6.1	--
Chicago (Midway)	610	995.9	1019.9	34	19	26.1	-1.3	54	27	-2	2	0	26	20	77	2.39	.98	.94	10	0	4.0	5	11.7	NW	33	W	5	9	6	13	6.1	52
Moline	589	997.0	1020.3	34	17	25.7	-.9	55	27	-10	2	0	26	18	75	1.77	.60	.94	12	0	3.6	3	10.2	WNW	35	NW	14	9	6	13	5.8	52
Peoria	654	997.3	1020.6	35	19	27.0	-1.3	60	27	-8	2	0	24	20	76	1.84	-.07	1.19	10	1	2.6	6	12.6	S	45	W	10	8	6	14	6.1	48
Rockford	728	991.2	1019.8	30	13	21.4	-3.2	48	27	-20	2	0	28	16	77	2.24	.83	.90	11	1	5.9	14	10.5	WNW	*29	ENE	10	8	9	11	5.7	--
Springfield	[illegible]	996.6	1020.9	39	22	30.4	-.4	63	27	-1	2	0	23	24	76	2.04	.42	1.27	10	1	1.7	1	12.4	SSW	44	W	10	8	6	14	6.5	48
INDIANA																																
Evansville	383	1005.8	1022.0	47	28	37.4	-.1	68	10	12	19	0	19	28	69	2.80	-.15	.82	10	1	T	T	10.3	NW	36	SW	10	6	6	16	6.8	49
Fort Wayne	801	987.5	1020.0	36	20	28.0	.0	51	27	-3	20	0	26	22	78	3.58	1.81	1.92	16	1	2.4	2	14.5	SW	52	W	10	5	7	16	7.2	47

See footnotes at end of table.

CLIMATOLOGICAL DATA

FEBRUARY 1959

State and station	Elevation (ground) Ft	Pressure: Station Mb	Pressure: Sea level Mb	Temperature: Average maximum °F	Average minimum °F	Average °F	Departure from normal °F	Highest °F	Date	Lowest °F	Date	No. of days: Max. 90° F. or above	No. of days: Min 32° F or below	Average dew point °F	Average relative humidity %	Precipitation: Total In.	Departure from normal In.	Greatest in 24 hours In.	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total In.	Snow, Sleet: Max. depth on ground In.	Wind: Average hourly speed M. p h.	Prevailing direction	Fastest mile: Speed M p h.	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear 0–3	Partly cloudy 4–7	Cloudy 8–10	Sky cover, tenths (sunrise to sunset) 0–10	Possible sunshine %
INDIANA (Cont'd.)																																
Indianapolis	793	990.2	1020.7	41	22	31.7	0.2	64	10+	2	20	0	27	25	77	3.22	1.14	1.72	13	2	1.0	1	12.7	WNW	48	SW	10	6	4	18	7.0	54
South Bend	768	989.8	1019.3	33	18	25.6	-.8	47	27	-4	20	0	27	20	79	2.65	1.09	.99	15	0	8.0	14	12.7	SW	*30	WSW	10	4	9	15	7.2	--
IOWA																																
Burlington	694	993.9	1021.2	35	18	26.6	-1.4	57	27	-10	2	0	27	19	76	2.06	.65	1.17	10	0	3.9	5	12.6	WNW	42	W	10	10	5	13	5.8	61
Des Moines	948	988.2	1021.0	32	15	23.8	-2.2	51	26	-6	2	0	28	17	76	1.07	-.01	.57	8	0	4.1	3	12.7	WNW	37	NW	4	10	7	11	5.4	58
Dubuque	1065	993.6	1020.2	27	8	17.5	-5.1	39	27	-22	2	0	28	13	77	1.84	.73	.81	10	0	8.9	13	----	---	--	---	--	10	3	15	5.9	--
Sioux City	1094	977.3	1020.7	31	9	19.8	-3.4	46	26+	-12	19	0	28	13	73	1.09	.34	.76	7	0	10.1	8	11.3	NW	36	NW	4	8	11	9	5.7	59
Waterloo	870	------	------	28	7	17.6	-4.9	41	27	-15	19	0	28	--	78	1.29	.28	.80	9	0	10.3	6	11.0	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	------	------	38	21	29.8	-3.1	63	26	2	1	0	24	--	68	.50	-.35	.38	7	0	5.4	4	7.4	S	28	NW	22	8	9	11	5.6	62
Dodge City	2594	928.5	1019.6	45	23	33.7	-1.3	65	12	1	1	0	26	24	73	.48	-.30	.32	3	0	1.0	3	15.2	NNE	49	W	22	9	7	12	6.0	58
Goodland	3645	887.2	1018.4	42	18	29.6	-.6	60	12	-8	1	0	28	21	74	.12	-.36	.04	5	1	3.0	3	11.6	SSE	*35	NW	22	7	6	15	6.3	--
Topeka	877	982.1	1021.5	41	22	31.7	-1.7	63	26	0	1	0	24	22	69	.58	-.39	.51	6	1	.2	4	12.3	S	38	S	23	7	5	16	6.6	50
Wichita	1321	969.9	1018.9	43	24	33.7	-3.5	64	26	-3	1	0	22	23	68	.23	-.75	.19	3	1	.3	7	13.3	S	40	NW	23	8	6	14	6.1	55
KENTUCKY																																
Lexington	979	984.6	1021.5	48	27	37.4	1.4	66	10	11	19	0	20	28	72	3.18	-.32	.81	12	1	T	T	12.3	S	--	---	--	8	4	16	6.8	--
Louisville	474	1001.3	1021.2	49	29	38.9	1.7	69	27	13	20+	0	20	28	67	2.76	-.23	.68	11	2	T	0	10.9	NW	37	SE	10	7	4	17	6.8	46
LOUISIANA																																
Baton Rouge	64	1017.6	1020.7	65	46	55.3	-.3	81	13	30	21	0	1	49	80	8.51	4.15	3.35	16	3	T	0	9.6	NE	--	---	--	1	4	23	8.7	--
Lake Charles	12	1018.3	1019.6	63	46	54.4	-1.5	77	14	33	20	0	0	48	79	10.67	6.14	3.16	14	2	T	T	10.5	NE	*25	WSW	17+	1	7	20	8.3	--
New Orleans (U)	9	------	------	65	50	57.7	-.8	82	14+	36	21	0	0	--	83	10.86	6.68	4.75	15	1	T	0	7.4	---	25	NE	2	4	4	20	8.0	37
New Orleans	3	1018.0	1020.2	65	50	57.2	-.2	81	14+	37	21	0	0	51	81	10.56	6.59	4.57	14	1	T	T	11.3	NE	*35	ENE	2	3	4	21	8.4	--
Shreveport	252	1010.8	1020.3	60	41	50.5	-1.5	80	17	28	21+	0	8	39	68	4.79	1.01	2.29	13	2	T	T	10.8	NNE	--	---	--	7	1	20	7.3	47
MAINE																																
Caribou	624	989.7	1014.3	19	-5	6.8	-3.0	37	4	-21	2+	0	28	-6	56	1.26	-.47	.46	12	0	18.8	26	12.2	NW	*36	NW	8	6	10	12	6.5	--
Portland	61	1012.8	1016.7	30	6	18.1	-3.4	48	4	-13	25+	0	28	10	69	2.70	-1.13	.77	12	0	22.1	11	10.3	WSW	31	NW	7	8	8	12	6.0	49
MARYLAND																																
Baltimore (U)	14	------	------	48	29	38.5	1.2	66	10	12	20	0	16	--	--	1.85	-1.14	.50	9	--	----	--	----	---	--	---	--	--	--	--	---	--
Baltimore	146	1015.3	1020.4	47	25	35.7	.7	66	10	11	20+	0	24	25	67	1.82	-1.17	.57	8	0	T	T	11.7	WNW	43	W	6	8	6	14	6.0	57
Frederick	294	------	-----	45	23	34.0	-.1	64	10	9	20+	0	26	--	--	1.70	-.88	.42	11	--	.2	T	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs.(R)	629	992.3	1016.6	33	14	24.0	-1.7	49	4	-3	9+	0	28	--	43	3.65	.11	1.20	9	0	10.9	6	17.0	WNW	47	S	4	8	8	12	5.5	51
Boston	15	1012.1	1017.1	35	18	26.7	-2.5	54	4	0	9	0	24	14	61	3.45	.52	.99	11	0	10.7	5	13.8	NNW	39	NNW	19	10	7	11	5.6	66
Nantucket	43	1016.6	1017.3	37	22	29.1	-2.0	46	10	8	2	0	24	21	72	4.75	1.33	1.46	12	0	2.9	1	15.9	WNW	34	NW	11	8	4	16	6.4	52
Pittsfield	1153	972.9	------	31	10	20.3	-1.4	44	28	-7	2	0	28	--	--	1.73	-.78	.52	11	0	8.0	4	----	---	--	---	--	--	--	--	---	--
Worcester	986	977.0	------	32	12	21.6	-2.5	48	4	-5	2	0	28	--	--	2.75	.18	.94	10	0	11.3	7	14.9	---	*41	WNW	19	8	7	13	6.0	--
MICHIGAN																																
Alpena (U)	587	994.6	------	25	5	15.2	-4.7	41	28	-15	20	0	28	--	70	1.74	.29	.52	14	0	24.6	24	10.7	NW	31	S	12	11	5	12	5.7	59
Detroit	619	991.5	1019.4	33	18	25.7	-1.0	44	26+	2	20	0	28	18	72	2.24	.22	.77	13	0	4.3	4	13.4	NW	41	W	5	6	7	15	6.8	49
Detroit (Willow Run)	722	989.5	1019.1	33	18	25.3	-.8	41	22+	-2	2	0	28	18	74	2.25	.51	.90	11	0	3.2	3	13.9	SW	*35	E	10+	6	8	14	6.6	--
East Lansing (U)	856	------	------	31	15	23.2	-1.0	45	22	-3	2	0	28	--	--	2.04	.23	.80	14	0	7.8	10	[illegible].6	SW	23	W	5	--	--	--	---	47
Escanaba (U)	594	994.2	------	22	5	13.3	-4.3	38	28	-14	6	0	28	--	70	.59	-.78	.25	7	0	7.5	13	10.2	---	34	N	14	10	7	11	5.4	62
Flint	761	989.2	1018.5	30	11	20.0	-3.3	40	22+	-22	2	0	27	15	80	1.79	.13	.68	10	0	9.0	15	9.8	SW	*27	SSW	20	10	2	16	6.4	--
Grand Rapids	681	991.9	1019.0	31	14	22.3	-1.5	44	22	-8	2	0	28	17	79	2.56	.89	.95	13	1	16.6	20	11.8	W	30	W	20	4	9	15	7.3	37
Inkster (Wayne County)	630	993.9	1019.2	32	18	25.0	---	42	22+	-3	2	0	27	18	73	1.99	----	.80	11	0	3.0	3	13.1	WSW	--	---	--	5	8	15	6.9	--
Marquette (U)	677	989.5	------	24	7	15.6	-3.3	43	22	-10	6	0	28	--	67	.61	-1.11	.14	14	0	14.1	17	8.2	W	42	SW	15	9	5	14	6.4	60
Muskegon	627	994.6	1019.1	29	15	22.1	-2.4	38	22	-3	19	0	28	18	79	2.49	.85	.64	15	1	20.8	28	----	---	--	---	--	3	9	16	7.7	--
Sault Ste. Marie	721	994.6	1018.7	20	0	9.8	-3.7	35	27	-23	20	0	28	6	83	.71	-.81	.14	11	0	8.3	30	10.8	E	*30	WSW	16	9	8	11	5.6	55
MINNESOTA																																
Duluth	1409	974.6	1018.6	20	-1	9.5	-1.5	39	22	-23	1	0	28	3	69	.28	-.94	.14	8	0	9.2	16	12.6	WNW	48	W	15	9	9	10	5.5	66
Intern'l Falls	1179	974.6	1018.5	18	-11	3.4	-3.8	38	24	-37	6	0	28	-7	61	.41	-.46	.17	6	0	5.2	22	6.8	W	*33	W	15	14	5	9	4.6	--
Minneapolis	830	984.1	1019.7	27	8	17.2	-1.0	44	22	-11	19+	0	28	9	69	.61	-.28	.30	7	0	6.3	4	11.1	WSW	30	NE	10	8	8	12	5.7	72
Rochester	1017	980.7	1020.2	24	2	13.0	-5.0	38	22+	-25	1	0	28	8	75	1.58	.83	.65	8	0	19.4	14	9.2	W	--	---	--	8	10	10	5.8	--
St. Cloud	1034	979.3	1019.5	25	0	12.6	-1.0	43	22	-18	19+	0	28	5	69	.58	.14	.27	6	0	8.7	3	----	---	--	---	--	9	8	11	5.5	--
MISSISSIPPI																																
Jackson	305	1008.0	1020.5	61	40	50.9	-.1	81	14	23	21	0	6	41	72	4.09	-1.00	1.09	12	1	T	0	8.1	SSE	26	N	14+	5	4	19	7.8	39
Meridian	294	1006.7	------	62	41	51.1	.4	82	14	22	21	0	7	--	--	3.51	-1.87	1.25	12	1	.0	0	----	---	--	---	--	4	6	18	7.6	--
Vicksburg (U)	234	1011.3	------	60	43	51.4	-.7	77	14+	27	21	0	3	--	--	4.34	-.80	1.09	10	2	T	0	9.2	---	24	SW	17+	3	5	20	7.7	35
MISSOURI																																
Columbia	778	991.9	1021.0	44	25	34.1	.4	60	26	6	2	0	21	24	70	2.14	.57	1.84	7	1	.5	T	12.1	S	43	W	10	8	6	14	6.4	51
Kansas City	741	984.4	1020.5	42	26	34.1	-.5	63	26	4	1	0	19	22	64	.85	-.31	.67	5	2	.6	3	11.1	SSW	36	SW	23	8	4	16	6.4	52
St. Joseph	809	984.1	------	39	21	29.8	-2.0	61	26	0	2	0	24	--	--	.54	-.47	.44	5	1	.8	3	11.9	S	*32	NW	23	8	8	12	5.9	--
St. Louis RFC	465	------	----	46	29	37.1	.4	66	27	9	20+	0	19	--	--	2.75	.87	1.92	9	--	T	T	----	---	66	S	10	--	--	--	---	47
St. Louis	552	999.7	1021.9	45	27	35.7	.0	65	27	9	20+	0	20	25	69	3.39	1.73	2.56	7	2	T	T	11.9	NW	--	---	--	5	7	16	6.9	--
Springfield	1265	971.6	1020.6	48	27	37.5	.7	68	13	13	20+	0	20	27	69	1.36	-.40	.62	8	1	T	T	14.2	SSE	49	W	10+	4	10	14	6.9	53
MONTANA																																
Billings	3567	889.3	1018.0	32	12	22.0	-4.1	47	28	-6	8+	0	28	13	66	1.13	.69	.52	7	0	13.2	9	11.4	SW	34	NE	6	7	7	14	6.6	53
Butte	5530	825.6	1021.2	29	-1	14.0	-4.8	43	28	-22	8	0	28	24	--	.87	.34	.31	13	0	18.9	14	4.7	NNW	*29	WNW	3	5	6	17	7.6	--
Glasgow	2277	942.1	1021.1	14	-8	3.1	-11.4	40	28	-24	19	0	28	--	82	.50	.16	.27	6	0	6.7	11	----	---	--	---	--	10	4	14	5.8	--
Great Falls	3664	886.6	1018.6	27	7	16.9	-7.7	46	28	-16	19	0	28	10	72	1.00	.43	.60	9	0	14.7	14	10.7	SW	47	SW	14+	9	5	14	5.9	84
Havre (U)	2488	926.9	1021.3	20	4	8.0	-10.9	[illegible]	28	-25	20	0	28	--	--	.34	-.05	.16	6	0	4.0	7	7.5	---	34	W	28	9	9	10	5.5	63
Helena	3893	872.0	1021.1	26	3	14.7	-8.7	[illegible]	28	-20	9+	0	27	8	72	1.13	.72	.52	11	0	19.7	13	6.5	NW	51	S	14	6	6	16	7.1	49
Kalispell	2965	------	------	31	14	22.6	-2.4	41	28	-8	8	0	27	--	--	1.08	.16	.44	12	0	17.1	16	----	---	--	---	--	2	3	23	8.5	--
Miles City	2629	932.3	1020.9	21	-3	9.3	-10.8	42	28	-29	20	0	28	15	--	1.30	.94	.36	9	0	11.8	17	8.0	WNW	*40	WNW	26	8	7	13	6.1	--
Missoula	3200	901.5	1020.0	32	15	23.4	[illegible]	42	28	-6	13	0	28	18	78	1.14	.32	.54	14	0	18.5	11	5.1	ESE	25	NW	15+	2	5	21	8.4	22
NEBRASKA																																
Grand Island	1841	951.2	1020.4	34	13	23.6	-4.1	56	26	-7	1	0	28	17	76	.41	-.25	.25	6	1	5.0	3	13.1	WSW	--	---	--	11	7	10	5.6	--
Lincoln (U)	1166	------	------	35	18	26.4	-2.9	56	26	1	1	0	26	--	--	.89	-.03	.61	9	1	5.3	5	11.1	NW	39	NW	4	12	6	10	5.0	65
Norfolk	1544	961.7	1020.2	32	10	20.8	-2.8	51	26	9	19+	0	28	14	70	.55	-.24	.31	7	0	6.3	4	----	---	--	---	--	11	6	11	5.5	--
North Platte	2779	916.0	1019.0	36	12	24.2	-4.5	55	12	-19	20	0	28	17	74	.59	.25	.20	5	0	9.3	4	8.9	WNW	38	N	4	7	5	16	6.6	53
Omaha	978	979.3	1021.3	34	16	25.0	-2.2	53	26	3	2+	0	26	17	72	.92	.05	.50	9	1	5.3	5	11.0	SSE	37	N	10	10	8	10	5.2	59
Omaha, N.Omaha AP	1323	970.2	------	32	13	22.2	-2.5	52	26	-6	1	0	28	--	--	.90	.03	.51	8	1	5.5	4	----	---	--	---	--	11	5	12	5.7	--
Scottsbluff	3950	877.1	1018.2	37	11	25.6	-2.6	53	21+	-9	10	0	28	17	70	.31	-.10	.12	7	0	6.8	3	11.8	ESE	*32	NNW	26	10	4	14	6.0	--
Valentine	2587	924.1	------	33	7	19.7	-5.6	53	6	-15	20	0	28	--	75	.43	-.03	.17	5	0	5.0	4	9.6	N	41	N	3	12	4	12	5.7	71
NEVADA																																
Elko	5075	842.9	1017.3	41	18	29.5	1.1	56	28	-6	13+	0	27	21	68	.26	-.69	.12	9	0	4.8	2	6.6	SW	*32	S	16+	4	5	19	7.6	--
Ely	6257	806.3	1017.4	38	14	26.0	-2.1	51	6	13	13	0	28	50	70	1.43	.53	.65	8	0	19.9	10	15.1	S	45	SE	15	7	6	15	6.9	73

See footnotes at end of table

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min. 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths, sunrise to sunset	Possible sunshine
	Ft	Mb	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In	In	In			In.	In	M p h		M p h			0-3	4-7	8-10	0-10	%
NEVADA (Cont'd.)																																
Las Vegas	2162	949.9	1016.2	59	36	47.7	-2.7	70	28	26	13	0	8	26	46	0.72	0.14	0.28	6	0	T	0	8.3	SW	*29	S	11+	17	4	7	3.7	79
Reno	4397	860.5	1017.4	47	21	33.9	-2.4	63	28	3	13	0	26	22	65	2.80	1.75	1.44	7	0	22.1	12	6.0	S	45	SSE	17+	8	4	16	6.4	62
Winnemucca	4299	866.9	1018.0	44	18	31.2	-3.3	62	28	-6	13+	0	27	64	70	.86	-.15	.61	7	0	12.5	10	8.2	S	28	NE	1	4	7	17	7.3	42
NEW HAMPSHIRE																																
Concord	339	1006.1	1017.4	33	6	19.1	-2.1	48	4	-9	26	0	28	10	68	2.28	-.02	.53	10	0	16.1	12	8.0	NNW	30	NW	15	10	5	13	5.7	56
Mt. Washington	6262	792.3	------	12	-10	1.1	-4.4	31	4	-35	20	0	28	--	86	4.04	.71	.88	20	0	43.0	10	42.4	W	‡123	SW	4	4	7	17	7.4	37
NEW JERSEY																																
Atlantic City (U)	10	------	------	42	27	34.4	-1.0	57	11	10	20+	0	21	--	--	1.88	-1.36	.62	8	--	---	-	13.0	---	36	NW	11	-		-		51
Atlantic City	58	1016.8	1019.6	44	24	34.3	-.3	60	11+	9	3+	0	22	24	70	1.86	-1.12	.71	9	0	T	T	13.1	WNW	-		-	8	6	14	6.3	--
Newark	11	1017.8	1019.2	41	23	31.6	-.1	52	13	8	20+	0	24	20	63	1.89	-1.21	.64	9	0	1.0	1	10.5	WNW	*30	NW	19	10	7	11	5.6	--
Trenton (U)	56	1011.1	1018.2	41	24	32.4	-.3	53	10	7	20+	0	25	--	--	1.72	-.94	.62	8	0	1.1	1	9.9	---	33	NW	19+	11	7	10	5.5	59
NEW MEXICO																																
Albuquerque	5310	847.3	1015.8	51	28	39.5	.0	63	17	18	2	0	23	19	46	.04	.29	.04	2	0	.6	T	10.0	N	47	W	9	13	5	10	4.9	67
Clayton	4969	843.9	1015.9	50	22	35.9	-.7	72	16	11	2+	0	27	--	--	.10	-.27	.06	3	0	1.0	1	----	---	--	---	--	15	3	10	4.6	--
Raton	6379	802.6	1015.2	48	18	33.0	1.0	62	16	3	3	0	28	--	--	.19	-.18	.11	5	0	2.6	2		-	--	- -	--	11	9	8	5.1	--
Roswell	3612	893.3	1016.3	58	29	43.6	-1.2	80	16	20	2+	0	20	65	51	.10	-.36	.05	4	0	T	1	11.8	--	68	W	9	11	7	10	5.1	--
NEW YORK																																
Albany	277	1014.5	1018.6	31	9	20.2	-2.7	46	28	-8	12	0	28	11	69	1.59	.44	.47	13	0	10.9	6	10.2	WNW	57	W	19	8	5	15	6.7	55
Binghamton	1601	956.1	1017.7	33	13	23.1	1.5	47	28	-3	2+	0	27	14	70	1.50	-.80	.68	14	0	7.6	3	11.0	NNW	49	NW	21	5	5	18	7.2	39
Buffalo	693	989.6	1019.0	33	15	24.2	-.5	50	28	-2	2	0	28	17	75	3.45	.86	.91	17	0	14.0	3	13.6	SW	42	SW	5	3	6	19	7.8	43
New York (U)	10	1017.7	------	40	24	32.1	-.6	52	27	7	2	0	20	--	--	1.79	-1.34	.73	9	0	.7	T	15.4	NW	54	NW	11	10	8	10	5.3	59
New York	19	1016.9	1019.1	40	24	32.1	-.5	51	27	8	2	0	22	20	62	2.01	-1.03	.69	10	0	.8	T	14.1	WNW	49	NW	19	10	8	10	5.8	-
Rochester	543	998.5	1018.9	32	13	22.6	-1.4	51	28	-2	12	0	28	16	76	2.70	.28	.74	13	0	27.4	7	13.6	WSW	42	W	5	3	5	20	7.7	45
Schenectady	217	------	------	33	11	22.2	.3	47	28	-4	12	0	27	--	--	1.57	-.65	.49	12	0	9.3	7	----	---	--	---	--	13	10	5	4.1	--
Syracuse	424	995.7	1019.0	32	12	21.8	-3.3	51	28	-4	2	0	28	15	78	2.22	-.30	.60	15	0	17.8	8	11.6	WSW	40	S	3	6	7	15	6.9	52
NORTH CAROLINA																																
Asheville (U)	2203	939.0	------	52	33	42.1	1.3	73	10	14	21	0	14	--	--	1.51	-1.34	.66	9	0	T	T	8.9	---	38	W	23	6	6	16	7.1	43
Cape Hatteras (R)	9	1019.7	1020.4	56	41	48.7	1.1	69	14	29	20	0	3	41	77	4.09	.08	1.09	13	1	T	0	11.4	NNE	--	---	--	4	3	21	7.9	--
Charlotte	725	992.0	1021.0	56	36	45.8	1.4	69	10	17	21	0	8	34	67	2.87	-.68	.96	13	0	T	T	10.4	NNE	42	NW	18	5	5	18	7.7	46
Greensboro	891	988.5	1021.4	53	31	42.2	1.2	67	10	13	21	0	17	29	66	3.32	.19	.70	10	0	T	T	8.6	SW	29	NNW	18	6	5	17	7.2	58
Raleigh	433	1007.0	1021.2	55	33	43.7	.6	74	10	12	21	0	14	32	68	3.38	.11	1.06	11	0	T	T	7.7	SSW	*27	SW	10	6	5	17	7.2	55
Wilmington	30	1019.7	------	59	40	49.6	.9	76	10	20	21	0	7	--	--	5.04	1.74	1.69	13	1	T	0	12.6	---	38	SW	23	5	4	19	7.6	34
Winston-Salem	967	984.8	1021.0	53	32	42.8	1.6	67	10	17	21	0	14	29	61	2.68	-.71	.73	10	0	T	T	9.6	SSW	*31	WNW	24	6	5	17	7.0	--
NORTH DAKOTA																																
Bismarck	1650	957.0	1021.5	19	-7	6.2	-6.5	36	28	-29	9	0	28	0	74	.41	-.02	.20	6	0	5.9	8	8.1	WNW	38	NW	5	10	7	11	5.1	74
Devils Lake (U)	1471	962.8	------	15	-5	5.4	-3.3	35	25	-26	1	0	28	--	75	.66	.25	.21	9	0	8.4	18	7.7	NW	33	W	15	10	9	9	4.9	83
Fargo	895	983.7	1020.5	20	-1	9.5	-1.3	38	24	-24	9	0	28	4	73	.20	-.46	.09	5	0	3.5	4	13.8	N	47	N	3	9	9	10	5.5	63
Williston (U)	1877	948.9	1021.0	17	-5	5.9	-7.6	37	28	-30	1	0	28	-3	64	.51	.05	.24	8	0	5.2	7	5.8	SW	25	W	4	10	7	11	5.5	73
OHIO																																
Akron	1210	980.2	1019.9	38	19	28.9	.8	62	10	0	20+	0	26	22	78	4.15	2.02	2.57	13	1	3.6	2	12.7	S	--	--	--	2	9	17	7.6	--
Cincinnati Obs.	761	------	------	46	26	36.3	1.5	66	10	8	20	0	19	--	--	2.71	.16	.59	14	1	0.5	T	7.5	---	34	SW	10	--	--	--	---	51
Cincinnati	869	987.6	1020.7	45	26	35.6	1.7	67	10	7	20	0	19	25	67	3.18	.63	.65	13	1	1.6	1	10.7	SSW	42	SW	10	5	3	20	7.4	--
Cleveland	787	990.4	1019.5	38	21	29.1	.5	57	10	2	2	0	26	22	76	4.24	2.12	2.33	14	1	5.8	2	15.1	S	50	W	10	2	7	19	8.0	33
Columbus (U)	724	------	------	42	25	33.6	1.0	63	10	7	20	0	23	--	--	3.17	1.02	1.88	10	1	1.4	1	----	---	--	---	--	-	--	--	---	--
Columbus	815	989.9	1021.3	42	23	32.7	1.5	63	10	5	20+	0	24	25	74	3.08	.81	1.79	10	1	1.8	1	9.1	SSW	42	W	10	4	6	18	7.3	54
Dayton	1002	982.7	1020.5	41	23	31.9	.5	62	10	1	20	0	25	24	73	4.14	2.03	2.79	11	1	2.7	1	12.8	SSW	54	W	10	4	7	17	7.3	51
Sandusky (U)	603	996.6	------	37	21	28.7	-.7	54	10	4	20+	0	24	--	--	3.37	1.45	1.77	12	0	3.6	2	10.0	---	36	SW	10	7	10	11	6.8	46
Toledo	676	993.5	1019.9	35	19	26.8	-.5	48	14	-1	2	0	25	21	77	2.74	.88	1.35	10	0	1.1	1	11.5	SW	34	SW	10	7	5	16	7.1	47
Youngstown	1178	974.9	1019.4	38	19	28.3	.1	62	10	-4	20	0	25	21	77	4.25	1.53	2.76	15	1	4.8	2	13.1	WSW	*45	WSW	10	3	7	18	7.8	--
OKLAHOMA																																
Oklahoma City	1280	975.6	1020.6	51	29	40.0	-1.8	75	16	9	1	0	15	30	71	.69	-.55	.32	6	3	.5	1	13.9	S	47	W	10	5	9	14	6.5	54
Tulsa	672	995.9	1020.6	52	31	41.4	-.6	70	16	15	6	0	14	29	67	1.69	.12	.73	10	1	2.5	2	10.1	SSE	35	N	18	6	7	15	6.6	35
OREGON																																
Astoria	8	1014.9	1015.3	49	37	43.0	-.1	56	28	27	12	0	5	39	86	8.04	-1.40	1.44	20	1	T	0	9.5	ESE	*29	ESE	18	1	4	23	8.9	--
Burns (U)	4140	871.0	1016.3	44	22	32.7	1.5	62	28	-1	13	0	26	68	74	.91	-.32	.40	9	0	9.2	6	----	---	--	---	--	4	4	20	7.9	--
Eugene	361	1003.1	1017.0	51	35	42.8	.1	65	28	23	12	0	8	--	--	5.41	.57	3.22	15	0	T	T	8.8	---	*35	S	13	1	4	23	8.7	--
Meacham	4050	------	------	35	24	29.6	.6	52	28	13	2	0	27	--	--	2.81	-1.25	.85	18	0	28.5	15	----	---	--	---	--	1	1	26	9.3	--
Medford	1312	968.8	1017.5	51	32	41.7	-.9	67	28	25	5+	0	17	34	79	2.78	.76	1.90	13	0	.3	T	5.3	SSE	*40	SSE	16+	3	5	20	8.0	--
Pendleton	1492	962.4	1017.2	45	31	37.7	1.1	64	28	25	12+	0	20	31	79	1.90	.50	1.09	11	0	13.4	8	9.6	SE	*45	SSE	13	1	4	23	9.0	--
Portland	21	1010.8	1016.6	49	37	42.7	1.2	61	28	29	2	0	4	36	75	4.18	.03	1.44	16	0	2.0	2	10.0	ESE	32	E	17	1	3	24	9.0	20
Roseburg	505	997.3	1016.3	52	34	43.1	.0	69	28	26	12+	0	10	--	--	4.58	.82	2.24	14	0	2.6	2	4.4	---	25	S	13	0	5	23	8.7	29
Salen	195	1009.5	1016.7	50	35	42.9	.1	65	28	25	12	0	6	38	83	4.98	-.34	2.32	16	0	2.1	1	8.6	S	*26	S	9	1	4	23	8.6	--
Sexton Summit (R)	3836	881.1	1016.9	39	28	33.7	-2.7	58	28	21	12+	0	23	--	--	3.66	.07	1.71	15	0	41.8	35	9.3	---	--	---	--	3	3	22	8.0	--
PENNSYLVANIA																																
Allentown	376	1004.6	1019.6	39	20	29.2	.6	53	27	5	20+	0	27	18	67	2.41	-.23	.67	9	0	1.4	T	12.8	W	*51	WNW	11	10	8	10	5.6	--
Erie	732	------	------	36	17	26.3	-.2	52	28	-4	20	0	28	--	--	3.08	1.01	1.02	17	0	7.6	3	7.0	---	*23	W	5	2	8	18	7.9	--
Harrisburg	335	1005.2	1019.8	42	23	32.5	.4	56	28	8	20	0	26	18	58	1.92	-.32	.61	8	0	2.8	2	8.9	WNW	40	NW	11	12	4	12	5.7	64
Philadelphia (U)	26	------	------	45	29	36.8	1.7	60	11+	12	20+	0	17	--	--	----	----	----	--	--	----	---	----	---	--	---	--	--	--	--	---	--
Philadelphia	7	1014.8	1019.6	42	25	33.3	-.3	55	10	9	20+	0	26	21	65	1.60	-1.42	.63	10	0	T	0	11.1	WSW	‡42	NW	6	8	7	13	6.3	54
Pittsburgh (U)	749	------	------	44	26	35.0	1.4	67	10	7	20	0	21	--	--	2.17	-.18	.86	12	--	1.0	---	----	---	--	---	--	--	--	--	---	37
Pitsburgh	1151	988.4	1020.1	41	22	31.8	2.0	65	10	1	20	0	23	22	70	2.15	-.22	.60	12	0	2.2	1	10.1	SW	*35	W	10	2	8	18	8.0	44
Reading (U)	266	1007.0	1019.6	41	24	32.5	-.3	53	27	9	20+	0	27	--	--	2.16	-.52	.56	9	0	1.7	1	11.9	---	49	W	6	11	6	11	5.8	54
Scranton	940	983.5	1019.5	35	16	25.7	-1.4	49	28	0	20	0	28	18	71	2.23	.21	.96	12	0	4.2	2	9.7	SW	29	NW	6	7	9	12	6.1	48
Williamsport	527	999.8	------	37	20	28.3	-.8	50	28	4	20+	0	27	--	--	1.85	-.49	.89	10	0	2.5	1	----	---	--	---	--	7	8	13	6.4	--
RHODE ISLAND																																
Block Island	110	1012.7	1017.3	37	22	29.5	-1.4	48	4	7	2	0	23	--	--	3.97	.72	1.87	10	0	1.8	1	----	---	--	---	--	8	9	11	6.0	--
Providence	55	1011.3	1017.8	36	17	26.8	-1.8	51	4	2	2	0	25	15	63	3.67	.83	1.58	10	0	5.2	4	13.0	NW	*44	WNW	19	10	4	14	5.6	61
SOUTH CAROLINA																																
Charleston (U)	9	------	------	61	47	53.8	1.1	77	14	30	21	0	2	--	--	4.60	1.53	1.21	15	0	.0	0	10.4	---	34	S	4	--	--	--	---	--
Charleston	41	1019.3	1021.3	62	45	53.4	1.5	81	10	23	21	0	3	45	78	5.99	2.86	1.66	13	1	.0	0	9.2	NNE	--	---	--	4	3	21	8.1	43
Columbia	217	1012.8	1021.4	60	40	50.1	1.6	77	10	18	21	0	6	38	69	4.99	1.36	1.99	11	2	.0	0	7.1	NE	*28	SW	23	4	5	19	7.7	45
Florence	146	1014.6	1020.6	59	41	49.8	2.2	78	10	21	21	0	6	38	69	5.36	2.06	1.91	11	1	.0	0	7.5	NE	*21	SSW	23	5	4	19	7.6	--
Greenville	1018	982.7	1021.0	55	37	45.9	.6	66	18	19	21	0	7	33	66	3.08	-1.18	1.37	12	1	.0	T	8.5	NE	*23	WSW	23+	3	7	18	7.9	44
Spartanburg	801	------	------	55	37	45.9	.5	67	10	20	21	0	7	--	--	2.96	-1.27	1.17	11	1	T	T	7.8	--	29	NW	24	--	--	--	---	--
SOUTH DAKOTA																																
Huron	1282	970.9	1021.1	23	-2	10.3	-7.3	38	15	-30	19	0	28	8	85	.55	.06	.18	10	0	11.6	9	11.2	NW	35	NW	5	12	6	10	5.2	70
Rapid City	3165	900.1	1019.2	33	11	21.8	-2.1	56	6	-9	10	0	28	13	72	.63	.31	.22	10	0	6.8	3	10.6	N	41	N	7	9	6	13	5.7	63
Sioux Falls	1420	966.1	1020.5	26	2	13.8	-5.7	39	26+	-24	19	0	28	5	65	.92	.18	.64	8	0	15.4	11	10.5	WNW	*40	NW	5	7	12	9	5.6	--
TENNESSEE																																
Bristol	1519	965.0	------	53	30	41.6	1.5	71	10	11	21	0	17	--	--	2.79	-.62	.90	10	0	T	T	--	---	--	---	--	5	8	15	7.0	--

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station ∅	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb.	°F.	°F.	°F	°F.	°F.		°F.		#		°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
TENNESSEE (Cont'd.)																																
Chattanooga	670	992.9	1021.5	54	34	44.1	0.1	75	10	15	21	0	9	33	70	2.90	-2.21	1.01	12	1	T	0	7.5	S	35	W	23	3	7	18	7.8	43
Knoxville	950	985.1	1021.5	53	34	43.7	1.2	72	10	15	21	0	11	32	66	4.06	-.67	1.30	15	1	T	T	7.7	NE	44	SW	10	7	3	18	7.5	37
Memphis (U)	271	------	------	52	37	44.6	.1	71	10	21	19	0	9	--	--	5.23	1.01	2.16	12	--	.5	1	----	---	--	--	--	--	--	--	---	--
Memphis	263	1006.4	1021.7	54	35	44.4	-.1	72	10	18	21	0	14	33	67	5.21	.62	1.51	11	2	.6	1	8.8	S	29	W	10	5	7	16	7.3	44
Nashville	577	1000.5	1021.6	53	31	42.1	-.2	72	14+	12	21	0	19	33	72	4.60	.44	2.00	12	2	2.0	2	8.8	S	38	W	23	4	6	18	7.5	36
Oak Ridge	905	986.5	------	53	33	42.9	1.9	71	14	14	21	0	13	--	--	4.39	-1.40	1.24	14	1	T	T	5.3	---	*43	---	10	6	4	18	7.2	--
TEXAS																																
Abilene	1759	956.3	1019.0	58	36	46.9	-1.2	82	17	17	2	0	10	34	66	.73	-.18	.35	8	2	1.5	1	11.1	N	40	W	9	4	6	18	7.4	41
Amarillo	3590	888.6	1017.2	53	25	39.2	-.4	77	16	11	2+	0	21	20	52	.06	-.56	.04	3	0	.9	1	13.2	SW	54	SW	9	9	9	10	5.5	70
Austin	615	998.0	1020.2	62	44	52.9	-1.2	92	17	32	6+	1	3	43	75	2.30	-.26	1.07	14	1	T	0	9.3	N	30	N	19	6	5	17	7.4	30
Brownsville	16	1014.9	1017.8	69	54	61.5	-2.4	88	18	41	4+	0	0	58	89	2.92	1.74	.75	16	2	.0	0	11.0	NNW	32	S	8	3	3	22	8.3	27
Corpus Christi	41	1017.6	1018.9	65	51	57.6	-2.7	85	17	38	2	0	0	54	87	4.53	3.09	1.09	14	2	.0	0	11.0	NNE	26	S	9	4	2	22	8.3	28
Dallas	487	1001.0	1020.4	58	40	49.1	-.7	87	17	24	6	0	8	37	67	2.47	-.15	1.55	9	2	1.3	1	10.6	S	38	W	17	9	4	15	6.5	43
Del Rio (U)	957	------	------	64	46	54.9	-2.2	95	17	29	4	1	2	--	--	.65	-.42	.33	6	1	T	T	----	---	--	---	--	--	--	--	---	--
El Paso	3920	885.9	1015.4	62	37	49.3	.2	75	17+	27	15+	0	11	25	40	T	-.36	T	0	0	T	0	12.8	N	54	W	4	13	6	9	4.5	74
Fort Worth	544	998.6	1020.3	59	39	48.9	-.9	88	17	22	6	0	10	38	70	1.61	-.96	.92	9	2	2.0	2	12.8	NNE	*37	SSW	9	7	6	15	6.6	--
Galveston (U)	7	------	------	60	50	55.4	-2.0	70	14	35	20	0	0	--	--	7.54	4.66	2.94	12	--	.0	0	----	---	33	NE	18	--	--	--	---	26
Galveston	5	1016.9	1019.6	61	51	55.7	-1.6	70	23	37	20	0	0	51	86	9.18	6.04	3.55	16	4	.0	0	14.1	N	--	---	--	4	2	22	8.3	--
Houston (U)	41	1013.9	------	64	49	56.4	-1.3	80	17	35	20	0	0	--	--	9.80	6.99	3.89	14	1	.0	0	10.3	NE	29	S	9	5	3	20	8.0	37
Houston	50	1016.6	1019.8	64	49	56.3	-.3	80	17	35	20	0	0	50	84	11.33	8.63	3.32	16	1	.0	0	13.0	ENE	--	---	--	4	4	20	8.1	--
Laredo	500	1003.1	1018.5	66	50	58.0	-3.9	91	17	36	4	2	0	49	78	2.59	1.74	.98	12	3	.0	0	8.8	NE	*28	NE	10	3	2	23	8.3	--
Lubbock	3243	903.8	1017.9	56	29	42.5	-.6	79	16	13	2	0	18	26	57	.07	-.46	.05	3	0	1.0	1	15.1	WSW	*52	WSW	9	8	9	11	5.8	--
Midland	2854	917.0	1017.7	59	35	46.8	-2.2	81	17	16	2	0	11	32	64	.62	-.09	.26	6	1	.3	T	10.5	ENE	*30	W	9	6	9	13	6.5	--
Port Arthur	16	1017.6	1019.8	63	47	54.9	-1.1	76	14	33	20	0	0	50	86	11.76	7.57	3.74	15	3	.0	0	13.3	NNE	32	SW	17	3	5	20	8.4	26
San Angelo	1903	950.2	1018.4	59	38	48.6	-3.1	85	17	21	2	0	11	36	68	.53	-.46	.14	6	0	T	T	11.8	SW	*38	NW	17	6	6	16	7.0	--
San Antonio	792	993.6	1019.0	63	45	54.0	-1.1	92	17	32	4	1	1	44	74	2.50	.92	.88	15	2	.0	0	10.2	NNE	28	NE	1	7	2	19	7.5	36
Victoria	110	1013.9	1018.8	63	49	56.0	-2.9	83	17	37	20+	0	0	51	82	5.32	3.35	1.51	14	1	.0	0	10.6	NNE	‡39	S	9	4	3	21	8.2	--
Waco	500	998.3	1019.9	60	41	50.2	-1.5	87	17	27	6	0	6	41	75	2.72	.09	.82	14	4	T	T	11.4	N	*28	S	9	6	6	16	7.2	--
Wichita Falls	1020	981.7	1019.6	57	34	45.4	-.4	83	17	17	2	0	12	30	59	.15	-1.34	.13	4	1	2.1	2	10.8	N	*31	N	27	7	8	13	6.3	--
UTAH																																
Milford	5028	842.5	1017.6	43	20	31.4	.5	57	6	-5	14	0	27	--	--	1.34	.63	.58	9	0	12.3	7	----	---	--	---	--	7	9	12	6.2	--
Salt Lake City	4220	866.6	1017.4	45	28	36.1	2.7	56	21	11	14+	0	19	26	68	1.41	.18	.67	12	1	15.2	8	9.5	SSE	31	S	11	2	6	20	8.1	46
VERMONT																																
Burlington	331	1002.7	1018.4	26	2	13.8	-4.3	42	28	-18	12	0	28	3	62	1.98	.45	.72	12	0	24.4	13	10.6	SSW	38	S	16+	5	7	16	7.2	58
VIRGINIA																																
Lynchburg	947	986.0	------	51	30	40.4	1.2	66	10	17	21+	0	14	--	--	1.57	-.91	.66	9	0	T	T	8.6	---	34	SW	23	8	5	15	6.2	52
Norfolk	26	1019.4	1020.9	52	35	43.7	1.7	74	10	20	21	0	10	33	70	1.84	-1.22	.79	10	0	0	0	10.7	NNE	40	SW	10	5	4	19	7.5	48
Richmond	162	1014.5	1021.1	53	30	41.6	1.9	73	10	13	21	0	13	29	65	1.87	-.89	.73	8	0	0	T	8.3	SW	29	W	6	7	5	16	6.8	49
Roanoke	1174	977.4	1020.9	52	30	40.9	1.7	71	10	15	20	0	16	24	56	1.04	-1.52	.58	8	0	T	T	10.3	SE	--	---	--	7	6	15	6.4	--
WASHINGTON																																
Olympia	190	1008.5	1015.6	46	35	40.5	.5	57	28	26	12	0	11	35	81	4.53	-1.63	1.02	19	0	14.1	7	7.7	SSW	*26	WSW	25+	0	2	26	9.4	--
Seattle (U)	14	------	------	48	39	43.5	.0	57	28+	32	12+	0	2	--	--	3.15	-.59	.78	15	--	1.5	1	----	---	40	SW	25	--	--	--	---	26
Seattle	14	1014.9	1015.6	--	--	----	----	--	--	--	--	--	--	34	73	----	----	----	--	--	----	--	7.2	S	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	999.7	1015.4	46	36	41.0	.1	56	20	29	8	0	7	33	76	3.64	-.31	.73	19	0	6.5	3	11.4	S	*35	SW	25	1	3	24	9.0	--
Spokane	2357	946.5	1017.1	36	25	30.5	.8	46	28	15	22	0	27	26	82	2.01	.55	.60	15	0	20.6	10	8.5	NE	31	SW	6	5	2	21	8.1	36
Stampede Pass (R)	3958	875.7	1016.9	29	23	26.0	-1.0	41	28	16	12	0	27	--	--	6.13	-4.94	1.64	23	0	41.5	92	----	---	--	---	--	1	2	25	9.3	--
Tatoosh (R)	101	1010.8	1013.9	46	39	42.9	-.3	52	21	33	8	0	0	38	83	7.61	-1.09	2.29	19	0	.7	T	18.0	E	61	E	15	3	3	22	8.4	31
Walla Walla (U)	949	980.7	1017.3	44	33	38.8	.5	63	28	25	13	0	16	--	--	2.25	.72	1.22	11	0	6.9	4	5.8	---	33	SE	13	1	4	23	9.1	15
Yakima	1061	977.0	1017.6	44	26	34.9	.7	58	28	13	12	0	26	27	75	1.12	.31	.44	10	0	9.3	4	5.8	WNW	*26	WNW	25	3	5	20	8.3	--
WEST VIRGINIA																																
Charleston	950	983.8	1020.4	51	28	39.4	1.2	73	10	12	20	0	18	23	56	2.90	-.60	.64	13	0	1.4	1	7.3	SW	*29	SSW	10	3	10	15	7.4	--
Elkins	1970	------	------	45	21	33.3	.8	68	10	-7	20	0	23	24	--	2.31	-.74	.53	14	1	1.5	1	8.4	WNW	*35	WSW	10	5	6	17	7.2	--
Huntington (U)	565	------	------	51	29	39.7	.7	73	10	11	2	0	19	--	--	2.31	-.75	.69	11	0	.2	T	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	------	47	26	36.5	1.0	67	10	7	20	0	19	--	--	2.50	-.15	.74	9	1	T	T	6.6	---	26	NW	23	5	9	14	7.2	39
WISCONSIN																																
Green Bay	689	995.3	1019.7	23	2	12.4	-4.9	37	28	-19	2+	0	28	9	79	1.98	.62	1.11	9	0	20.1	14	13.0	SW	44	NE	10	11	6	11	5.3	60
La Crosse	652	993.2	1019.0	26	2	14.3	-5.0	41	28	-21	1	0	28	8	70	2.58	1.47	.99	10	0	31.0	18	9.5	S	*27	W	5	9	8	11	5.5	--
Madison	857	982.4	1019.8	27	5	16.3	-5.6	40	28+	-28	2	0	28	11	74	1.58	.45	.72	11	0	14.6	18	10.4	WSW	32	SW	20	10	6	12	5.6	56
Milwaukee	672	993.6	1019.3	28	11	19.3	-4.9	40	22	-17	2	0	28	14	78	1.98	.71	.96	10	0	10.8	18	12.3	WSW	32	SW	20+	10	6	12	5.8	58
WYOMING																																
Casper	5319	833.1	1016.3	33	13	23.0	-2.9	48	21	-3	1	0	28	16	74	.61	-.11	.14	11	0	10.6	3	14.1	SW	*37	SW	11	6	6	16	6.7	--
Cheyenne	6131	807.0	1016.5	37	15	26.0	-1.7	49	16	-5	2	0	26	16	67	.30	-.35	.07	8	0	4.3	2	14.0	W	50	W	13	7	10	11	5.9	60
Lander	5563	831.7	1017.7	32	10	21.0	-1.9	45	16	-8	10	0	28	34	69	.85	.24	.55	6	0	19.1	14	4.7	---	38	SW	11	7	11	10	6.1	59
Sheridan	3942	882.5	1019.1	32	7	19.4	-3.8	49	6	-8	10	0	28	13	76	.45	-.16	.17	9	0	8.6	5	7.0	NW	49	NW	3	7	7	14	5.9	68
PACIFIC AREA																																
Canton Island	9	1007.1	1007.5	89	79	83.9	.9	92	25+	72	4	14	0	76	78	8.01	7.47	2.62	16	0	.0	0	15.2	NE	*35	W	8	0	0	28	9.9	--
Hilo	31	1014.2	1015.5	77	64	70.8	.1	83	13+	59	16	0	0	63	79	13.09	3.61	2.77	20	0	.0	0	9.9	WSW	*29	ENE	20+	0	9	19	8.0	34
Honolulu	7	1015.9	1016.4	78	66	71.9	-.5	83	7	59	6	0	0	60	69	2.23	-.29	1.84	13	0	.0	0	14.8	NE	40	NE	25	5	17	6	5.9	64
Guam (R)	361	------	------	84	72	78.1	.7	86	28	59	12	0	0	--	--	2.27	-.53	.40	20	0	.0	0	----	---	27	E	7	--	--	--	---	90
Koror (R)	94	1008.5	1011.9	86	74	80.2	-.2	88	27+	72	19+	0	0	74	82	3.49	-4.52	.74	18	0	.0	0	----	---	--	---	--	1	7	20	7.9	--
Lihue	115	1011.5	1017.2	76	64	69.9	-.2	80	28+	57	16+	0	0	61	76	2.23	-2.21	.80	16	0	.0	0	12.5	NE	27	NE	1	6	11	11	6.1	54
Majuro	10	1009.5	1009.8	85	77	80.9	----	87	18+	74	22	0	0	73	78	9.47	----	3.40	20	0	.0	0	13.9	---	33	E	1	0	0	28	10.0	51
Ponape (R)	120	1005.4	1010.8	84	75	79.6	-2.3	87	9	72	13	0	0	74	82	15.37	7.50	4.03	25	0	.0	0	10.8	---	21	E	22	0	0	28	9.8	41
Truk, Moen Island	5	1010.8	1011.2	86	77	81.4	.4	88	10+	73	28	0	0	73	77	8.23	1.13	2.71	16	0	.0	0	----	---	26	SE	23	0	0	28	9.9	--
Wake Island	11	1017.3	1017.6	81	72	76.4	-.9	84	2	68	12+	0	0	65	69	.57	-.94	.22	10	0	.0	0	17.7	ENE	‡35	NE	7	16	10	2	3.8	--
Yap (R)	55	1010.2	1012.2	86	76	80.9	.2	88	22+	72	27	0	0	73	78	7.99	3.06	3.81	20	0	.0	0	----	---	--	---	--	0	0	28	9.8	--
WEST INDIES																																
San Juan,P.R.(U)	47	------	------	80	71	75.7	.8	88	28	68	17	0	0	--	--	1.84	-.83	.85	16	0	.0	0	----	---	--	---	--	--	--	--	---	--
San Juan,P.R.	15	1016.2	1019.3	82	69	75.5	1.4	87	28	64	17	0	0	66	76	1.61	-1.54	.44	18	0	.0	0	9.5	ENE	26	NE	10	4	20	4	5.1	74
Swan Island	31	1014.2	------	85	75	80.0	1.8	86	21	73	17+	0	0	--	--	.63	-1.02	.20	7	0	.0	0	----	---	--	---	--	6	20	2	4.5	--
ALASKA																																
Anchorage	92	1004.1	1009.2	28	14	20.8	2.2	42	2+	-4	13	0	27	14	75	.95	.37	.30	7	0	13.7	15	5.4	N	*22	SW	19	7	4	17	6.9	31
Annette	110	1008.5	1012.4	41	31	35.6	-.5	47	3+	20	19+	0	15	25	68	9.95	2.91	2.03	17	0	8.1	6	12.8	SE	*35	SSE	27+	8	6	14	6.4	--
Barrow	22	1010.8	1011.3	-1	-16	-8.5	9.4	30	14+	-38	25+	0	28	-16	71	.81	.66	.36	13	0	8.8	17	10.8	ENE	28	SW	14+	6	3	19	7.6	--
Barter Island	39	1009.5	1011.4	1	-13	-5.8	12.2	30	14	-34	24	0	28	-14	67	.58	.23	.21	8	0	6.4	11	11.8	W	*44	WSW	13	7	6	15	6.8	--
Bethel	125	1004.7	1006.3	27	14	20.6	11.5	36	9	-18	28	0	28	16	80	2.12	1.30	.77	13	0	18.1	12	16.0	S	*55	S	1	3	6	19	8.1	--
Cold Bay	90	1003.4	1007.2	37	28	32.5	4.1	44	7+	18	19+	0	22	30	87	3.50	.74	1.70	18	0	10.8	3	18.9	SSE	*46	SE	19+	1	6	21	8.4	--
Cordova	40	1006.8	1008.2	37	22	29.1	3.0	42	23	2	17	0	26	24	82	3.78	-1.49	.88	17	0	32.7	14	4.8	ESE	*21	ESE	21	8	3	17	6.6	--
Fairbanks	436	993.2	1011.3	17	-5	5.9	9.0	30	10	-20	12	0	28	0	77	.93	.42	.31	9	0	19.7	36	4.0	N	*17	WSW	10	4	5	19	7.7	--
Juneau	15	1011.2	1011.9	35	22	28.2	.9	42	1	4	18	0	19	22	80	4.15	.80	1.79	16	0	19.2	12	9.8	ESE	37	SE	27	8	3	17	6.6	--
King Salmon	44	1005.4	1007.3	33	19	25.8	7.8	41	1	-6	28	0	26	22	86	.45	-.67	.17	12	0	6.3	2	11.6	E	*37	N	11	5	4	19	7.5	--
Kotzebue	10	1007.1	1007.8	13	-2	6.0	10.7	31	13	-23	28+	0	28	1	77	.44	.12	.12	14	0	5.7	17	14.4	E	*37	W	11+	5	1	22	7.9	--
McGrath	334	996.3	1009.5	22	-1	10.6	10.2	36	2	-22	28	0	28	5	74	1.03	-.12	.33	12	0	18.7	25	4.2	S	*25	S	2	4	4	20	7.9	--
Nome	13	1005.1	1005.8	21	8	14.1	8.4	32	9	-19	27	0	28	12	85	.93	.00	.36	17	0	8.5	26	13.8	E	*38	NNE	20+	3	2	23	8.4	22
St. Paul Island	22	1003.1	1004.1	35	28	31.2	7.4	40	14+	12	19	0	19	28	85	1.61	.48	.72	13	0	3.5	2	----	---	--	---	--	0	8	20	8.5	--
Yakutat	28	1008.8	1009.7	36	20	28.0	.0	42	25+	-1	13	0	26	24	86	9.32	.71	1.59	18	0	65.4	27	6.9	ENE	*29	SE	27	8	0	20	7.0	--

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
\+ And also on an earlier date or dates.
a Maximum hourly average.
\# Number of days maximum 70° or above for Alaskan Stations.
∅ Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.

† City Office Data
‡ Peak Gust
⊕ Not necessarily fastest mile - record incomplete.

HEATING DEGREE DAYS

FEBRUARY 1959

State and station	Current season: This month	Current season: Period July through this month	Normal: July through this month
ALABAMA			
Birmingham	466	2299	2244
Mobile	293	1491	1343
Montgomery	363	1779	1769
ARIZONA			
Flagstaff	1054	4642	5212
Phoenix (U)	219		1255
Phoenix	306	1046	1428
Prescott	741	2940	3358
Tucson	370	1236	1453
Winslow	704	3238	3610
Yuma	188	533	849
ARKANSAS			
Ft. Smith	607	2813	2619
Little Rock	550	2520	2441
Texarkana	454	2168	1954
CALIFORNIA			
Bakersfield	367	1429	1730
Bishop	735	2821	3179
Blue Canyon	821	2976	3708
Burbank	319	875	1284
Eureka (U)	487	2643	3050
Fresno	422	1716	2040
Los Angeles (U)	237	606	1023
Los Angeles	209	539	1380
Mt. Shasta (R)	807	3461	4111
Oakland	385	1545	2190
Red Bluff	410	1605	1982
Sacramento (U)	407	1512	1997
Sacramento	429	1699	2142
Sandberg (R)	714	2462	2862
San Diego	216	574	1060
San Francisco (U)	315	1527	2045
San Francisco	322	1302	2288
San Jose	349	1254	1690
Santa Maria	399	1441	1936
COLORADO			
Alamosa	1167	5846	6288
Colorado Springs	937	4240	4443
Denver	958	4137	4413
Grand Junction	814	3880	4488
Pueblo	871	4003	4248
CONNECTICUT			
Bridgeport	1004	4321	4177
Hartford	1143	5014	4508
New Haven	1034	4443	4281
DELAWARE			
Wilmington	890	3990	3700
DIST. OF COLUMBIA			
Washington (U)	722	3310	3258
Washington	721	3306	3304
FLORIDA			
Apalachicola (U)	170	1030	1090
Daytona Beach	58	543	720
Fort Myers	2	260	345
Jacksonville	152	960	1051
Key West	0	42	70
Miami	0	108	166
Miami Beach	0	68	114
Orlando	36	437	558
Pensacola (U)	233	1233	1187
Tallahassee	190	1182	1278
Tampa	11	364	572
West Palm Beach	0	147	215
GEORGIA			
Athens	488	2346	2253
Atlanta	480	2247	2269
Augusta	384	2035	1768
Columbus	396	1924	1951
Macon	376	1782	1712
Rome	544	2727	2516
Savannah	285	1567	1429
IDAHO			
Boise	771	3719	4377
Lewiston	786	3684	4122
Pocatello	952	4477	5082
ILLINOIS			
Cairo (U)	695	3183	3004
Chicago	1083	4820	4648
Chicago University	866	4531	
Moline	1096	5030	4805
Peoria	1057	4798	4591
Springfield	961	4401	4317
INDIANA			
Evansville	768	3746	3424
Ft. Wayne	1029	4900	4618
Indianapolis	925	4464	4201
South Bend	1099	5043	4775
IOWA			
Burlington	1069	4879	4601
Des Moines	1148	5052	4894
Dubuque	1327	5785	5402
Sioux City	1261	5327	5326
KANSAS			
Concordia (U)	979	4195	4091
Dodge City	871	3976	3867
Goodland	986	4460	4650
Topeka	926	4120	4037
Wichita	870	3773	3564
KENTUCKY			
Lexington	766	3741	3746
Louisville	723	3508	3444
LOUISIANA			
Baton Rouge	291	1440	1332
Lake Charles	302	1427	1293
New Orleans (U)	230	1130	[illegible]
New Orleans	241	1220	1096
Shreveport	402	1978	1784
MAINE			
Caribou	1628	7433	7209
Greenville (U)	1553	7038	
Portland	1305	6130	5438
MARYLAND			
Baltimore (U)	738	3366	3193
Baltimore	815	3752	3613
Frederick	862	4075	3707
MASSACHUSETTS			
Blue Hill Obs. (R)	1148	5086	
Boston	1065	4396	4130
Nantucket	998	4239	4047
Pittsfield	1243	5711	5503
MICHIGAN			
Alpena (U)	1389	5924	5583
Detroit	1093	4842	4608
Detroit (Willow Run)	1107	4959	4703
East Lansing (U)	1163	5122	
Escanaba (U)	1442	6293	6013
Grand Rapids	1187	5296	5081
Marquette (U)	1378	6176	5893
Muskegon	1196	5241	4970
S. Ste. Marie	1543	6882	6604
MINNESOTA			
Duluth (U)	1543	7475	6834
Duluth	1552	7495	7112
Internat. Falls	1725	8306	7763
Minneapolis	1334	5937	5867
Rochester	1452	6307	6032
St. Cloud	1464	6704	6612
MISSISSIPPI			
Jackson	395	2049	1822
Meridian	389	2033	1930
Vicksburg (U)	383	1899	1656
MISSOURI			
Columbia	861	3964	3940
Kansas City	856	3718	3811
St. Joseph	981	4312	4153
St. Louis (U)	813	3651	3478
St. Louis	813	3814	3642
Springfield	763	3633	3632
MONTANA			
Billings	1200	5081	5161
Glasgow	1735	7121	6549
Great Falls	1347	5423	5401
Havre (U)	1596	6420	6102
Helena	1405	5980	5983
Kalispell	1180	5748	5840
Miles City	1558	6139	5841
Missoula	1159	5402	5784
NEBRASKA			
Grand Island	1152	4893	4805
Lincoln (U)	1071	4446	4490
Norfolk	1231	5271	5320
North Platte	1137	4987	4868
Omaha	1114	4740	4733
Scottsbluff	1097	4934	4955
Valentine	1262	5395	5191
NEVADA			
Elko	986	4644	5266
Ely	1085	4859	5265
Las Vegas	477	1925	2045
Reno	867	3915	4278
Tonopah	910	3716	4183
Winnemucca	941	4234	4619
NEW HAMPSHIRE			
Concord	1279	5673	5525
Mt. Washington Obs.	1789	9940	
NEW JERSEY			
Atlantic City (U)	852	3743	3331
Newark	928	3947	3883
Trenton (U)	907	3962	3760
NEW MEXICO			
Albuquerque	706	3222	3441
Clayton	807	3815	3781
Roswell	594	2862	2768
NEW YORK			
Albany	1249	5420	5080
Binghamton	1167	[illegible]	5408
Buffalo	1134	4996	4823
New York (U)	917	3848	3670
New York	916	3821	3631
Rochester	1182	5156	4913
Schenectady	1196	5149	5172
Syracuse	1201	5257	4711
NORTH CAROLINA			
Asheville (U)	635	3154	3105
Cape Hatteras (R)	450	1988	1802
Charlotte	528	2563	2555
Greensboro	632	3102	2991
Raleigh	591	2830	2649
Wilmington	427	2077	1865
Winston-Salem	615	2916	2921
NORTH DAKOTA			
Bismarck	1645	7054	6718
Devils Lake (U)	1669	7634	7345
Fargo	1555	6962	6917
Grand Forks	1700	7629	
Williston (U)	1653	6939	6713
OHIO			
Akron	1006	4922	4497
Cincinnati (U)	753	3540	3465
Cincinnati	815	3983	3899
Cleveland	998	4578	4332
Columbus	898	4412	4179
Dayton	920	4489	4163
Sandusky	1007	4602	4235
Toledo	1064	4965	4629
Youngstown	1023	4969	4467
OKLAHOMA			
Oklahoma City	692	3136	2932
Tulsa	652	2983	2882
OREGON			
Astoria	611	3018	3346
Burns (U)	898	4293	5049
Eugene	615	2855	3394
Meacham	986	4742	5356
Medford	647	2946	3338
Pendleton	757	3575	3956
Portland (U)	600	2617	3012
Portland	618	3017	3331
Roseburg	607	2621	
Salem	612	2834	3262
Sexton Summit (R)	870	3742	4079
PENNSYLVANIA			
Allentown	996	4559	4356
Harrisburg	904	4170	3943
Philadelphia (U)	782	3596	3394
Philadelphia	884	3917	3656
Pittsburgh (U)	835	4048	3761
Pittsburgh	924	4602	4370
Reading (U)	903	4018	3790
Scranton	1095	5000	4441
Williamsport	1021	4704	4387
RHODE ISLAND			
Block Island	988	4107	3944
Providence	1063	4548	4365
SOUTH CAROLINA			
Charleston (U)	313	1521	1466
Charleston	330	1768	1629
Columbia	412	2144	2012
Florence	424	2090	2090
Greenville	529	2438	2425
Spartanburg	527	2493	2430
SOUTH DAKOTA			
Huron	1525	6233	5923
Pierre	1388	5840	
Rapid City	1206	5150	5370
Sioux Falls	1430	5967	5911
TENNESSEE			
Bristol	646	3327	3203
Chattanooga	580	2813	2693
Knoxville	589	2876	2844
Memphis	570	2639	2547
Nashville	634	3004	2786
TEXAS			
Abilene	507	2344	2200
Amarillo	716	3392	3362
Austin	346	1639	1452
Brownsville	153	718	543
Corpus Christi	227	1032	887
Dallas	443	2044	1909
Del Rio (U)	288	1465	
El Paso	434	1985	2201
Ft. Worth	452	2130	1958
Galveston (U)	263	1152	1005
Galveston	254	1173	1029
Houston (U)	254	1228	1083
Houston	254	1274	1168
Laredo	223	1012	710
Lubbock	622	2903	2869
TEXAS (cont.)			
Midland	501	2360	
Port Arthur	289	1396	1267
San Angelo	458	2130	1788
San Antonio	311	1505	1355
Victoria	263	1247	969
Waco	411	1871	1696
Wichita Falls	540	2514	2475
UTAH			
Milford	[illegible]	4371	4783
Salt Lake City	804	3841	4358
VERMONT			
Burlington	1430	6096	5698
VIRGINIA			
Lynchburg	683	3280	3193
Norfolk	591	2645	2630
Richmond	650	3115	3068
Roanoke	668	3231	3194
WASHINGTON			
Olympia	680	3371	3822
Seattle (U)	597	2779	3131
Seattle-Tacoma	667	3203	3700
Spokane	960	4637	4981
Stampede Pass (R)	1087	5848	6175
Tatoosh Island (R)	614	3535	3803
Walla Walla (U)	727	3431	3737
Yakima	835	4326	4519
WEST VIRGINIA			
Charleston	710	3585	3357
Elkins	881	4507	4222
Huntington (U)	703	3484	3162
Parkersburg (U)	788	3896	3599
WISCONSIN			
Green Bay	1466	6316	5977
La Crosse	1417	5950	5739
Madison	1357	5900	5476
Milwaukee	1273	5574	5141
WYOMING			
Casper	1169	4173	5440
Cheyenne	1086	4941	5181
Lander	1228	5523	6012
Sheridan	1270	5580	5675
ALASKA			
Anchorage	1229	8013	7718
Annette	817	4611	4773
Barrow	2059	12559	13196
Barter Island	1985	12174	
Bethel	1236	8752	8928
Cold Bay	902	6206	
Cordova	1000	6723	6519
Fairbanks	1650	11015	10600
Juneau	1022	6278	6225
King Salmon	1090	7654	
Kotzebue	1652	10379	10802
McGrath	1520	10729	10472
Nome	1420	[illegible]	[illegible]
St. Paul	941	6562	6907
Yakutat	1030	6264	6301

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

FEBRUARY 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				Ø ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS
Arkansas										0	0	3	0																
California	**2	**2	0	0	3					0	2	5	0	0	0	2	0									0	1	5	0
Colorado																		1	0	0	0								
Connecticut																						0	N	*	*				
Georgia	2	2	0	0	4																								
Illinois	2	1	0	0	5					0	1	5	0	0	0	*	0					0	*	*	*				
Indiana	4	1	0	0	5					0	0	4	0									0	0	4	0	1	0	°7	C
Iowa																		1	78	4	0	0	10	3	0				
Kansas	1	1	0	0	3					0	1	0	0					3	N	0	0	0	N	0	0				
Kentucky	2	1	0	6	5					0	0	4	0																
Louisiana	1	1	0	1	4																								
Maine																		0	4	4	0	2	10	4	0				
Massachusetts										0	0	4	0					1	15	4	0	0	29	5	0				
Michigan																		0	0	4	0	0	120	4	0				
Missouri	3	9-10	21	346	7		0	0	5	0	0	0	5	0								0	0	4	0				
Nebraska														0	0	3	0												
New Hampshire																		0	28	4	0	0	1	3	0				
New Jersey																						1	11	0	0				
New Mexico										0	0	°4	C									0	0	3	0				
New York																		4	28	3	0	4	25	4	0				
North Carolina																						1	1	0	0				
Ohio	1	10	0	6	5																					0	0	7	5
Oklahoma	T 6	1	0	0	3	0	0	2	0									0	1	0	0					0	2	3	0
Oregon										0	0	5	1					0	0	3	1	0	0	3	1	0	0	2	1
Pennsylvania																						2	42	5	0				
Rhode Island																						0	15+	*	*				
South Dakota																		0	1	0	0	0	1	0	0				
Tennessee										0	0	4	0																
Texas										3	5	5	2									2	13	4	1				
Vermont										0	0	3	0					0	6	3	0	0	0	3	0				
Washington																		0	1	4	0								
Wisconsin																		4	3	4	0								

** Includes (1) funnel aloft.
T Includes (4) funnels aloft.

‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
° Includes crop damage.
C Crop damage.
* Not estimated.
N Numerous.
Ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

FEBRUARY 1959

The flood of February 1959 in the Wabash Basin in Indiana was the greatest in 46 years at numerous points. It may even have exceeded the flood of 1913 at one or two points. Flooding was complicated by huge ice jams, which were the worst in memory in at least one or two areas. Flooding in the St. Marys and upper Maumee Basins in Indiana and Ohio was generally the highest since May 1943 and in the lower portion at Napoleon, Ohio, the highest since March 1913. Flood damages ranked second to the flood of 1913. The second serious flood in 3 weeks occurred on the Sandusky River in Ohio. The flooding at Fremont was equally as severe as during January. Ice gorging was a major factor. Flooding elsewhere was mostly minor.

ST. LAWRENCE DRAINAGE

Lake Erie.--The flooding in the Maumee Basin between the 10th and 18th was due to heavy rains plus snowmelt on deeply frozen ground. The stages reached on the St. Marys at Decatur, Ind., and on the Maumee River at Fort Wayne, Ind., were the highest since May 1943. At Napoleon, Ohio, the Maumee reached a stage of 19.5 feet, 9.5 feet above flood stage and equal to the stage reached in the February 1918 flood. This was the second highest flood of record at this point. A comparison with the flood damage reports of previous floods indicates that the flood of February 1959 was second in total flood damage only to the flood of March 1913. Stages recorded in this flood were about 5 feet lower than in 1913. However, encroachment of urban developments in lower areas in recent years have left these areas exposed to flooding at much lower stages than in previous floods. Many families living in these low areas were forced to leave their homes.

The second serious flood in 3 weeks occurred on the Sandusky River in Ohio between the 10th and 13th. The flooding at Fremont was equally as severe as during January. Ice gorging was a major factor in this flood. The ice jam at Fremont extended from Lake Erie approximately 8 miles upstream. The 18-foot crest at Fremont was the highest noted since the flood of 1913, when it reached 21 feet. The rainfall which produced the flooding was unseasonably warm, and thunderstorms increased the intensity of the rainfall. The rainfall averaged 2.7 inches over the basin, with the heaviest amounts recorded in the headwaters. Damage in the Fremont area was extensive and approximately 1,500 persons were evacuated from their homes. The business area, not completely restored to normal since the January flood, suffered heavily. Damages approached the $5 million mark. At Tiffin, Ohio, several families were evacuated.

Lake Ontario.--The light flooding on Canaseraga Creek and Genesee River in western New York on the 10th was due to rainfall averaging about 1 inch. There was also considerable ice jamming on Canaseraga Creek. The road west of Groveland, N. Y., was closed to traffic due to a thick layer of ice remaining after the overflow. Additional flooding occurred on Canaseraga Creek on the 15th and on Black Creek between the 15th and 17th.

ATLANTIC SLOPE DRAINAGE

The flooding on Tioughnioga River at Whitney Point, N. Y., between the 1st and 8th was due to an ice gorge below the gage. The slight overflows on the 11th on the Chemung River was due to rainfall averaging 1.1 inches and melting snow. No damage resulted.

Minor flooding resulted on the Neuse and Cape Fear Rivers in eastern North Carolina between the 5th and 16th due to heavy rain (1 to 3 inches) on the 3d to the 4th. Light to moderate rain over a 3-day period during the middle of the month caused another rise with minor flooding on the Cape Fear at Elizabethtown, N. C., on the 17th.

Heavy rain between the 3d and the 5th caused shallow flooding on the Rocky River at Norwood, N. C., and on the Pee Dee River at Peedee, S. C., between the 7th and 11th. Additional rain on the 13th and 14th caused another rise on the Pee Dee River to bankfull stage on the 18th. No damage was reported.

The flooding on the Savannah and Ogeechee Rivers in Georgia between the 10th and 21st was due to heavy rain between the 3d and 5th; 9th and 11th; and 13th and 15th. No damage resulted.

Minor flooding occurred on the Ocmulgee, Altamaha, and Satilla Rivers in Georgia between the 12th and 26th. Damage was minor even in those areas that are usually cultivated, as very little if any plowing had been done due to the wet weather.

EAST GULF OF MEXICO DRAINAGE

The flooding on the Apalachicola River at Blountstown, Fla., between the 5th and 23d was due to heavy to excessive rains of 2 to almost 5 inches during the period from the 2d to the 4th. Moderate rains from the 8th to the 14th slowed down the recession. The moderate lowland flooding was more beneficial than destructive, as it enabled the floating of logs downstream from higher elevations.

The heavy rains from the 3d to the 5th caused the lower Choctawhatchie to exceed flood stage at Caryville, Fla., from the 7th to the 10th. A pipeline is being constructed across the river at Caryville, Fla., and equipment had to be removed from the river with some damage and loss from work stoppage. There was some loss of livestock.

Minor flooding occurred in the extreme upper Tombigbee River and in the lower segment of the River between the 9th and 25th, due to rains averaging 1.5 inches on the 9th. Additional moderate rains occurred on the 11th and 12th, with another 1.5 inch rain in the upper watersheds on the 13th. No damage was reported.

Moderate flooding occurred on the Pearl River from above Edinburg, Miss., to Jackson, Miss., and from Bogalusa, La., to Pearl, La., between the 1st and 28th, due to moderately heavy rains averaging above 2 inches during the second week of February. No damage was reported.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The Mississippi River flow at Minneapolis, Minn., continues below normal for the 12th consecutive month. The February mean stage of 4.9 feet was 1.2 feet below the long-term mean. At St. Paul, the mean stage of 2.9 feet was 0.4 foot above the long-term mean, and at La Crosse, Wis., the mean of 4.5 feet was 0.1 foot above the long-term mean. The Chippewa River at Durand, Wis., had a mean stage of 3.4 feet, which was 0.9 foot below the long-term mean. At Portage, Wis., the mean stage on the Wisconsin River of 12.0 feet was 0.8 foot above the long-term mean.

Snow cover over the northern third of Minnesota ranges from 2 inches in the northwest to 10 to 17 inches in the north-central and northeast. Northwestern Wisconsin has from 2 to 4 inches and

northeastern Wisconsin 8 to 10 inches. The greatest snow cover is over southeastern Minnesota and southwestern Wisconsin, where snow depths at end of February varied from 12 to 18 inches with a water content of 2 to 4 inches. A comparison of snow depths in the upper Mississippi Basin on February 28 with that of other years is given for selected points in the following table:

COMPARATIVE SNOW DEPTHS (INCHES)

Station (Minnesota)	1959	1958	1957	1956	1955
Bemidji	4	T	14	22	25
International Falls	17	T	15	20	25
Duluth	9	3	22	28	27
Fargo, N. Dak.	T	0	1	7	6
Alexandria	1	0	4	12	10
New Ulm	T	0	0	6	7
Minneapolis	0	0	T	7	6
Rochester	13	0	T	6	1
La Crosse, Wis.	16	0	0	2	--
Park Falls, Wis.	10	3	16	20	--

Minor flooding occurred on the Rock River in Illinois between the 25th and the end of the month. No damage resulted.

No damage of consequence resulted from the minor flooding on the Salt River at New London, Mo., between the 10th and 12th and on the Skunk River at Augusta, Iowa, between the 24th and 26th.

The flooding on the lower Des Moines River in Iowa on the 24th and 25th was due to ice jams below the gaging points. Flooding was confined to lowland areas and no damage was reported.

Floods were general over Illinois during the latter half of the month, with the Illinois River and all major tributaries overflowing their banks. The Big Muddy, which was in flood during much of January, dropped below flood stage early in February, but exceeded flood stage again in the Murphysboro, Ill., area from the 15th through the 21st. These floods were due to unusually heavy rains on the 9th and 10th plus melting snow and ice. Moderate amounts of rainfall on the 14th and 23d contributed to the continued flooding for most of the remainder of the month. Because of the season of the year, no extensive damage was done to crops by these floods, but some grains stored in fields were damaged. The heavy rain on the 9th and 10th caused flash flooding of some small streams and damage to levees along Kankakee tributaries. Heavy runoff caused considerable erosion damage in some areas. Some roads were blocked and a few schools closed for a day or so because school busses did not run.

Missouri Basin.--The heavy rain on the 10th and 11th coupled with snowmelt caused considerable high water on the Grand, Lamine, Blackwater, and Chariton Rivers in Missouri between the 10th and 16th. These heavy rains and ice jams on the Old Chariton River bed caused ice and water to pour over highways of Sallisbury, Mo., creating a traffic hazard. A heavy ice jam on the Nishnabotna River at Hamburg, Iowa, on the 26th caused the river to rise 5 feet over bankfull stage flooding nearby farmland.

Ohio Basin.--Heavy rain on the 9th and 10th supplemented by snowmelt resulted in bankfull stages on the upper Allegheny and Shenango Rivers between the 10th and 14th. Two ice gorges in French Creek above Meadville, Pa., posed a possible flood threat to the community, but failed to materialize as the gorges held fast. Flood damages were minor.

Paint Creek overflowed at Bourneville, Ohio, on the 10th and 14th due to heavy thundershowers. The rainfall that caused the flooding on the Scioto River in Ohio between the 10th and 18th was due to rainfall averaging 2 inches in the upper portion and a little more than 1 inch in the lower Scioto. This was the second serious flood in this basin in 3 weeks.

The lower Green was above flood stage in the beginning of the month, but had receded to below flood stage at Calhoun, Ky., by the 3d. Minor flooding occurred along the middle and lower Green between the 16th and 22d. Little if any additional damage to that occurring in January was reported.

The flood of February 1959 was the greatest in 46 years at numerous points on the Wabash and may even have exceeded the flood of 1913 at one or two points. Flooding was complicated by huge ice jams, the worst in memory in at least one or two areas. Heavy rainfall, which spread over Indiana on the 9th, came after a prolonged period of cold weather, and falling upon frozen ground produced very rapid runoff which resulted in phenomenally rapid rises. Rainfall averaged about 3.75 inches in less than a 24-hour period over the extreme upper Wabash and Mississinewa Rivers, about 2 inches over the remainder of the Wabash downstream to Terre Haute, and a lesser amount below. The Wabash River rose rapidly to a crest of 14.95 feet at Bluffton, Ind., on the 10th, the highest stage since 1950. As the crest formed, it carried before it huge cakes of ice which began to form ice jams at numerous points downstream. The crest of 22.9 feet at Huntington, Ind., on the 10th was the highest of record, surpassing the high water mark of 1913. This crest was probably somewhat higher because of ice jams downstream. At Lagro, Ind., where the Salamonie enters the Wabash, ice from both streams formed ice jams, and a huge cake of ice took the roof from a house destroying it. At least 10 families were evacuated in that area. The Salamonie spread out to 1.5 miles in width at some points, ruining wheat fields. Numerous residential areas of this little town were under water as the flood water crept to the edge of the business district. Meanwhile, downstream at Wabash, the river rose rapidly toward a crest of 24.45 feet, the highest stage since 1913. Workers saved the water supply by frantic efforts, as the flood inundated about 46 blocks of residential and factory areas. Production was lost from five or six sizable industrial plants for several days and some supplies and equipment were lost, although movable equipment was largely carried to upper floors. Downstream at Peru, the Mississinewa was adding a considerable volume of water to that beleaguered city, after causing evacuation of some 15 to 20 families in the Red Bridge and Maple Grove areas. Ice jams developed above and below Peru. When the upstream ice jam gave way, National Guard and volunteer workers were unable to hold the improvised sandbag levee against the final crest of 23.65 feet, the highest stage since 1943, and about 1.4 feet above the top of the concrete flood wall. The ice-choked flood waters spread over a large area of Peru, causing evacuation of an estimated 600 to 1,000 persons. As the flood crest neared Logansport

late on the 11th, large areas of that city were also flooded, forcing the evacuation of some 100 families. The Logansport crest was the highest since 1943. At Georgetown, 6 miles downstream from Logansport, a large ice jam added to the flood. Ice and water flowed 6 feet deep in Main Street. The entire small town, consisting of some 25 homes, were flooded and evacuated. Further downstream at Delphi, a large ice jam contributed much toward one of the highest floods of memory and forced the evacuation of 500 to 600 residents of Pittsburg, just across the river, where the stage was said to equal or exceed that of 1913. At Lafayette, a crest of 25.3 feet showed some reduction in the sharpness of the crest as the ice jams upstream diminished the peak of the flood. From Lafayette to Clinton the crests were somewhat below the great flood of June 1958. At Attica numerous highways were closed, including important North and South U. S. 41 and residential areas were inundated. From Covington downstream, the flood waters spread over widening areas of fields, ruining much winter wheat. At West Terre Haute a major crisis developed because of the large gap in the levee which had been breached by the June 1958 flood. The levee no longer offered protection above a stage of 18 feet. Nevertheless, a 4-day warning by the Weather Bureau enabled the National Guard and emergency workers to construct a sandbag levee which protected some 4,000 persons and was barely able to hold back a crest of 24.9 feet. Along the lower Wabash, the river spread out over ever widening agricultural areas as it poured through unrepaired levees or broke through and overtopped rain sodden earthen levees. Above Vincennes the Oaktown levee gave way, flooding a large portion on the Indiana side, and shortly thereafter the Russell and Allison levee caused flood waters to spread out to some 5 to 7 miles in width opposite Vincennes. U. S. route 50 in Illinois became the main route of exit for some 600 persons. Livestock and equipment were evacuated from farms. The highway was later closed for about 10 days by water up to 4 or 5 feet in depth. Although the flooding along the White and East Fork exceeded bankfull stage by considerable amounts at some points, flooding was to a far less degree than in some of the more recent floods, and damage was probably not very great because of the previous very high stages of January 1959.

The flooding on the Ohio River at Midland, Pa., on the 11th and 12th was due to rainfall ranging from 0.75 to 1.75 inches over the upper Ohio Basin on the 9th and 10th supplemented by snowmelt. The lower Ohio River began rising on the 13th from the rains upstream, and crested from a few tenths above flood stage in the upper part of the district to nearly 10 feet above flood in the lower section a week to 10 days later. Flood losses along the Ohio were very small, as most of the land had been inundated by the earlier flood and crops were not involved.

White Basin.--Heavy rains on the 13th and 14th ranging from 2.5 to 4 inches caused minor flooding along the lower White River in Arkansas between the 19th and the end of the month. Damage from this flooding was negligible.

Red Basin.--The flooding on the Ouachita River in Arkansas between the 15th and 22d was due to rainfall averaging over 4 inches in the upper basin on the 13th and 14th. No damage of consequence was reported from this flooding.

Light to moderate flooding occurred along the entire course of the Sulphur between the 15th and 24th, except possibly in the extreme upper reaches. The rainfall that produced this flood averaged over 3 inches during the 4-day period between the 12th and 15th. Little or no damage resulted from this flood.

Lower Mississippi Basin.--The minor flooding on the Tallahatchie and Big Black Rivers in Mississippi was due to heavy rains from the 12th to the 14th. Only agricultural lands were affected and damages are believed to have been slight.

WEST GULF OF MEXICO DRAINAGE

Heavy rains (2.5 to 4 inches) during the first 4 days of the month caused general overflows along the Calcasieu River in Louisiana and on the Sabine River at Deweyville, Tex., between the 1st and 15th. There were three other periods of heavy rains during the month that maintained high flow with the Calcasieu exceeding bankfull stage at Hineston, La., two times and at Kinder, La., three times during the month. The heavy rains from the 12th to the 15th caused light to moderate flooding in the headwaters of the Sabine River between the 16th and the 28th. Little or no damage resulted from these floods.

The minor flooding on the Navidad and Lavaca Rivers in Texas between the 13th and 18th was due to light to moderate intermittent rain between the 11th and 14th. Flooding was confined mostly to pasturelands and lowlands. No extensive damage resulted.

PACIFIC SLOPE DRAINAGE

Substantial and very sharp rises occurred in the upper Sacramento Basin in California from the heavy rain during the night of the 15th and the morning of the 16th. The Sacramento approached within 1 foot of flood stage at Red Bluff to a stage of 22 feet, the highest level reached this season. Substantial overflow into the bypass systems of the Sacramento River continued from the 16th through the 26th.

Minor flooding occurred along the central and lower Russian River Basin in California on the 16th and 17th due to rains beginning on the 14th. Low-lying cabins and cottages at Guerneville were inundated. Minor agricultural flooding occurred from Hopland downstream.

FLOOD STAGE DATA

(All dates in February unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From—	To—	Crest * Stage	Date
	Ft.			Ft.	
ST. LAWRENCE DRAINAGE					
Lake Erie					
St. Marys: Decatur, Ind.	13	10	16	22.6	10
St. Joseph: Montpelier, Ohio	10	12	28	13.4	15
Maumee: Fort Wayne, Ind.	15	10	18	21.3	12
Defiance, Ohio	10	11	16	15.8	13
Napoleon, Ohio	10	11	15	19.5	11
Grand Rapids, Ohio	15	10	15	19.85	12
Sandusky: Upper Sandusky, Ohio	13	11	11	14.2	11
Tiffin, Ohio	7	10	11	8.3	10
Fremont, Ohio	10	10	13	18.0	11
Lake Ontario					
Canaseraga Creek: Groveland, N. Y.	11	10 15	10 15	11.9 11.75	10 15
Black Creek: Churchville, N. Y.	5	15	17	5.1 5.15	15 16
Genesee: Scio, N. Y.	8	10	10	8.2	10
Wellsville, N. Y.	10	10	10	10.0	10
ATLANTIC SLOPE DRAINAGE					
Tioughnioga: Whitney Point, N. Y.	12	1	8	15.1	1
Chemung: Chemung, N. Y.	12	11	11	12.6	11
Neuse: Smithfield, N. C.	13	5	8	15.25	6
Goldsboro, N. C.	14	7	13	17.4	10
Kinston, N. C.	14	10	16	15.2	14
Cape Fear: Elizabethtown, N. C.	20	6 17	9 17	25.0 20.2	7 17
Rocky: Norwood, N. C.	16	5	5	18.5	5
Pee Dee: Peedee, S. C.	19	7 18	11 18	19.4 19.0	9 18
Savannah: Clyo, Ga.	11	10	18	11.4	11-12
Ogeechee: Dover, Ga.	7	14	21	7.7	18
Ocmulgee: Abbeville, Ga.	12	12	18	12.7	13
Altamaha: Charlotte, Ga.	15	15	22	15.8	19
Satilla: Atkinson, Ga.	13	14	26	15.0	19,20
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.	15	5	23	18.9	8
Choctawhatchee: Caryville, Fla.	12	7	10	12.5	8
East Fork: Fulton, Miss.	16	15	17	16.5	15
Tibbie: Tibbie, Miss.	23	15	17	25.7	15
Noxubee: Macon, Miss.	20	9	18	23.6	16
Tombigbee: Amory, Miss.	20	13	15	21.9	14
Aberdeen, Miss.	34	16	16	34.0	16
Lock 3, Whitfield, Ala.	33	10	25	47.0	19
Lock 2, Pennington, Ala.	46	16	21	48.7	19
Lock 1, Jackson, Ala.	31	15	25	33.5	21
Pearl: Edinburg, Miss.	20	13	17	21.0	15
Jackson, Miss.	18	5	27	26.5	20
Bogalusa, La.	15	1	28	18.5	5
Pearl River, La.	12	4	28	14.6	8
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Rock: Moline, Ill.	13	27	28	14.7	28
Joslin, Ill.	10	25	1/	12.6	27
Skunk: Augusta, Iowa	15	24	26	17.2	26
Des Moines: Eddyville, Iowa	15	24	25	17.5	24
Ottumwa, Iowa	9	25	25	12.6	25
Salt: New London, Mo.	19	10	12	21.9	10
Iroquois: Chebanse, Ill.	14	11	15	17.0	13
MISSISSIPPI SYSTEM (Cont'd.) Upper Mississippi Basin (Cont'd.)	Ft.			Ft.	
Kankakee: Momence, Ill.	4	13	28	5.4 8.0	15 24
Fox: Dayton, Ill.	12	14 23	15 24	12.8 12.1	14 24
Spoon: Seville, Ill.	22	12	14	22.9	13
Salt Creek: Greenview, Ill.	16	11	15	17.1	14
Sangamon: Riverton, Ill.	13	9	22	21.2	13
Petersburg, Ill.	497	10	18	499.6	15
Oakford, Ill.	471	11	17	473.1	14
LaMoine: Ripley, Ill.	22	10	17	24.0	14
Illinois: Morris, Ill.	13	13	17	15.5	15
LaSalle, Ill.	20	13 23	20 28	23.5 22.0	15 24
Peoria, Ill.	18	16 26	20 28	18.8 18.2	18 26-28
Havana, Ill.	14	14	28	17.7	19
Beardstown, Ill.	14	12	28	19.7	19-20
Kaskaskia: Shelbyville, Ill.	13	10	16	18.5	11
Vandalia, Ill.	18	10	20	24.2	12
Carlyle, Ill.	21	11	28	26.5	15
New Athens, Ill.	25	17	21	25.5	19
Big Muddy: Murphysboro, Ill.	16	Jan. 22 15	2 21	19.0 18.0	Jan. 26 18
Missouri Basin					
Nishnabotna: Hamburg, Iowa	18	26	27	23.3	27
Grand: Sumner, Mo.	26	14	16	29.3	15
Lamine: Clifton City, Mo.	19	10	12	22.7	11
Petite Saline: Boonville, Mo.	16	11	12	19.5	17
Ohio Basin					
Allegheny: Olean, N. Y.	10	10	14	12.2	11
Lock 5, Freeport, Pa.	21	10	11	21.4	11
Shenango: Sharpsville, Pa.	10	10	11	10.7	11
Sharon, Pa.	13	10	11	14.3	11
Paint Creek: Bourneville, Ohio	10	10 14	10 14	11.8 11.3	10 14
Scioto: La Rue, Ohio	11	10	12	14.4	11
Prospect, Ohio	12	11	13	14.8	12
Circleville, Ohio	14	11	16	19.0	11
Chillicothe, Ohio	16	12	13	19.8	12
Piketon, Ohio	16	11	18	23.0	14
Barren: Bowling Green, Ky.	28	16	16		
Green: Lock 4, Woodbury, Ky.	33	16	19	35.3	18
Lock 2, Calhoun, Ky.	23	Jan. 23 19	3 22	27.9	Jan. 29
Mississinewa: Marion, Ind.	10	10	10	12.85	10
Vermillion: Danville, Ill.	18	10	11	26.8	11
Sugar Creek: Crawfordsville, Ind.	A 8	10	10	10.9	10
Embarrass: Ste. Marie, Ill.	18	11	17	20.4 19.2	12 15
Eagle Creek: Zionsville, Ind.	7	10	10	10.6	10
Eel: Bowling Green, Ind.	17	11	11	18.6	11
East Fork: Seymour, Ind.	14	11	16	16.0 15.7	12 15
Bedford, Ind.	20	15 18	16 18	20.8 20.2	15 18
White: Muncie, Ind.	6	10	10	6.9	10
Anderson, Ind.	10	11	12	13.9	11
Noblesville, Ind.	14	11	12	14.7	12
Indianapolis, Ind.	6	11	13	8.4	12
Centerton, Ind.	A602	11	14	605.2	11
Spencer, Ind.	14	11	17	19.4	12

FLOOD STAGE DATA

(All dates in February unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
MISSISSIPPI SYSTEM (Cont'd.) Ohio Basin (Cont'd.)	Ft.			Ft.	
White (Cont'd.): Elliston, Ind.	18	11	19	25.0	13
Newberry, Ind.	18	13	16	19.7	14
Edwardsport, Ind.	15	11	21	22.3	15
Petersburg, Ind.	16	Jan. 22	4	25.0	Jan. 28
		13	24	22.8	17
Hazleton, Ind.	16	Jan. 22	4	26.6	Jan. 29
		15	23	23.85	18
Wabash: Bluffton, Ind.	10	10	14	14.95	10
Huntington, Ind.	20	10	11	22.9	10
Wabash, Ind.	12	Jan. 22	1	15.95	25
		10	16	22.45	11
Peru, Ind.	20	10	11	23.65	11
Logansport, Ind.	17	11	12	19.75	11
Delphi, Ind.	A 16			27.6	11
Lafayette, Ind.	11	Jan. 22	3	18.4	Jan. 25
		10	19	25.3	12
		24	25	11.4	24
Covington, Ind.	16	Jan. 24	4	19.95	3
		10	20	28.4	13
Montezuma, Ind.	14	Jan. 22	6	21.7	Jan. 28
		10	22	29.3	13
		25	26	14.6	25
Clinton, Ind.	18	11	21	29.5	14
Terre Haute, Ind.	14	Jan. 29	3	14.6	1
		5	5	14.1	5
		11	23	24.9	15
Hutsonville, Ill.	A 20	12	23	27.9	16
Riverton, Ind.	18	13	24	23.8	17
Vincennes, Ind.	16	13	28	25.65	17
Mt. Carmel, Ill.	17	Jan. 24	5	23.0	30
		14	28	24.2	18
New Harmony, Ind.	15	Jan. 27	5		
		15	1/		
Ohio: Dam 7, Midland, Pa.	30	11	12	32.1	11
Tell City, Ind.	38	Jan. 23	2	44.2	Jan. 28
		19	20		
Dam 46, Owensboro, Ky.	41	Jan. 24	1	42.9	Jan. 27
				38.1	20
Dam 47, Newburgh, Ind.	38	Jan. 23	3	45.1	Jan. 28
		20	24	41.2	21
Evansville, Ind.	42	Jan. 26	1	42.9	Jan. 29
Dam 48, Cypress, Ind.	38	Jan. 23	5	44.8	Jan. 29
		18	24	40.5	21
Mt. Vernon, Ind.	35	Jan. 24	6	42.7	Jan. 31
		18	26		
Dam 49, Uniontown, Ky.	37	Jan. 24	7	44.9	1
		18	27	41.6	23
Shawneetown, Ill.	33	Jan. 23	8		
		17	1/		
Dam 50, Fords Ferry, Ky.	34	Jan. 23	8	47.5	1
		16	1	43.8	23
Dam 51, Golconda, Ill.	40	Jan. 28	6	42.9	2
		23	25	40.3	23
Dam 52, Brookport, Ill.	37	Jan. 27	6	38.4	2
		21	26	38.0	25
Dam 53, Grand Chain, Ill.	42	3	4	42.0	3
		20	26	42.7	24
Cairo, Ill.	40	20	26	40.4	24

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
White Basin					
White: Clarendon, Ark.	26	19	27	26.6	21
St. Charles, Ark.	25	25	1	25.1	26
Red Basin					
Ouachita: Arkadelphia, Ark.	17	15	16	24.0	15
Camden, Ark.	26	17	22	33.1	20
Sulphur: Hagansport, Tex.	38	15	18	41.55	15
Naples, Tex.	22	17	24	27.3	19
Lower Mississippi Basin					
Tallahatchie: Swan Lake, Miss.	26	19	19	26.0	19
Big Black: Bovina, Miss.	28	18	26	29.2	20
Pickens, Miss.	16	10	23	18.3	17
WEST GULF OF MEXICO DRAINAGE					
Mermentau: Mermentau, La.	5	25	25	5.5	25
Calcasieu: Hineston, La.	12	1	10	15.1	5
		15	20	13.2	17
Oakdale, La.	12	7	7	12.4	7
Kinder, La.	16	3	8	17.4	6
		11	13	16.4	13
		28	28	16.5	28
Old Town Bay, La.	4	3	15	5.1	13
Sabine: Quitman, Tex.	16	16	18	18.4	16
Mineola, Tex.	14	16	24	16.5	19
Gladewater, Tex.	26	25	25	26.15	25
Deweyville, Tex.	14	4	7	14.1	7
		26	28	14.05	26,27
Navidad: Ganado, Tex.	21	13	13	23.3	13
		15	18	27.7	16
Lavaca: Edna, Tex.	21	15	16	22.6	15
PACIFIC SLOPE DRAINAGE					
Sacramento: Moulton Weir, Calif.	77	17	19	79.8	17
Colusa Weir, Calif.	62	16	27	66.7	18
Tisdale Weir, Calif.	45	17	28	48.7	18
Freemont Weir, Calif.	34	18	28	36.3	19,20
Russian: Guerneville, Calif.	29	16	17	33.5	16

* Provisional
A Tentative flood stage
1/ Continued at end of month

RAWINSONDE DATA

Average monthly values

FEBRUARY 1959

ALBANY, N. Y. (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	86	- 9.8	74	286	3.1
1,000	28	142			290	3.8
950	28	542	- 8.4	64	282	9.5
900	28	959	- 8.8	60	285	19.4
850	28	1,402	- 9.1	59	287	26.0
800	28	1,871	- 9.9	53	287	29.5
750	28	2,369	-11.2	48	284	33.4
700	28	2,896	-13.0	49	281	36.9
650	28	3,458	-15.3	47	279	42.1
600	28	4,059	-18.5	45	276	46.8
550	28	4,701	-22.4	43	275	53.2
500	28	5,399	-26.5	40	273	58.4
450	28	6,146	-31.1		276	65.6
400	28	6,980	-36.6		269	71.1
350	28	7,894	-42.2		271	77.5
300	28	8,924	-48.2		274	81.8
250	28	10,111	-53.2		272	79.2
200	27	11,547	-53.7		274	77.3
175	27	12,407	-52.7		275	71.8
150	27	13,404	-52.4		272	65.4
125	27	14,581	-53.6		272	62.5
100	27	16,011	-54.7		274	52.8
80	26	17,440	-55.3		277	48.7
60	26	19,276	-54.7		280	33.4
50	25	20,444	-54.4		284	26.4
40	25	21,877	-53.4		288	19.0
30	23	23,732	-52.2		318	7.7
25	21	24,919	-51.3		302	7.5
20	21	26,372	-50.9		336	5.8
15	16	28,243	-49.0		348	2.7
10	7	30,952	-44.3			

ALBUQUERQUE, N. MEX. (837 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,619	- 0.1	57	76	2.9
1,000	28	170				
950	28	586				
900	28	1,031				
850	28	1,495				
800	28	1,984	1.4	49	282	5.6
750	28	2,500	- 1.6	50	275	10.2
700	28	3,048	- 5.0	51	276	15.5
650	28	3,624	- 8.3	47	269	20.9
600	28	4,245	-11.4		262	26.8
550	28	4,901	-15.8		257	29.3
500	28	5,621	-20.8		258	32.4
450	28	6,386	-25.9		271	31.2
400	28	7,237	-31.6			
350	28	8,169	-38.2			
300	28	9,214	-45.4			
250	28	10,410	-52.9			
200	28	11,835	-54.9			
175	28	12,689	-54.8			
150	28	13,672	-56.5			
125	27	14,826	-59.8			
100	27	16,210	-62.8			
80	27	17,585	-62.6			
60	27	19,365	-61.6			
50	26	20,497	-59.2			
40	25	21,893	-58.8			
30	23	23,711	-57.3			
25	22	24,870	-56.0			
20	19	26,295	-55.0			
15	13	28,139	-54.0			

AMARILLO, TEX. (892 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,095	- 1.0	72	236	1.9
1,000	28	175				
950	28	588				
900	28	1,025				
850	28	1,482	2.0	54	253	9.1
800	28	1,972	2.1	48	254	15.1
750	28	2,488	.5	42	260	18.6
700	28	3,044	- 2.4	40	261	21.5
650	28	3,621	- 6.2	38	263	26.0
600	28	4,249	-10.6	39	265	32.8
550	28	4,908	-14.9		263	40.4
500	28	5,629	-19.8		262	45.4
450	28	6,393	-25.0		261	49.9
400	28	7,250	-30.9		262	54.2
350	28	8,186	-37.3		262	60.8
300	28	9,234	-44.8		260	71.6
250	28	10,432	-52.5		258	78.6
200	26	11,845	-55.1		256	83.3
175	24	12,701	-55.6		256	81 6
150	22	13,681	-57.6		257	75.3
125	22	14,826	-60.0		257	69.9
100	22	16,209	-62.7		258	55.3
80	21	17,579	-63.6		256	39.8
60	21	19,352	-62.0		262	21.3
50	20	20,492	-59.6		267	14.5
40	20	21,892	-58.7		280	8.1
30	18	23,698	-57.4		308	3.8
25	17	24,857	-56.3		1	2.5
20	14	26,280	-55.0		48	6.6
15	9	28,127	-53.4			

ANCHORAGE, ALASKA (1004 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	30	- 7.0	78	25	1.1
1,000	28	62			69	1.1
950	28	466	- 2.3	62	138	2.9
900	28	896	- 3.4	55	137	3.6
850	28	1,345	- 6.2	57	154	2.9
800	28	1,817	- 9.2	58	196	2.9
750	28	2,311	-12.2	60	202	6.4
700	28	2,838	-15.3	60	216	10.2
650	28	3,391	-18.7	58	222	8.9
600	28	3,986	-22.7	57	213	13.0
550	28	4,616	-27.2	53	226	13.6
500	28	5,299	-31.5	50	231	13.2
450	28	6,033	-35.9		233	17.4
400	28	6,846	-41.6		229	16.1
350	28	7,741	-47.1		222	17.0
300	28	8,749	-51.7		212	17.2
250	28	9,923	-54.4		228	22.9
200	28	11,359	-52.0		236	24.4
175	28	12,228	-49.8		236	27.7
150	28	13,239	-49.2		238	28.3
125	28	14,438	-48.4		249	30.3
100	28	15,906	-48.9		248	30.6
80	28	17,371	-49.1		253	33.6
60	28	19,258	-49.3		258	32.2
50	28	20,453	-49.6		257	32.6
40	28	21,916	-49.4		254	32.6
30	28	23,803	-48.9		257	33.8
25	27	25,007	-48.4			
20	23	26,463	-48.4			
15	12	28,369	-47.8			

ANNETTE, ALASKA (1009 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	37	1.2	72	82	2.9
1,000	28	107			66	3.3
950	28	518	- .4	65	116	5.0
900	28	950	- 2.8	63	150	4.6
850	28	1,401	- 4.9	62	177	4.0
800	28	1,877	- 7.0	60	214	4.4
750	28	2,375	- 9.4	57	260	2.5
700	28	2,908	-12.5	55	287	4.4
650	28	3,466	-15.7	54	284	6.4
600	28	4,070	-19.3	54	292	6.2
550	28	4,709	-23.4	50	313	9.3
500	28	5,404	-27.8	48	322	11.8
450	27	6,145	-33.5	49	309	13.9
400	27	6,968	-39.4		287	6.4
350	27	7,871	-45.1		24	10.4
300	27	8,888	-51.1		343	8.1
250	26	10,069	-55.1			
200	26	11,498	-53.1			
175	26	12,362	-51.8			
150	26	13,365	-50.4			
125	26	14,556	-50.2			
100	24	16,005	-51.4			
80	22	17,448	-50.8			
60	21	19,328	-50.8			
50	21	20,517	-50.6			
40	19	21,976	-49.7			
30	14	23,862	-49.8			
25	12	25,053	-49.5			

ATHENS, GA. (992 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	26	246	4.8	78	352	3.6
1,000	26	178				
950	26	603	6.3	59	323	3.3
900	26	1,042	6 2	53	274	5.8
850	26	1,510	5.3	51	268	12.6
800	26	2,004	3.9	46	267	18.8
750	26	2,524	1.8	47	270	24.6
700	26	3,081	- .8	49	272	28.9
650	26	3,668	- 3.7	45	272	35.1
600	26	4,298	- 7.3		272	40.8
550	26	4,966	-11.7	45	271	47.2
500	26	5,696	-15.6	47	269	52.6
450	26	6,482	-20.3	45	266	56.3
400	26	7,346	-25.8	43	262	63.1
350	26	8,301	-32.6	45	258	61.3
300	26	9,369	-40.7			
250	25	10,591	-50.0			
200	20	12,041	-55.4			
175	17	12,893	-57.1			
150	15	13,854	-60.1			
125	14	14,977	-64.4			
100	13	16,328	-68.7			
80	12	17,663	-68.9			
60	11	19,403	-64.0			
50	11	20,526	-62.2			
40	10	21,915	-59.9			
30	8	23,713	-56.5			
25	6	24,863	-54.8			
20						
15						

BARROW, ALASKA (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	8	-22.2	72	88	2.1
1,000	28	85	-21.5	73	283	.5
950	28	471	-15.8	76	257	2.5
900	28	878	-14.4	71	265	4.2
850	28	1,311	-14.9	65	259	4.8
800	28	1,768	-16.6	59	263	6.0
750	28	2,250	-19.1	58	260	6.9
700	28	2,762	-22.2	56	258	8.9
650	28	3,300	-25.1	52	260	9.1
600	28	3,882	-28.4	49	265	11.2
550	28	4,497	-32.3	49	260	14.3
500	28	5,169	-36.6	49	257	15.5
450	28	5,888	-41.7		252	17.4
400	28	6,682	-47.2		258	15.5
350	28	7,555	-52.5		272	16.5
300	28	8,541	-57.1		266	18.4
250	28	9,689	-58.4		258	20.0
200	28	11,101	-56.0		256	31.2
175	28	11,952	-55.2		260	37.6
150	28	12,940	-54.0		264	39.8
125	28	14,111	-53.9		259	46.2
100	28	15,544	-53.8		264	52.2
80	28	16,977	-54.0		263	60.6
60	28	18,821	-54.4			
50	28	19,990	-54.2			
40	27	21,413	-54.0			
30	26	23,261	-53.4			
25	24	24,436	-53.8			
20	20	25,905	-52.2			
15	9	27,806	-51.4			

BARTER IS., ALASKA (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	15	-21.1	66	275	1.9
1,000	28	86	-19.9	68	288	1.9
950	28	478	-14.1	66	277	3.3
900	28	885	-12.8	64	269	5.2
850	28	1,321	-13.6	60	269	8.1
800	28	1,781	-15.4	58	277	8.5
750	28	2,266	-18.1	56	275	8.7
700	28	2,780	-20.6	52	276	11.4
650	28	3,322	-23.9	48	276	14.3
600	28	3,906	-27.4	46	271	17.0
550	28	4,527	-31.4	44	268	19.2
500	28	5,198	-35.7		270	22.9
450	28	5,921	-40.5		274	25.4
400	28	6,719	-45.6		275	29.5
350	28	7,600	-50.8		274	32.8
300	28	8,593	-55.3		273	33.4
250	28	9,752	-56.6		273	35.5
200	27	11,170	-54.5		277	44.3
175	27	12,028	-53.1		276	45.4
150	27	13,024	-52.3		276	47.9
125	26	14,200	-52.2		276	54.7
100	26	15,645	-51.9		276	57.9
80	25	17,093	-52.1		275	63.3
60	22	18,979	-52.5		277	71.3
50	20	20,181	-53.1		279	72.4
40	18	21,654	-53.2		278	79.6
30	14	23,514	-53.2		275	79.6
25	[illegible]	24,659	-54.9			

BETHEL, ALASKA (1002 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	25	4	- 6.7	79	167	2.3
1,000	25	54				
950	25	462	- 4.9	81	145	4.2
900	25	883	- 5.6	72	200	5.6
850	25	1,330	- 7.7	68	198	6.2
800	25	1,799	-10.3	64	221	7.9
750	25	2,298	-12.9	63	209	9.3
700	25	2,818	-15.9	58	206	6.4
650	25	3,375	-19.5	56	186	13.7
600	25	3,963	-23.4	53	182	11.2
550	25	4,594	-28.0	52	171	15.5
500	25	5,273	-32.7	54	180	14.1
450	25	6,012	-37.4		188	15.1
400	25	6,814	-42.5		191	16.7
350	25	7,706	-47.9		245	14.9
300	25	8,712	-52.6			
250	25	9,884	-54.5			
200	25	11,320	-52.1			
175	25	12,189	-49.9			
150	25	13,201	-49.0			
125	24	14,403	-48.4			
100	22	15,875	-48.5			
80	18	17,361	-48.4			
60	16	19,271	-48.9			
50	16	20,468	-49.1			
40	16	21,932	-49.2			
30	12	23,837	-48.1			
25	8	25,026	-47.9			

BISMARCK, N. DAK. (958 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	505	-18.3	75	316	2.5
1,000	28	181				
950	28	567	-16.5	72	295	1.9
900	28	980	-10.4	66	308	9.7
850	28	1,421	- 9.1	57	310	11.8
800	28	1,889	-10.0	52	315	14.3
750	28	2,383	-11.8	49	311	17.2
700	28	2,911	-14.1	45	302	19.6
650	28	3,467	-17.0		300	21.7
600	28	4,067	-20.5	42	288	25.0
550	28	4,699	-24.6		288	27.5
500	28	5,393	-29.4		286	26.4
450	28	6,131	-34.6		285	25.8
400	28	6,951	-40.3		280	18.8
350	28	7,849	-46.5		275	21.5
300	28	8,860	-52.4		285	21.9
250	28	10,028	-55.1		286	21.3
200	28	11,459	-52.9		280	30.1
175	28	12,326	-50.7		282	33.8
150	28	13,331	-51.0		287	32.0
125	28	14,517	-51.4		282	32.4
100	28	15,963	-52.7		290	26.6
80	28	17,402	-53.0		294	25.4
60	28	19,252	-53.6		297	18.0
50	28	20,424	-53.6		318	16.3
40	27	21,854	-53.9		337	12.6
30	25	23,697	-53.8		349	12.4
25	22	24,865	-53.3			
20	19	26,304	-52.5			
15	17	28,167	-51.8			

BOISE, IDAHO (916 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	868	- 0.1	82	140	4.8
1,000	28	157				
950	28	572				
900	28	1,008	1.3	73	140	2.9
850	28	1,468	- .6	68	259	2.1
800	28	1,950	- 3.6	70	274	7.5
750	28	2,458	- 6.9	73	275	12.2
700	28	2,993	- 9.9	69	279	13.6
650	28	3,558	-13.6	69	273	12.8
600	28	4,167	-17.5	60	275	16.1
550	28	4,809	-21.8	56	274	19.2
500	28	5,510	-26.6	50	275	20.4
450	28	6,258	-32.1	45	274	21.5
400	28	7,086	-38.2		277	17.2
350	28	7,993	-44.6		283	16.7
300	28	9,011	-51.2		290	19.0
250	27	10,177	-56.5		308	19.8
200	27	11,594	-55.8		295	18.4
175	27	12,448	-53.8		283	19.6
150	26	13,442	-53.0			
125	26	14,618	-53.2			
100	26	16,051	-54.8			
80	24	17,473	-55.3			
60	23	19,309	-55.4			
50	23	20,473	-55.3			
40	22	21,895	-54.8			
30	21	23,738	-54.0			
25	16	24,895	-53.7			
20						
15						
10						

BROWNSVILLE, TEX. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	7	13.8	92	350	2.3
1,000	28	144	14.5	90		.0
950	28	581	15.8	81	157	8.9
900	28	1,040	15.3	71	173	8.1
850	28	1,525	13.8	60	179	7.1
800	28	2,034	11.5	58	207	11.0
750	28	2,569	8.9	56	220	13.0
700	28	3,140	5.8	55	230	15.7
650	28	3,737	2.1	53	248	16.1
600	28	4,385	- 2.1	54	251	22.3
550	28	5,063	- 6.2	53	239	23.8
500	28	5,811	-10.6	50	239	31.2
450	28	6,608	-15.5	45	246	37.3
400	28	7,494	-21.7	43	246	37.1
350	28	8,464	-29.0	41		
300	28	9,548	-37.2			
250	28	10,783	-46.5			
200	28	12,231	-55.8			
175	28	13,077	-58.3			
150	28	14,037	-62.7			
125	27	15,149	-67.6			
100	27	16,473	-73.1			
80	26	17,774	-74.8			
60	26	19,462	-69.3			
50	26	20,567	-64.1			
40	25	21,947	-60.8			
30	24	23,753	-57.8			
25	23	24,903	-56.4			
20	22	26,319	-54.4			
15	19	28,174	-51.7			
10	10	30,816	-47.7			

BUFFALO, N. Y. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	182	- 6.5	75	258	4.4
1,000	28	147				
950	28	544	- 7.3	73	261	9.3
900	28	968	- 8.6	70	265	13.9
850	28	1,411	- 9.6	63	268	20.2
800	28	1,878	-10.4	58	271	24.4
750	28	2,375	-11.8	55	274	29.9
700	28	2,901	-13.5	53	275	36.9
650	28	3,460	-16.2	51	274	41.7
600	28	4,062	-19.4	48	274	44.1
550	28	4,703	-23.0	44	276	48.3
500	28	5,398	-27.1	44	277	53.4
450	28	6,146	-32.2	47	276	60.2
400	28	6,973	-37.3		273	66.6
350	28	7,885	-42.9		271	74.8
300	28	8,912	-48.1		271	85.2
250	28	10,101	-52.3		272	88.7
200	28	11,539	-52.8		271	88.7
175	28	12,401	-51.9		270	81.9
150	28	13,401	-51.6		270	73.4
125	26	14,589	-53.4		271	62.9
100	26	16,021	-54.7		274	57.9
80	24	17,452	-55.1		275	42.5
60	24	19,291	-54.6		279	34.7
50	24	20,459	-54.1		277	27.5
40	23	21,899	-53.8		285	18.6
30	22	23,759	-52.2		297	13.2
25	21	24,947	-51.1		296	10.4
20	20	26,404	-50.7		298	12.0
15	16	28,284	-49.8		294	15.7
10	5	30,958	-47.9			

BURRWOOD, LA. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	3	13.0	98	55	5.2
1,000	28	157	15.4	86	76	10.4
950	28	593	14.2	82	110	6.0
900	28	1,050	13.4	70	185	6.6
850	28	1,530	11.6	63	226	9.5
800	26	2,036	9.3	56	232	12.6
750	26	2,565	6.7	51	245	14.9
700	26	3,133	4.3	39	251	21.5
650	26	3,730	1.2	40	254	26.4
600	26	4,373	- 2.7		256	33.4
550	26	5,051	- 7.2	37	253	37.6
500	26	5,795	-11.6	39	249	48.1
450	26	6,591	-16.8	45	247	55.1
400	26	7,470	-23.2	49	252	57.1
350	26	8,434	-30.6	46		
300	26	9,512	-38.9			
250	26	10,739	-48.2			
200	26	12,178	-56.6			
175	26	13,020	-59.3			
150	26	13,977	-63.6			
125	26	15,083	-68.5			
100	26	16,406	-73.0			
80	25	17,708	-73.6			
60	24	19,415	-67.5			
50	24	20,526	-63.0			
40	21	21,912	-60.7			
30	18	23,709	-57.7			
25	16	24,859	-55.8			
20	15	26,275	-53.9			
15	7	28,146	-51.3			

CAPE HATTERAS, N. C. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	4	8.6	79	351	3.1
1,000	28	162	8.3	73	329	4.2
950	28	584	7.1	68	280	7.7
900	28	1,029	4.9	62	267	13.6
850	28	1,494	3.8	52	265	19.2
800	28	1,985	2.1	53	264	26.4
750	28	2,503	.1	53	263	33.8
700	28	3,055	- 2.2	52	264	39.0
650	28	3,635	- 5.3	48	264	43.9
600	28	4,265	- 8.5	49	265	50.7
550	28	4,926	-12.1	49	264	54.9
500	28	5,657	-16.5	45	265	60.8
450	28	6,430	-21.8	47	265	65.0
400	28	7,298	-27.0	50	267	75.7
350	28	8,249	-33.6	51	266	85.4
300	28	9,314	-41.1		268	94.0
250	28	10,530	-49.8		271	100.6
200	28	11,967	-55.1		274	107.2
175	28	12,817	-56.6		272	99.6
150	28	13,790	-58.9		274	95.0
125	28	14,926	-62.2		270	87.4
100	28	16,293	-65.5		269	76.5
80	27	17,649	-66.1		273	60.2
60	27	19,409	-62.2		276	32.2
50	27	20,542	-60.0		280	21.9
40	25	21,944	-57.6		291	13.2
30	22	23,774	-54.8		283	9.9
25	21	24,944	-53.2		279	9.3
20	8	26,399	-50.6			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

CARIBOU, ME (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	191	-17.6	59	277	4.4
1,000	28	115				
950	28	500	-15.9	63	288	12.6
900	28	908	-16.5	61	293	16.9
850	28	1,337	-16.7	55	291	21.5
800	28	1,793	-16.8	51	285	26.0
750	28	2,278	-17.8	49	283	29.5
700	28	2,792	-19.4	46	282	34.0
650	28	3,343	-21.7	43	281	36.9
600	28	3,927	-24.6	44	281	42.9
550	28	4,554	-28.2	44	280	47.4
500	28	5,235	-32.2	46	273	50.9
450	28	5,968	-36.9		277	54.2
400	28	6,778	-42.1		275	58.0
350	28	7,673	-46.7		273	64.8
300	28	8,685	-51.0		271	66.6
250	28	9,864	-53.2		274	69.9
200	28	11,307	-51.7		275	55.3
175	28	12,175	-50.7		277	59.2
150	27	13,178	-50.2		274	62.3
125	25	14,370	-49.9		275	58.0
100	24	15,825	-50.4		276	48.9
80	24	17,278	-51.6		273	38.2
60	23	19,142	-51.6		275	33.0
50	21	20,328	-51.8		283	28.9
40	21	21,779	-51.0		289	28.9
30	21	23,655	-51.2		283	19.6
25	20	24,841	-51.5		286	20.9
20	19	26,286	-51.0		290	27.9
15	16	28,154	-51.0		294	43.3
10	9	30,783	-47.2			

CHARLESTON, S. C. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	27	13	9.0	86	344	1.7
1,000	27	176	9.8	75	353	1.7
950	27	602	10.3	70	273	3.3
900	27	1,054	9.2	62	256	11.4
850	27	1,527	7.6	58	260	17.4
800	27	2,026	6.0	49	264	22.3
750	27	2,551	3.5	46	263	26.6
700	27	3,110	.5	45	265	31.8
650	27	3,700	-2.6		264	37.8
600	27	4,335	-5.8		261	42.7
550	27	5,009	-9.9	45	262	50.1
500	27	5,743	-14.2	46	261	59.8
450	27	6,531	-18.8	51	261	65.8
400	27	7,406	-24.2	50	261	74.6
350	27	8,367	-31.3	47	261	81.8
300	27	9,441	-39.5		262	82.1
250	27	10,664	-49.0		266	86.8
200	27	12,106	-55.4		265	95.7
175	27	12,953	-57.3		268	95.0
150	27	13,922	-60.4		268	87.8
125	27	15,046	-65.1		268	83.9
100	27	16,394	-68.7		268	64.3
80	26	17,725	-68.9		271	43.3
60	26	19,460	-65.3		272	32.6
50	26	20,579	-61.8		282	17.8
40	26	21,970	-59.1		293	14.1
30	24	23,789	-55.4		301	10.8
25	21	24,952	-53.9		316	4.0
20	15	26,400	-51.7			
15	5	28,280	-49.7			
10						

COLD BAY, ALASKA (1004 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	27	-0.1	88	198	5.8
1,000	28	55			204	7.7
950	28	464	-.9	75	221	5.6
900	28	896	-3.5	70	241	9.5
850	28	1,346	-5.9	63	235	11.8
800	28	1,820	-8.2	57	234	13.0
750	28	2,316	-10.7	53	244	11.2
700	28	2,847	-13.7	50	245	15.1
650	28	3,401	-17.2	50	246	13.7
600	28	4,003	-21.1	50	238	16.5
550	28	4,634	-25.1	49	239	18.2
500	27	5,325	-29.3	44	232	19.2
450	27	6,061	-34.3		221	17.4
400	27	6,886	-39.4		218	20.2
350	27	7,789	-45.1		222	19.4
300	27	8,806	-50.4		228	24.6
250	27	9,985	-53.5			
200	26	11,413	-52.0			
175	26	12,284	-49.4		230	33.2
150	26	13,298	-48.3		245	26.6
125	26	14,498	-48.6		233	28.7
100	26	15,965	-48.9		233	22.5
80	25	17,435	-49.5		231	21.7
60	25	19,320	-49.7		235	17.2
50	25	20,513	-50.1		235	14.3
40	25	21,974	-49.6		220	13.2
30	21	23,852	-49.2		222	9.5
25	15	25,035	-48.3			

COLUMBIA, MO. (992 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	238	-2.0	80	239	1.3
1,000	28	171				
950	28	581	-.9	66	262	9.3
900	28	1,013	-.8	59	273	16.1
850	28	1,469	-1.3	54	275	19.8
800	28	1,952	-2.1	47	271	22.7
750	28	2,459	-4.2	45	271	27.2
700	28	3,006	-6.9	42	270	30.6
650	28	3,574	-9.9	41	272	33.4
600	28	4,195	-13.6	41	272	39.0
550	28	4,848	-17.8	43	270	43.7
500	28	5,559	-22.3	43	268	49.5
450	28	6,323	-27.4	41	266	57.3
400	28	7,165	-33.2		266	63.1
350	28	8,091	-39.7		262	72.0
300	28	9,130	-46.6		260	84.7
250	28	10,327	-51.3		260	96.3
200	28	11,768	-54.0		262	90.5
175	28	12,625	-54.0		263	84.5
150	28	13,614	-54.8		264	80.2
125	28	14,774	-57.0		267	68.5
100	28	16,179	-59.4		266	52.8
80	28	17,573	-60.3		269	39.4
60	27	19,374	-58.9		277	24.6
50	26	20,518	-58.2		282	15.5
40	21	21,919	-57.0		307	8.9
30	16	23,738	-55.3		331	6.8
25	15	24,902	-54.4		20	13.2
20	11	26,342	-53.1		351	5.4
15	8	28,201	-50.7			

DAYTON, OHIO (984 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	297	-2.5	73	256	4.2
1,000	28	167				
950	28	571	-2.6	71	259	10.4
900	28	1,004	-3.2	66	263	17.4
850	28	1,457	-3.4	61	268	22.1
800	28	1,935	-4.8	54	272	28.1
750	28	2,437	-7.0	49	273	32.4
700	28	2,977	-9.5	47	273	37.8
650	28	3,543	-12.2	44	273	42.1
600	28	4,156	-15.4		272	47.7
550	28	4,802	-19.4		269	52.8
500	28	5,511	-23.8		267	58.2
450	28	6,267	-28.6		267	66.4
400	28	7,110	-33.8		270	78.4
350	28	8,034	-39.8		270	89.3
300	28	9,074	-45.9		267	99.0
250	28	10,272	-51.6		268	104.7
200	28	11,708	-54.7		272	100.8
175	28	12,563	-54.3		270	91.9
150	28	13,550	-55.0		269	88.2
125	28	14,709	-57.2		269	78.4
100	28	16,114	-58.9		271	67.2
80	27	17,512	-59.5		272	48.7
60	26	19,317	-58.2		278	33.4
50	25	20,465	-57.4		282	22.7
40	23	21,885	-56.0		294	12.2
30	22	23,714	-55.1		317	8.1
25	22	24,881	-53.6		329	6.8
20	21	26,319	-52.2		325	7.3
15	17	28,179	-50.1		288	18.2
10	7	30,850	-47.3			

DENVER, COLO. (834 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,611	-5.2	75	206	3.3
1,000	28	169				
950	28	578				
900	28	1,009				
850	28	1,465				
800	28	1,945	-1.5	57	277	4.8
750	28	2,460	-2.7	49	278	9.5
700	28	3,003	-5.9	45	280	14.1
650	28	3,577	-10.0	46	283	19.0
600	28	4,191	-14.1	46	285	25.0
550	28	4,843	-18.5	42	286	27.2
500	28	5,551	-23.2	39	285	28.7
450	28	6,306	-29.1	38	281	31.4
400	28	7,144	-35.5		282	36.5
350	28	8,062	-41.9		277	44.3
300	28	9,091	-48.6		271	54.0
250	28	10,278	-53.4		269	61.7
200	28	11,707	-54.6		267	60.8
175	28	12,565	-53.5		266	61.3
150	28	13,557	-53.5		266	57.5
125	28	14,730	-53.8		267	47.0
100	28	16,155	-57.0		268	33.4
80	28	17,563	-58.1		270	24.2
60	27	19,376	-57.6		277	11.8
50	26	20,527	-56.4		285	7.9
40	25	21,946	-56.2		330	2.9
30	23	23,779	-55.2		42	6.2
25	21	24,950	-54.4		53	8.9
20	17	26,380	-53.6		63	15.9
15	9	28,227	-52.0			
10						

DODGE CITY, KANS. (926 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	792	-3.5	84	232	0.9
1,000	28	181				
950	28	591				
900	28	1,019	-1.4	68	351	.5
850	28	1,477	.5	56	4	2.9
800	28	1,963	.3	49	293	7.7
750	28	2,478	-2.0	47	278	12.6
700	28	3,025	-5.1	49	280	16.5
650	28	3,602	-8.9	49	274	22.5
600	28	4,219	-12.5	43	271	28.7
550	28	4,875	-17.1	39	271	32.8
500	28	5,586	-22.3		268	34.0
450	28	6,349	-27.7		268	44.3
400	28	7,191	-33.4		271	52.6
350	28	8,116	-39.4		274	60.6
300	28	9,158	-45.7			
250	28	10,354	-52.2			
200	28	11,786	-54.4			
175	28	12,642	-54.1			
150	28	13,629	-55.3			
125	28	14,787	-57.3			
100	28	16,190	-59.9			
80	28	17,581	-60.6			
60	27	19,371	-59.5			
50	26	20,520	-58.3			
40	26	21,927	-57.3			
30	24	23,756	-56.1			
25	23	24,916	-55.4			
20	19	26,333	-54.6			
15	14	28,191	-53.6			

EL PASO, TEX. (881 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,197	5.5	54	268	1.7
1,000	28	147				
950	28	571				
900	28	1,022				
850	28	1,494	7.9	44	295	5.2
800	28	1,992	5.3	47	268	9.1
750	28	2,515	3.1	44	252	16.7
700	28	3,074	-.4	42	249	23.1
650	28	3,660	-3.9		252	29.1
600	28	4,291	-7.6		253	29.7
550	28	4,959	-11.8		257	31.2
500	28	5,687	-16.7		259	33.0
450	28	6,468	-22.6		262	33.6
400	28	7,326	-28.7		256	34.3
350	28	8,269	-35.4			
300	28	9,325	-43.1			
250	28	10,531	-51.1			
200	28	11,968	-55.2			
175	27	12,821	-55.5			
150	27	13,800	-57.9			
125	27	14,939	-61.7			
100	27	16,310	-65.2			
80	26	17,660	-66.4			
60	26	19,416	-63.4			
50	26	20,542	-61.3			
40	26	21,933	-59.6			
30	25	23,737	-58.2			
25	20	24,892	-57.1			
20	20	26,310	-55.3			
15	14	28,140	-54.0			

ELY, NEV. (806 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,908	-6.9	79	189	8.1
1,000	28	189				
950	28	597				
900	28	1,033				
850	28	1,491				
800	28	1,966			193	6.9
750	28	2,477	-4.8	68	214	2.9
700	28	3,017	-7.7	66	266	7.5
650	28	3,585	-10.9	60	271	10.4
600	28	4,201	-14.5	54	270	14.7
550	28	4,850	-18.7	51	265	17.6
500	28	5,559	-23.5	48	280	19.0
450	28	6,315	-29.0	44	264	20.4
400	28	7,152	-35.2	42	271	20.7
350	28	8,070	-42.2		265	13.9
300	28	9,097	-49.3		250	15.7
250	28	10,277	-54.6			
200	28	11,699	-55.6			
175	28	12,551	-54.9			
150	28	13,538	-54.2			
125	28	14,705	-55.4			
100	28	16,124	-56.8			
80	28	17,534	-57.9			
60	28	19,345	-57.6			
50	28	20,497	-57.2			
40	28	21,915	-56.3			
30	28	23,745	-55.5			
25	27	24,911	-54.7			
20	25	26,334	-53.9			
15	21	28,191	-53.2			
10	7	30,795	-51.2			

FAIRBANKS, ALASKA (994 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	135	-15.6	77	28	2.5
1,000	28	85				
950	28	483	-8.0	67	125	2.7
900	28	901	-7.3	65	197	6.4
850	28	1,347	-8.0	63	227	9.9
800	28	1,816	-10.3	60	232	13.0
750	28	2,308	-13.6	61	238	15.9
700	28	2,831	-16.9	60	242	18.2
650	28	3,378	-20.2	56	240	17.4
600	28	3,973	-24.1	52	244	19.0
550	28	4,596	-28.5	49	241	20.0
500	28	5,281	-33.3	47	237	20.2
450	28	6,005	-38.6		244	21.5
400	28	6,813	-43.8		229	19.2
350	28	7,700	-49.0		245	17.8
300	28	8,700	-53.8		236	29.7
250	28	9,867	-54.9		244	29.1
200	28	11,299	-52.8			
175	28	12,165	-51.5			
150	27	13,167	-49.9			
125	27	14,362	-49.1			
100	27	15,827	-49.3			
80	27	17,289	-49.8			
60	27	19,174	-50.0			
50	27	20,365	-50.1			
40	24	21,831	-49.8			
30	19	23,707	-50.1			
25	10	24,899	-49.7			

FLINT, MICH. (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	234	-8.6	82	244	3.1
1,000	28	150				
950	28	549	-7.8	78	266	10.1
900	28	969	-7.9	72	275	15.5
850	28	1,414	-8.3	63	275	21.3
800	28	1,884	-8.6	50	276	26.2
750	28	2,385	-9.8	44	274	30.8
700	28	2,914	-12.0	45	275	36.7
650	28	3,477	-15.0	45	275	38.4
600	28	4,079	-18.5	44	275	42.1
550	28	4,721	-22.3		275	47.2
500	28	5,418	-26.9		274	51.2
450	28	6,162	-32.1		273	57.1
400	28	6,993	-37.5		272	63.9
350	28	7,902	-43.5		268	72.8
300	28	8,928	-48.4		269	82.3
250	28	10,117	-51.9		268	86.6
200	28	11,556	-53.1		268	89.5
175	28	12,420	-51.7		269	79.8
150	28	13,430	-52.0		271	74.0
125	26	14,607	-53.0		272	64.5
100	26	16,040	-54.8		273	52.2
80	26	17,463	-56.0		276	35.5
60	26	19,295	-55.4		287	25.8
50	25	20,457	-55.0		289	20.5
40	23	21,893	-54.1		306	14.9
30	20	23,746	-52.7		321	10.4
25	19	24,927	-51.3		355	8.9
20	17	26,408	-49.2		13	9.1
15	12	28,297	-47.9			

FORT WORTH, TEX. (999 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	180	5.9	78	341	1.5
1,000	28	171			33	4.8
950	28	591	6.4	61	187	1.5
900	28	1,035	6.9	59	246	6.8
850	28	1,505	6.9	51	260	11.4
800	28	2,002	5.2	50	256	16.5
750	28	2,524	3.1	48	257	22.3
700	28	3,084	-.2	48	260	25.6
650	28	3,668	-3.6	43	261	30.8
600	28	4,302	-7.6		260	35.3
550	28	4,968	-12.0		261	41.1
500	28	5,697	-16.5		258	44.8
450	28	6,472	-21.8		255	53.6
400	28	7,339	-27.8	41	254	61.7
350	28	8,286	-34.3		253	69.7
300	28	9,347	-42.1		253	81.2
250	28	10,559	-49.9		250	91.5
200	27	12,000	-54.9		255	93.2
175	26	12,855	-56.6		250	88.9
150	25	13,836	-59.2		257	81.0
125	23	14,955	-62.8		256	76.7
100	23	16,317	-66.8		256	61.5
80	22	17,666	-66.6		260	39.8
60	22	19,417	-63.7		257	22.1
50	22	20,542	-61.5		266	16.5
40	21	21,931	-60.0		279	7.9
30	18	23,737	-57.8		343	3.4
25	16	24,891	-56.5		49	3.6
20	12	26,316	-54.5		3	1.5

GLASGOW, MONT. (935 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	696	-18.3	83	8	0.9
1,000	28	191				
950	28	575				
900	28	987	-9.6	76	284	5.8
850	28	1,431	-7.6	59	283	10.1
800	28	1,902	-9.4	51	293	13.2
750	28	2,395	-11.8	50	299	16.9
700	28	2,925	-14.5	47	299	17.6
650	28	3,479	-17.5	44	295	18.2
600	28	4,079	-21.1	41	292	22.3
550	28	4,709	-25.2		291	25.2
500	28	5,402	-29.6		292	28.5
450	28	6,135	-34.8		289	29.7
400	28	6,959	-40.8		281	18.8
350	28	7,855	-47.3		292	20.0
300	28	8,860	-53.4		293	18.4
250	28	10,024	-55.8		286	15.9
200	27	11,460	-52.2		282	20.4
175	27	12,325	-51.5		282	24.6
150	27	13,329	-50.5		283	23.5
125	27	14,516	-51.5		288	26.2
100	26	15,961	-51.9		294	24.8
80	26	17,402	-52.9		297	21.9
60	25	19,257	-52.5		303	15.7
50	25	20,433	-52.6		315	14.9
40	25	21,874	-52.7		334	13.0
30	23	23,733	-52.7			
25	21	24,921	-52.6			
20	16	26,359	-52.8			
15	9	28,217	-52.9			

GRAND JUNCTION, COLO. (851 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,474	-0.8	70	118	4.4
1,000	28	164				
950	28	580				
900	28	1,020				
850	28	1,481			115	5.2
800	28	1,967	-.5	53	169	6.9
750	28	2,477	-4.0	56	217	7.3
700	28	3,021	-7.9	60	242	13.4
650	28	3,589	-11.6	62	258	16.9
600	28	4,203	-15.3	59	266	20.0
550	28	4,850	-19.7	53	277	22.7
500	28	5,556	-24.5	48	281	21.1
450	28	6,309	-29.8	46	279	24.4
400	28	7,145	-35.7		286	23.1
350	28	8,061	-42.2		286	29.1
300	28	9,088	-49.0			
250	28	10,269	-54.0			
200	28	11,695	-54.6			
175	28	12,552	-54.0			
150	27	13,546	-54.0			
125	25	14,703	-55.6			
100	25	16,120	-57.7			
80	25	17,526	-58.5			
60	25	19,338	-58.2			
50	25	20,489	-57.5			
40	25	21,902	-56.9			
30	25	23,732	-56.1			
25	23	24,895	-55.5			
20	10	26,351	-54.7			

GREAT FALLS, MONT. (885 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,123	-10.6	75	222	7.3
1,000	28	175				
950	28	571				
900	28	995				
850	28	1,440	-6.1	56	247	13.4
800	28	1,914	-7.1	54	270	12.6
750	28	2,410	-9.4	55	276	13.6
700	28	2,946	-12.1	51	285	14.7
650	28	3,507	-14.9	50	289	18.0
600	28	4,111	-18.7	47	294	21.9
550	28	4,748	-23.1	43	295	26.0
500	28	5,446	-28.1	40	293	29.9
450	28	6,189	-33.3		289	31.6
400	28	7,013	-39.2		291	35.5
350	28	7,916	-45.4		295	39.6
300	28	8,929	-51.9		300	40.0
250	28	10,099	-55.7		306	36.9
200	28	11,525	-53.0		298	32.6
175	28	12,388	-52.3		293	30.5
150	28	13,388	-51.0		291	29.9
125	28	14,574	-51.0		290	28.7
100	28	16,021	-52.5		291	26.6
80	28	17,464	-52.6		291	20.7
60	28	19,319	-53.1		304	16.7
50	28	20,496	-52.9		314	11.8
40	28	21,935	-52.7		329	10.2
30	28	23,792	-52.9		356	12.8
25	28	24,969	-52.6		11	13.0
20	13	26,424	-53.3		28	14.5

See reference note at end of table

RAWINSONDE DATA

Average monthly values

FEBRUARY 1959

GREEN BAY, WIS (993 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	210	-13.3	84	292	3.4
1,000	28	152				
950	28	548	-10.1	72	284	7.5
900	28	962	-9.7	61	288	11.8
850	28	1,403	-10.0	52	297	15.1
800	28	1,871	-10.3	46	293	20.0
750	28	2,366	-11.9	45	288	23.7
700	28	2,893	-14.2	44	283	24.8
650	28	3,450	-16.8		283	28.5
600	28	4,050	-20.1		283	33.0
550	28	4,686	-24.1	39	[illegible]	33.0
500	28	5,379	-28.6		288	35.1
450	28	6,121	-33.7		280	35.1
400	28	6,944	-39.4		268	31.4
350	28	7,847	-44.9			
300	28	8,865	-50.4			
250	28	[illegible]	-53.3			
200	28	11,481	-52.4			
175	28	12,346	-51.6			
150	28	13,347	-51.6			
125	28	14,528	-52.5			
100	28	15,965	-54.4			
80	28	17,393	-55.0			
60	28	19,229	-55.1			
50	28	20,394	-54.9			
40	26	21,826	-54.6			
30	21	23,682	-53.8			
25	20	24,857	-53.1			
20	16	26,286	-52.3			
15	13	28,164	-51.3			

GREENSBORO, N. C. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	273	1.7	79	318	2.1
1,000	28	180				
950	28	594	3.5	59	288	5.4
900	28	1,035	3.2	52	287	5.8
850	28	1,498	2.6	47	276	12.4
800	28	1,988	1.1	48	267	18.6
750	28	2,504	-.4	47	269	22.7
700	28	3,055	-2.9	46	275	27.0
650	28	3,636	-5.9	47	270	32.8
600	28	4,263	-9.2		275	37.3
550	28	4,928	-12.9		270	38.8
500	28	5,653	-17.6		266	42.5
450	28	6,431	-22.6	41	268	49.5
400	28	7,291	-28.1	44		
350	28	8,237	-34.6	41		
300	28	9,298	-41.9			
250	27	10,507	-50.3			
200	26	11,943	-55.2			
175	26	12,793	-56.5			
150	25	13,773	-58.4			
125	23	14,913	-62.1			
100	23	16,283	-64.8			
80	22	17,645	-65.0			
60	22	19,410	-61.9			
50	21	20,546	-59.7			
40	21	21,946	-58.1			
30	21	23,768	-56.0			
25	21	24,933	-54.7			
20	18	26,367	-52.6			
15	14	28,240	-50.9			
10	6	30,887	-48.7			

HILO, T. H. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	11	19.6	84	255	3.3
1,000	28	139	20.6	77	308	2.9
950	28	579	17.9	80	49	6.0
900	28	1,043	14.9	83	66	8.1
850	28	1,525	11.6	85	71	6.9
800	28	2,031	10.2	70	98	4.2
750	28	2,567	8.1	59	74	2.7
700	28	3,134	5.8	47	5	2.1
650	28	3,731	2.8		312	6.4
600	28	4,381	-.2		295	11.2
550	28	5,063	-4.1		285	16.1
500	28	5,817	-9.1		278	22.1
450	28	6,616	-14.6		277	29.1
400	28	7,507	-20.3		274	38.8
350	28	8,484	-26.6		273	49.9
300	28	9,583	-33.1		267	66.0
250	28	10,843	-41.5		270	72.0
200	28	12,323	-52.0			
175	28	13,176	-58.0			
150	28	14,133	-64.3			
125	28	15,231	-70.6			
100	28	16,534	-76.4			
80	25	17,808	-76.7			
60	25	19,490	-68.9			
50	25	20,595	-63.1			
40	25	21,976	-60.5			
30	24	23,781	-57.1			
25	23	24,939	-55.5			
20	19	26,367	-53.7			
15	16	28,222	-51.2			
10	8	30,864	-48.0			

INTERNAT. FALLS, MINN. (973 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	360	-19.1	67	217	1.3
1,000	28	152				
950	28	539	-15.3	70	255	4.8
900	28	946	-14.1	69	285	10.8
850	28	1,381	-13.3	54	300	15.3
800	28	1,843	-13.7	48	299	17.2
750	28	2,330	-15.0	45	297	21.9
700	28	2,852	-17.0	42	297	25.0
650	28	3,405	-19.4	40	294	26.8
600	28	3,998	-22.4		292	30.5
550	28	4,630	-26.3	37	288	33.4
500	28	5,315	-31.0	39	288	36.1
450	28	6,051	-36.1		288	40.0
400	28	6,864	-41.6		289	45.4
350	28	7,759	-47.5		286	47.7
300	28	8,766	-52.2		284	50.5
250	28	9,939	-54.3		281	55.3
200	28	11,380	-51.3		281	53.8
175	28	12,251	-49.9		283	51.6
150	28	13,261	-49.4		285	49.1
125	28	14,453	-50.2		283	46.0
100	28	15,909	-50.9		287	39.8
80	26	17,363	-51.3		289	36.9
60	25	19,223	-52.2		293	32.0
50	24	20,408	-52.5		298	26.0
40	22	21,848	-52.8		305	19.6
30	19	23,712	-52.3		313	15.1
25	16	24,884	-52.4		323	13.6
20	5	26,357	-52.6			

JACKSON, MISS. (1009 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	101	7.7	81	78	1.3
1,000	28	171	7.9	76	88	3.8
950	28	599	8.1	66	173	3.3
900	28	1,042	8.7	57	242	6.6
850	28	1,514	8.0	56	261	13.2
800	28	2,013	6.1	57	265	17.2
750	28	2,539	3.5	55	266	20.5
700	28	3,097	.6	55	262	24.4
650	28	3,688	-2.5	54	260	32.0
600	28	4,320	-6.1	50	262	38.2
550	28	4,991	-10.1	47	259	43.7
500	28	5,725	-14.7	47	259	48.7
450	28	6,511	-19.8	43	257	55.9
400	28	7,380	-25.5	47	253	66.0
350	28	8,336	-32.2	48	252	75.3
300	28	9,406	-40.3		257	81.4
250	28	10,625	-49.4		258	91.3
200	27	12,065	-55.2		261	91.3
175	27	12,913	-57.3		264	91.3
150	27	13,880	-60.7		268	78.4
125	27	15,003	-65.3		267	62.1
100	27	16,349	-68.9		267	52.2
80	26	17,680	-69.0		270	36.5
60	23	19,416	-64.5		270	22.5
50	23	20,540	-61.4		285	13.2
40	21	21,931	-59.2		284	8.5
30	20	23,745	-56.1		14	3.8
25	20	24,910	-54.1		49	3.3
20	19	26,347	-51.7		38	2.3
15	14	28,230	-48.2			

JACKSONVILLE, FLA (1021 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	6	12.9	91	343	3.3
1,000	28	179	13.8	82	338	1.5
950	28	606	13.7	76	224	[illegible]
900	28	1,067	12.1	71	242	11.0
850	28	1,545	10.1	68	252	15.3
800	28	2,048	8.2	62	257	20.4
750	28	2,575	5.9	58	259	25.4
700	28	3,140	3.0	55	259	31.2
650	28	3,734	.5	48	258	36.1
600	28	4,376	-3.0	46	[illegible]	41.3
550	28	5,054	-7.2	46	262	46.8
500	28	5,797	-11.8	45	260	54.2
450	28	6,590	-17.2	44	264	57.1
400	28	7,470	-23.3	45	264	62.9
350	28	8,433	-30.8	48	264	64.8
300	28	9,509	-39.2		262	69.3
250	28	10,733	-48.5		268	76.7
200	28	12,175	-56.0		271	78.1
175	28	13,021	-58.1		270	82.9
150	28	13,985	-61.8		269	78.1
125	28	15,099	-67.2		267	68.3
100	28	16,430	-71.2		270	57.7
80	26	17,751	-71.4		271	41.5
60	24	19,470	-66.2		280	16.5
50	24	20,587	-62.9		287	11.6
40	23	21,972	-59.8		316	8.3
30	22	23,787	-56.5		312	6.2
25	21	24,947	-54.3		42	2.5
20	17	26,376	-52.6		56	3.8
15	10	28,257	-49.5			
10						

KING SALMON, ALASKA (1005 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	15	-3.2	86	223	0.9
1,000	28	54			252	7.7
950	28	461	-2.6	72	230	5.2
900	28	891	-3.9	70	224	6.2
850	28	1,341	-6.1	69	225	7.5
800	28	1,814	-8.6	67	230	8.7
750	28	2,312	-11.6	64	230	8.7
700	28	2,838	-14.4	55	230	10.8
650	28	3,394	-17.8	51	239	13.0
600	28	3,991	-21.7	50	243	13.9
550	28	4,621	-25.7	49	243	15.7
500	28	5,312	-30.6	47	244	17.8
450	28	6,047	-35.5		249	20.0
400	28	6,865	-40.8		248	24.0
350	28	7,765	-45.5		249	26.6
300	28	8,781	-50.5		245	29.1
250	28	9,962	-53.0		245	33.0
200	28	11,404	-51.0		248	31.2
175	28	12,277	-49.4		248	33.0
150	28	13,291	-48.2		248	31.6
125	28	14,493	-48.1		250	27.9
100	28	15,963	-48.3		252	26.6
80	28	17,434	-48.9		254	24.2
60	26	19,322	-48.6		254	22.5
50	26	20,521	-49.0		256	20.4
40	26	21,989	-48.5		255	20.0
30	21	23,897	-48.0		266	18.0
25	16	25,108	-47.6		272	18.6
20	10	25,612	-46.8			

KOTZEBUE, ALASKA (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	27	5	-14.0	79	129	4.4
1,000	27	56			132	4.2
950	27	446	-10.9	75	137	5.4
900	27	865	-11.0	72	149	3.4
850	27	1,304	-12.0	69	155	3.1
800	27	1,767	-13.0	62	223	4.4
750	27	2,254	-15.7	58	223	7.1
700	27	2,774	-18.9	56	228	7.7
650	27	3,315	-22.3	53	225	12.6
600	27	3,907	-25.8	52	222	13.2
550	27	4,523	-29.8	51	227	15.9
500	27	5,205	-34.4	53	223	14.3
450	27	5,928	-39.3		239	8.1
400	27	6,733	-44.7		246	11.6
350	26	7,621	-50.1		235	8.9
300	26	8,619	-54.2		238	13.2
250	26	9,782	-55.9		238	21.1
200	26	11,209	-53.6		238	25.2
175	26	12,072	-51.9		233	31.4
150	26	13,073	-51.2		239	34.5
125	26	14,259	-50.8		239	40.0
100	26	15,716	-50.1		242	46.6
80	25	17,175	-50.3		239	49.3
60	24	19,045	-50.7		244	60.4
50	22	20,220	-50.7			
40	22	21,674	-50.5			
30	20	23,538	-50.9			
25	15	24,747	-50.9			
20	9	26,199	-49.9			

LAKE CHARLES, LA. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	5	9.8	86	52	3.6
1,000	28	160	10.1	83	83	6.2
950	28	588	11.5	78	129	3.4
900	28	1,042	11.9	69	238	6.4
850	28	1,520	10.3	65	272	8.3
800	28	2,023	8.1	61	276	12.4
750	28	2,554	5.7	61	270	17.4
700	28	3,117	2.9	58	252	21.7
650	28	3,708	-.6	56	258	25.8
600	27	4,350	-4.3	50	261	28.9
550	27	5,023	-8.7	49	261	37.3
500	27	5,764	-13.2	45	257	43.3
450	27	6,554	-18.2	44	251	46.2
400	27	7,432	-24.0	47	249	54.0
350	27	8,394	-30.8	49	250	56.9
300	27	9,470	-38.9			
250	27	10,697	-47.9			
200	27	12,141	-55.2			
175	27	12,988	-58.0			
150	26	13,950	-61.4			
125	26	15,070	-65.9			
100	25	16,414	-70.3			
80	22	17,735	-71.4			
60	22	19,446	-67.7			
50	22	20,555	-63.7			
40	21	21,936	-61.2			
30	20	23,731	-58.9			
25	20	24,882	-56.8			
20	20	26,304	-54.7			
15	16	28,157	-52.5			
10	8	30,781	-50.0			

LANDER, WYO. (825 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,696	-8.6	72	255	1.9
1,000	28	177				
950	28	580				
900	28	1,009				
850	28	1,461				
800	28	1,934	-5.0	62	281	1.7
750	28	2,436	-5.9	58	295	4.4
700	28	2,979	-8.9	58	284	12.6
650	28	3,543	-12.0	58	283	19.2
600	28	4,158	-15.8	53	286	22.7
550	28	4,802	-20.1	49	281	26.8
500	28	5,509	-24.9	44	285	27.2
450	28	6,259	-30.8	44	285	27.3
400	28	7,093	-37.1	43	272	21.9
350	28	8,003	-43.9		263	22.9
300	28	9,022	-50.8		267	21.7
250	28	10,195	-55.4		274	30.3
200	28	11,623	-53.5		268	27.7
175	28	12,484	-52.7		272	30.3
150	28	13,482	-52.0		261	29.5
125	28	14,662	-52.6		259	28.5
100	28	16,098	-54.3		265	27.0
80	28	17,527	-55.0			
60	28	19,363	-55.3			
50	27	20,527	-55.0			
40	25	21,951	-55.1			
30	21	23,784	-54.7			
25	18	24,951	-54.3			
20	17	26,378	-53.7			
15	11	28,236	-51.9			

LAS VEGAS, NEV (939 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	660	5.3	[illegible]	256	3.3
1,000	28	146				
950	28	567				
900	28	1,013	7.3	45	294	3.8
850	28	1,481	4.3	47	307	4.2
800	28	1,971	1.0	49	271	5.0
750	28	2,483	-1.9	48	272	5.6
700	28	3,034	-4.7	42	265	9.3
650	28	3,606	-7.8	38	266	13.4
600	28	4,232	-11.5	33	266	16.1
550	28	4,885	-16.1		266	20.9
500	28	5,603	-21.4		264	25.4
450	28	6,365	-27.0		267	27.0
400	28	7,210	-33.5		266	30.3
350	28	8,135	-40.0		266	36.9
300	28	9,172	-46.6		268	45.4
250	28	10,365	-53.1		267	44.4
200	28	11,790	-55.8		267	47.6
175	28	12,642	-55.2		266	48.3
150	27	13,615	-55.1		266	41.3
125	26	14,779	-57.4		264	35.5
100	[illegible]	16,181	-59.5		266	29.5
80	25	17,572	-60.5		264	18.8
60	[illegible]	19,368	-59.3		274	8.1
50	24	20,513	-58.1		288	5.8
40	21	21,926	-57.4		61	4.0
30	20	23,749	-55.5		69	8.9
25	18	24,905	-54.9		[illegible]	12.2
20	13	26,334	-53.6		70	14.1
15	12	28,177	-52.4		74	15.5
10						

LITTLE ROCK, ARK. (1012 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	79	4.0	73	334	3.1
1,000	28	174	3.6	73	354	2.7
950	28	596	4.4	69	255	3.3
900	28	1,033	4.8	61	256	8.3
850	28	1,499	4.6	53	259	13.2
800	28	1,993	3.3	49	260	15.3
750	28	2,517	1.1	50	265	18.0
700	28	3,067	-1.7	50	266	25.2
650	28	3,655	-5.2	48	266	30.3
600	28	4,279	-8.7	41	260	38.4
550	28	4,946	-13.0	38	260	45.0
500	28	5,669	-17.7		267	49.5
450	28	6,443	-22.9		258	56.7
400	28	7,304	-28.2			
350	28	8,250	-34.8	42		
300	28	9,310	-42.0			
250	28	10,524	-50.1			
200	26	11,970	-55.4			
175	25	12,814	-56.1			
150	23	13,783	-58.8			
125	19	14,917	-62.0			
100	6	16,212	-62.0			

McGRATH, ALASKA (996 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	103	-13.5	78	182	0.9
1,000	28	72				
950	28	470	-7.4	75	214	7.1
900	28	889	-6.6	72	214	7.7
850	28	1,336	-7.3	64	208	5.8
800	28	1,805	-10.3	60	212	7.3
750	28	2,299	-13.2	57	221	8.7
700	28	2,822	-16.4	55	229	10.1
650	28	3,372	-19.9	57	234	11.8
600	28	3,965	-23.8	55	238	12.4
550	28	4,592	-28.1	53	248	14.7
500	28	5,273	-32.8	51	246	14.9
450	28	6,001	-37.6		258	17.0
400	28	6,812	-42.6		242	15.7
350	28	7,702	-48.2		240	17.2
300	28	8,707	-52.9		236	22.1
250	28	9,877	-54.8		224	20.5
200	28	11,310	-52.0		235	28.1
175	28	12,179	-50.1		234	23.8
150	28	13,188	-49.0		240	32.0
125	26	14,377	-48.9		239	31.6
100	26	15,844	-48.8		242	36.1
80	26	17,311	-49.1		243	37.4
60	26	19,198	-49.8		249	37.8
50	26	20,392	-49.5		247	39.0
40	25	21,850	-49.7			
30	25	23,736	-49.8			
25	23	24,927	-49.8			
20	17	26,411	-43.2			
15	8	28,334	-47.9			

MEDFORD, OREG. (970 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	401	1.9	90	141	1.3
1,000	28	151				
950	28	570	3.0	83	198	.3
900	28	1,006	2.3	75	162	4.6
850	28	1,466	.1	71	179	5.8
800	28	1,950	-2.4	68	227	5.6
750	28	2,461	-4.9	67	256	9.3
700	28	3,000	-8.1	67	274	11.4
650	28	3,569	-11.5	63	276	14.3
600	28	4,182	-15.2	61	273	12.6
550	28	4,831	-19.6	57	267	16.7
500	28	5,536	-24.2	50	273	20.0
450	28	6,289	-29.6	45	295	18.4
400	28	7,128	-35.9	46	310	14.7
350	28	8,043	-42.8			
300	28	9,068	-49.6			
250	28	10,245	-55.5			
200	28	11,663	-56.4			
175	28	12,514	-54.6			
150	28	13,504	-53.3			
125	28	14,677	-54.3			
100	27	16,097	-55.8			
80	27	17,518	-55.9			
60	27	19,348	-56.0			
50	27	20,509	-55.4			
40	25	21,850	-55.0			
30	22	23,780	-54.3			
25	15	24,951	-53.5			
20	10	26,380	-52.4			

MIAMI, FLA. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	4	20.9	88	121	2.1
1,000	28	168	21.6	81	129	5.6
950	28	613	19.1	80	148	7.9
900	28	1,076	16.3	77	170	6.4
850	28	1,561	13.9	64	187	6.2
800	28	2,071	11.5	56	217	8.1
750	28	2,608	9.2	42	243	7.7
700	28	3,179	7.3		246	11.6
650	28	3,779	4.2		252	15.1
600	28	4,433	.7		250	19.0
550	28	5,118	-3.8		254	22.9
500	28	5,873	-9.0		253	25.4
450	28	6,671	-14.9		254	27.9
400	28	7,561	-21.9		257	29.1
350	28	8,529	-29.5		258	31.0
300	28	9,610	-37.7		265	31.8
250	28	10,842	-47.2		274	32.4
200	28	12,292	-54.2		271	44.4
175	28	13,141	-58.3		269	50.5
150	27	14,100	-63.8		269	49.9
125	27	15,204	-69.1		270	40.0
100	26	16,519	-74.6		273	37.4
80	26	17,808	-76.9		280	23.5
60	24	19,485	-70.1		349	2.5
50	23	20,587	-64.4		27	4.0
40	20	21,963	-60.5		291	5.2
30	20	23,773	-56.1		327	6.0
25	19	24,936	-54.1		352	5.4
20	19	26,370	-53.0		289	1.9
15	17	28,230	-49.7			
10	5	30,931	-43.6			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

FEBRUARY 1959

MIDLAND, TEX. (917 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	871	3.5	81	76	1.5
1,000	28	164				
950	28	590				
900	28	1,027	4.9	71	205	.5
850	28	1,496	7.8	55	229	8.5
800	28	1,995	6.6	49	248	12.4
750	28	2,523	4.0	47	257	16.1
700	28	3,081	.8	41	256	20.9
650	28	3,673	- 2.9	41	254	27.0
600	28	4,303	- 6.8	37	251	31.2
550	28	4,971	-11.3		255	33.2
500	28	5,701	-16.5		254	42.1
450	28	6,477	-22.2		253	43.9
400	28	7,341	-28.1		253	45.0
350	28	8,286	-34.7			
300	28	9,348	-42.3			
250	28	10,558	-50.5			
200	28	11,997	-54.8			
175	27	12,848	-56.3			
150	27	13,821	-59.2			
125	25	14,962	-63.1			
100	24	16,320	-66.4			
80	23	17,664	-67.3			
60	23	19,407	-64.3			
50	23	20,530	-61.5			
40	23	21,918	-60.1			
30	22	23,717	-58.4			
25	20	24,864	-57.2			
20	18	26,279	-55.3			
15	13	28,127	-53.6			
10	6	30,725	-51.8			

MONTGOMERY, ALA. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	61	8.4	80	39	2.1
1,000	28	176	8.3	72	[illegible]	3.3
950	28	605	8.7	66	242	2.5
900	28	[illegible]	9.2	60	258	8.5
850	28	1,523	8.2	58	267	13.9
800	28	2,022	5.9	58	263	19.2
750	28	2,548	3.8	59	265	24.0
700	28	3,108	.9	58	262	27.7
650	28	3,701	- 2.1	53	258	32.4
600	28	4,333	- 5.6	47	259	38.0
550	28	5,005	- 9.4	44	261	44.1
500	28	5,742	-13.9	46	259	52.2
450	28	6,530	-18.9	48	256	60.4
400	28	7,405	-24.4	16	257	70.3
350	28	8,364	-31.4	45	258	76.3
300	28	9,437	-39.9		259	81.0
250	28	10,659	-48.7		[illegible]	92.0
200	28	12,102	-55.2		260	92.4
175	28	12,949	-57.7		260	94.2
150	27	13,920	-61.1		260	90.1
125	27	15,040	-65.8		260	78.4
100	27	16,382	-70.0		261	65.0
80	20	17,693	-70.5		264	44.4
60	15	19,417	-65.7		273	20.7
50	15	20,530	-62.7		273	11.6
40	15	21,918	-59.9		284	8.5
30	15	23,730	-56.5		284	6.2
25	13	24,890	-54.6		289	3.4
20	9	26,322	-53.2			
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NANTUCKET, MASS. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	14	- 2.9	78	295	7.3
1,000	28	136			312	8.7
950	28	544	- 3.9	67	[illegible]	9.9
900	28	968	- 5.2	59	299	14.3
850	28	1,417	- 5.9	55	291	20.2
800	28	1,892	- 6.9	51	283	25.2
750	28	2,395	- 8.7		287	29.3
700	28	2,927	-11.1	48	279	32.6
650	28	3,491	-14.0	46	283	30.8
600	28	4,098	-17.0	43	293	35.3
550	28	4,746	-20.6	41		
500	28	5,448	-24.4			
450	28	6,203	-29.3			
400	28	7,041	-34.7			
350	28	7,962	-41.2			
300	28	8,996	-47.3			
250	28	10,188	-52.9			
200	28	11,619	-54.3			
175	28	12,479	-53.2			
150	28	13,470	-54.2			
125	28	14,636	-55.6			
100	28	16,053	-56.7			
80	28	17,468	-56.9			
60	28	19,287	-56.9			
50	28	20,444	-56.4			
40	27	21,866	-55.4			
30	27	23,706	-53.9			
25	25	24,880	-53.6			
20	25	26,316	-53.1			
15	20	28,178	-53.1			
10	7	30,820	-51.9			

NASHVILLE, TENN. (1001 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	177	2.2	83	297	1.3
1,000	28	179			4	4.2
950	28	597	[illegible]	66	246	6.8
900	28	1,036	3.1	58	273	9.5
850	28	1,499	2.4	49	280	12.0
800	28	1,987	.7	43	275	16.3
750	28	2,501	- 1.5	45	274	23.8
700	28	3,051	- 4.1	47	277	30.5
650	28	3,628	- 6.5	[illegible]	275	37.3
600	28	4,256	- 9.9		[illegible]	[illegible]
550	28	4,915	-14.2		266	41.5
500	28	5,639	-18.6	[illegible]	[illegible]	[illegible]
450	28	6,409	-23.6	41		
400	28	7,270	-29.4	[illegible]		
350	28	8,211	-35.6			
300	28	9,268	-42.5			
250	28	10,478	-50.6			
200	27	11,918	-55.5			
175	27	12,769	-56.0			
150	24	13,743	-57.8			
125	23	14,892	-61.1			
100	20	16,262	-65.0			
80	19	17,624	-64.5			
60	14	19,393	-62.4			
50	12	20,533	-60.7			
40	12	21,927	-58.7			
30	10	23,744	-56.7			
25	[illegible]	24,902	-54.9			
20	5	26,328	-53.0			
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N. Y. INT. AP. IDLEWILD (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	5	- 2.4	61	[illegible]	7.5
1,000	28	152	- 3.1	60	303	8.9
950	28	599	- 3.9		282	13.2
900	28	984	- 4.9	56	280	20.2
850	28	1,434	- 5.3	[illegible]	282	27.3
800	28	1,909		47	278	30.6
750	28	2,414	- 7.9		276	35.3
700	28	2,947	-10.1	45	276	39.4
650	28	3,514	-12.9	48	276	46.2
600	28	4,122	-16.0	48	277	53.2
550	28	4,770	-19.7		275	59.2
500	28	5,473	-24.2		274	64.3
450	28	6,232	-28.6		273	73.8
400	28	7,070	-33.9		273	83.1
350	28	7,993	-40.4		274	88.6
300	28	9,030	-46.5		278	96.1
250	28	10,223	-52.5		277	97.1
200	28	11,654	-54.9		278	96.1
175	28	12,510	-54.2		277	89.5
150	27	13,495	-54.6		276	77.7
125	27	14,659	-56.2		277	65.2
100	27	16,070	-57.9		278	60.4
80	25	17,474	-58.3		278	51.1
60	24	19,291	-57.2		279	32.4
50	23	20,447	-56.5		281	26.4
40	21	21,865	-55.2		284	14.9
30	20	23,704	-54.0		289	6.4
25	18	24,883	-52.4		337	.5
20	17	26,340	-50.9			
15	11	28,240	-49.0			
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NOME, ALASKA (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	7	- 9.5	84	77	4.6
1,000	28	46			138	5.4
950	28	440	- 8.3	78	150	4.2
900	28	863	- 9.0	79	188	4.0
850	28	1,305	-10.3	76	211	7.5
800	28	1,771	-11.9	68	225	9.1
750	28	2,257	-14.4	61	226	5.6
700	28	2,783	-17.7	56	239	6.2
650	28	3,325	-21.2	55	226	6.4
600	28	3,921	-25.0	52	216	7.1
550	28	4,540	-29.1	48	225	11.4
500	28	5,224	-33.4	47	231	10.6
450	28	5,950	-38.4		236	12.6
400	28	6,759	-43.6		243	16.9
350	28	7,647	-48.9		226	8.3
300	28	8,650	-53.2		216	4.6
250	28	9,819	-54.5		224	16.5
200	28	11,254	-52.4		226	24.0
175	28	12,122	-50.4		231	28.7
150	28	13,131	-49.1		231	32.0
125	28	14,329	-48.9		236	40.8
100	28	15,797	-48.6		237	45.4
80	28	17,265	-49.0		239	49.3
60	28	19,155	-48.7		241	55.3
50	28	20,355	-49.0			
40	28	21,821	-49.1			
30	26	23,714	-48.9			
25	24	24,896	-48.7			
20	23	26,377	-48.4			
15	21	28,265	-49.4			
10	6	30,981	-47.3			

NORFOLK, VA. (1020 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	9	4.5	73	309	2.7
1,000	28	168	4.3	64	306	3.6
950	28	587	3.9	60	265	10.2
900	28	1,024	2.5	54	265	16.9
850	28	1,486	1.1	47	271	19.4
800	28	1,973	- .2	44	274	25.6
750	28	2,485	- 2.1	40	271	31.8
700	28	3,034	- 4.3	45	271	37.8
650	28	3,613	- 7.3	46	270	43.3
600	28	4,235	-11.0		268	48.1
550	28	4,896	-14.9		267	56.7
500	28	5,614	-19.3		268	63.1
450	28	6,384	-24.2		270	71.6
400	28	7,241	-29.2		269	82.9
350	28	8,183	-35.5	44	268	92.2
300	28	9,240	-42.9		269	97.3
250	28	10,449	-50.9		271	109.5
200	28	11,880	-55.4		279	112.3
175	28	12,731	-55.9		276	102.0
150	28	13,710	-57.3		273	99.8
125	28	14,854	-60.8		274	88.6
100	27	16,233	-63.3		276	78.8
80	27	17,601	-63.9		277	53.8
60	27	19,376	-61.1		282	32.4
50	26	20,514	-59.1		283	24.4
40	25	21,920	-57.2		288	15.3
30	25	23,749	-55.0		303	6.6
25	25	24,917	-53.7		328	5.4
20	25	26,358	-51.7		312	8.3
15	21	28,225	-49.5		287	8.3
10	8	30,875	-46.6			

NORTH PLATTE, NEBR. (917 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	848	- 8.1	84	206	0.1
1,000	28	170				
950	28	572				
900	28	997	- 5.5	75	267	2.7
850	28	1,448	- 3.2	63	294	10.8
800	28	1,928	- 3.7	57	301	15.5
750	28	2,434	- 5.2	51	292	18.2
700	28	2,977	- 7.8	49	291	23.1
650	28	3,543	-11.5	49	286	24.4
600	28	4,160	-15.1	48	280	28.3
550	28	4,806	-19.7	40	273	28.9
500	28	5,514	-24.5	37	268	34.3
450	28	6,263	-29.9		263	37.6
400	28	7,103	-36.3		264	40.0
350	28	8,016	-42.9		263	44.3
300	28	9,042	-49.2			
250	28	10,225	-53.1			
200	28	11,660	-53.7			
175	28	12,520	-52.8			
150	28	13,516	-53.1			
125	28	14,690	-54.3			
100	28	16,113	-56.2			
80	27	17,528	-57.2			
60	27	19,347	-56.8			
50	27	20,503	-56.4			
40	27	21,922	-55.7			
30	25	23,763	-55.4			
25	24	24,926	-54.6			
20	22	26,358	-54.0			
15	10	28,196	-52.2			
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OAKLAND, CALIF. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	27	6	7.8	81	127	3.1
1,000	27	149	9.0	73	138	2.5
950	27	570	7.6	63	273	1.9
900	27	1,017	5.1	60	315	5.2
850	27	1,482	2.5	57	280	6.2
800	27	1,970	.0	50	273	8.3
750	27	2,484	- 2.8	44	278	9.9
700	27	3,028	- 6.0	40	280	12.8
650	27	3,600	- 9.5	41	283	15.5
600	27	4,219	-13.8	42	282	17.4
550	27	4,869	-18.1	41	284	20.0
500	27	5,583	-22.6	39	285	23.1
450	27	6,343	-28.3		287	26.8
400	27	7,183	-34.6		286	30.5
350	27	8,104	-41.2		284	34.5
300	27	9,135	-48.4		282	34.9
250	27	10,318	-54.6		287	39.8
200	27	11,736	-56.6		281	40.4
175	27	12,585	-55.7		279	42.1
150	27	13,570	-54.6		280	40.2
125	27	14,736	-55.7		279	32.2
100	27	16,150	-58.0		281	27.0
80	25	17,552	-58.8		279	19.4
60	25	19,357	-58.5		290	9.1
50	25	20,504	-58.1		328	3.8
40	23	21,907	-56.5		60	5.6
30	22	23,733	-55.6		75	10.4
25	19	24,891	-54.8		79	13.6
20	18	26,325	-53.7		83	16.9
15	7	28,159	-52.9			
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OKLAHOMA CITY, OKLA. (974 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	392	0.2	83	21	1.9
1,000	28	175				
950	28	586	1.3	70	336	.5
900	28	1,026	3.5	58	252	4.8
850	28	1,489	3.1	55	264	6.8
800	28	1,980	2.4	51	268	10.1
750	28	2,498	.1	49	262	17.4
700	28	3,050	- 2.9	[illegible]	266	24.2
650	28	3,631	- 6.3	41	269	28.7
600	28	4,255	-10.0	39	264	33.0
550	28	4,915	-14.5		265	37.3
500	28	5,636	-19.3		260	41.5
450	28	6,403	-24.5		262	49.3
400	28	7,259	-30.4		259	54.7
350	28	8,196	-36.9		253	53.4
300	28	9,247	-44.2			
250	28	10,449	-51.4			
200	28	11,885	-54.4			
175	27	12,739	-55.3			
150	27	13,718	-57.3			
125	27	14,864	-60.2			
100	27	16,246	-63.2			
80	24	17,610	-64.1			
60	17	19,367	-61.7			
50	14	20,488	-59.9			
40	12	21,887	-58.5			
30	10	23,697	-57.1			
25	[illegible]	24,847	-55.7			
20	6	26,273	-54.6			
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OMAHA, NEBR. (971 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	27	403	- 8.0	82	270	2.3
1,000	27	168				
950	27	573	- 6.2	69	276	5.4
900	27	996	- 4.0	58	289	12.6
850	27	1,447	- 4.5	53	292	14.5
800	27	1,924	- 5.0	50	283	17.8
750	27	2,431	- 7.1	46	281	21.9
700	27	2,966	- 9.5	44	281	25.0
650	27	3,535	-12.4	45	277	29.5
600	27	4,143	-16.0	42	277	33.6
550	27	4,789	-20.5	39	275	36.9
500	27	5,493	-25.3		274	39.8
450	27	6,243	-30.8		273	42.9
400	27	7,076	-37.0		270	47.9
350	27	7,987	-43.2		272	54.0
300	27	9,012	-49.1		270	56.5
250	27	10,197	-52.7		269	66.2
200	27	11,637	-52.8		269	67.4
175	27	12,500	-52.3		267	62.7
150	27	13,496	-53.0		269	59.0
125	25	14,670	-55.0		269	53.8
100	24	16,094	-55.8		272	41.7
80	24	17,508	-57.5		275	30.6
60	23	19,325	-57.0		282	22.5
50	22	20,480	-56.9		290	14.9
40	21	21,900	-56.1		298	12.2
30	19	23,726	-55.6		320	10.1
25	18	24,888	-54.7		344	7.9
20	16	26,320	-53.6		6	7.9
15	13	28,171	-52.7		357	9.1
10	8	30,792	-50.2			

PEORIA, ILL. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	201	- 5.4	84	238	1.7
1,000	28	164			268	2.5
950	28	572	- 4.1	72	265	8.9
900	28	996	- 3.3	66	269	16.3
850	28	1,448	- 3.6	56	274	20.0
800	28	1,926	- 4.8	50	272	23.5
750	28	2,430	- 6.5	44	272	27.3
700	28	2,969	- 9.3	44	271	31.8
650	28	3,535	-12.3	41	271	36.1
600	28	4,146	-16.2	38	272	41.9
550	28	4,792	-20.1	39	269	45.8
500	28	5,497	-24.6	38	271	50.9
450	28	6,251	-29.8	38	267	54.4
400	28	7,087	-35.4		265	63.5
350	28	8,005	-41.3		265	72.6
300	28	9,038	-47.5		263	86.2
250	28	10,232	-51.3		265	90.1
200	28	11,674	-53.2		267	91.9
175	28	12,534	-53.5		268	83.9
150	28	13,526	-53.8		269	80.2
125	27	14,696	-55.6		269	69.7
100	26	16,112	-57.4		270	61.7
80	25	17,520	-58.5		271	42.1
60	25	19,329	-57.6		279	32.2
50	25	20,481	-57.2		283	18.8
40	25	21,893	-56.8		288	16.1
30	25	23,718	-55.7		307	11.8
25	25	24,881	-54.5		341	6.6
20	21	26,300	-53.4		340	9.1
15	10	28,158	-51.7			
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PITTSBURGH, PA. (977 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	353	- 3.3	80	257	3.6
1,000	28	170				
950	28	578	- 3.3	73	249	8.3
900	28	1,003	- 4.3	70	263	18.0
850	28	1,453	- 5.1	67	273	24.4
800	28	1,929	- 6.2	63	273	30.1
750	28	2,432	- 8.1	60	278	33.8
700	27	2,967	-10.5	54	278	39.4
650	27	3,530	-13.7	47	276	46.4
600	27	4,139	-16.5		275	48.9
550	27	4,786	-20.2		274	54.7
500	27	5,490	-24.6		275	59.2
450	27	6,244	-29.5		274	65.8
400	27	7,082	-35.1		276	74.8
350	27	8,004	-40.5		279	86.0
300	27	9,041	-46.4		280	92.2
250	27	10,237	-52.1		276	87.2
200	26	11,673	-53.5		279	88.4
175	25	12,538	-53.9			
150	25	13,526	-54.7			
125	25	14,688	-56.7			
100	24	16,099	-58.3			
80	21	17,507	-57.4			
60	20	19,326	-57.7			
50	20	20,477	-57.2			
40	19	21,897	-55.6			
30	17	23,740	-55.0			
25	16	24,909	-54.3			
20	11	26,343	-52.2			
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PORTLAND, ME. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	20	-10.8	76	312	3.1
1,000	28	130			298	5.0
950	28	529	- 8.6	56	291	8.1
900	28	946	- 9.2	56	284	12.2
850	28	1,388	- 9.8	55	275	16.9
800	28	1,856	-10.6	52	278	25.2
750	28	2,347	-12.0	50	277	30.3
700	28	2,877	-14.0	46	276	33.8
650	28	3,434	-16.6	45	276	40.0
600	28	4,035	-20.0	46	276	46.4
550	28	4,671	-23.6	41	277	49.5
500	28	5,368	-27.4	41	276	55.1
450	28	6,111	-32.5		275	61.7
400	28	6,941	-37.3		274	72.2
350	28	7,854	-42.8		274	75.5
300	28	8,881	-48.4		274	81.6
250	28	10,069	-52.6		274	87.2
200	28	11,506	-52.9		275	85.6
175	28	12,371	-51.5		275	79.2
150	28	13,371	-51.8		276	74.4
125	28	14,553	-52.4		[illegible]	62.7
100	27	15,992	-53.2		274	56.1
80	27	17,428	-54.2		275	46.2
60	25	19,271	-54.7		278	36.3
50	23	20,446	-53.7		277	30.5
40	23	21,885	-52.7		279	26.8
30	22	23,743	-52.4		278	20.7
25	17	24,933	-51.7		279	18.6
20	13	26,401	-50.2			
15	8	28,296	-48.0			
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RAPID CITY, S. DAK. (903 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	966	- 8.7	74	327	4.0
1,000	28	170				
950	28	574				
900	28	995			324	3.3
850	28	1,442	- 6.1	58	310	10.8
800	28	1,916	- 7.1	58	304	14.5
750	28	2,417	- 8.6	54	295	16.9
700	28	2,951	-11.2	50	293	20.4
650	28	3,513	-14.3	47	292	22.3
600	28	4,119	-18.0	45	290	27.0
550	28	4,761	-22.2	46	289	30.1
500	28	5,459	-27.1	44	286	32.6
450	28	6,203	-32.5	42	287	37.8
400	28	7,030	-38.8		284	39.2
350	28	7,934	-45.3		281	42.3
300	28	8,947	-52.2		280	47.0
250	28	10,116	-55.3		277	51.1
200	27	11,538	-53.1		272	52.0
175	27	12,402	-51.5		272	48.3
150	27	13,404	-51.3		273	45.0
125	27	14,586	-52.7		272	38.6
100	27	16,021	-54.1		274	36.9
80	27	17,449	-54.9		282	29.7
60	27	19,284	-55.4		292	16.9
50	26	20,450	-55.0		310	11.2
40	25	21,873	-55.2		328	8.7
30	25	23,712	-54.6		3	10.4
25	21	24,882	-54.1		20	10.6
20	14	26,291	-53.4		[illegible]	13.4
15						
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

FEBRUARY 1959

ST. CLOUD, MINN. (979 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	316	-13.8	77	293	1.9
1,000	28	155				
950	28	552	-11.4	71	290	4.6
900	28	963	-10.1	62	299	8.7
850	28	1,405	-8.[illegible]	53	297	13.0
800	28	1,874	-9.6	46	296	16.1
750	28	2,371	-11.4	44	292	19.8
700	28	2,897	-13.9	44	290	21.5
650	28	3,456	-16.8	43	284	24.0
600	28	4,055	-20.2	42	284	25.0
550	28	4,693	-24.5	41	286	29.9
500	28	5,382	-29.2	40	286	33.6
450	28	6,124	-34.2		284	32.0
400	28	6,943	-39.8		291	31.0
350	28	7,846	-45.2		289	27.5
300	28	8,862	-50.8		284	29.9
250	28	10,037	-54.6		277	25.6
200	28	11,472	-52.3			
175	28	12,339	-51.1			
150	28	13,342	-50.9			
125	28	14,527	-51.9			
100	28	15,969	-52.9			
80	28	17,406	-53.9			
60	28	19,252	-54.3			
50	28	20,420	-50.6			
40	24	21,857	-54.4			
30	23	23,704	-54.0			
25	23	24,876	-53.8			
20	12	26,284	-52.8			
15						

ST. PAUL IS., ALASKA (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	10	-0.2	84	214	7.5
1,000	28	33				
950	28	441	-2.7	82	223	7.9
900	28	869	-4.8	73	218	6.6
850	28	1,317	-7.3	68	211	6.6
800	28	1,787	-9.5	60	206	6.6
750	28	2,282	-12.3	50	219	6.2
700	28	2,808	-15.7	45	219	8.5
650	28	3,361	-19.3	45	221	9.9
600	28	3,954	-23.4	46	220	11.6
550	28	4,582	-27.5	46	211	11.6
500	28	5,265	-31.9	41	220	9.7
450	28	6,001	-36.8		218	11.6
400	28	6,810	-42.0		219	14.7
350	28	7,704	-47.2		217	19.0
300	28	8,715	-51.7		212	21.1
250	28	9,891	-53.1		224	20.9
200	28	11,337	-50.5		225	20.9
175	27	12,205	-48.3		226	26.4
150	27	13,223	-47.4		227	29.1
125	27	14,431	-47.1		229	28.1
100	26	15,903	-47.2		225	30.1
80	25	17,391	-47.9		229	31.2
60	23	19,296	-48.6			
50	20	20,491	-48.6			
40	18	21,951	-48.8			
30	11	23,817	-48.3			

SALEM, OREG. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	61	4.1	91	178	4.0
1,000	28	138			191	5.2
950	28	552	3.0	80	212	7.3
900	28	992	.9	81	213	7.5
850	28	1,450	-1.3	77	225	8.3
800	28	1,932	-3.3	72	246	10.4
750	28	2,440	-6.0	70	250	12.8
700	28	2,978	-9.3	67	260	14.3
650	28	3,543	-12.6	65	259	15.5
600	28	4,155	-16.2	61	259	17.2
550	28	4,798	-20.6	57	265	18.4
500	28	5,504	-25.4	52	267	19.0
450	28	6,251	-31.0	48	283	21.1
400	28	7,086	-37.2		288	23.1
350	28	7,997	-43.4		287	26.6
300	28	9,020	-49.9		288	27.7
250	27	10,204	-54.8		302	25.8
200	27	11,626	-56.2		305	25.8
175	27	12,477	-54.5		297	25.2
150	27	13,470	-52.9		295	23.1
125	27	14,645	-53.5		297	20.5
100	26	16,076	-54.6		295	16.5
80	25	17,506	-54.9		301	11.0
60	25	19,350	-54.8		312	6.2
50	25	20,518	-54.1		7	4.4
40	23	21,951	-53.5		49	6.4
30	22	23,805	-53.1		66	12.8
25	20	24,978	-53.0		59	15.9
20	10	26,414	-52.1			

SALT LAKE CITY, UTAH (871 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,288	-0.3	78	160	4.4
1,000	28	165				
950	28	578				
900	28	1,017				
850	28	1,481	.6	62	175	6.2
800	28	1,966	-2.0	61	207	7.1
750	28	2,474	-5.3	65	252	6.4
700	28	3,015	-8.9	68	274	11.2
650	28	3,581	-12.3	66	273	13.9
600	28	4,194	-15.8	59	274	18.6
550	28	4,843	-19.9	57	271	23.8
500	28	5,546	-24.9	56	274	27.2
450	28	6,295	-30.5	54	274	28.5
400	28	7,131	-36.6	49	274	33.2
350	28	8,044	-42.8		268	36.3
300	28	9,068	-49.8		268	41.1
250	28	10,244	-55.3		267	44.3
200	28	11,670	-54.3		269	35.1
175	28	12,528	-53.7		263	34.7
150	28	13,521	-53.3		265	33.2
125	28	14,693	-54.7		262	31.4
100	27	16,117	-55.8		267	25.8
80	26	17,533	-56.9		267	19.4
60	25	19,360	-56.9		276	8.1
50	25	20,517	-56.4		280	5.6
40	25	21,937	-55.4		36	5.4
30	23	23,775	-54.7		57	9.1
25	23	24,944	-53.9		61	10.1
20	21	26,373	-53.1		64	12.8
15	13	28,232	-52.2			

SAN ANTONIO, TEX. (990 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	243	9.2	84	15	5.0
1,000	28	157				
950	28	586	9.9	74	75	5.0
900	28	1,036	10.5	70	187	3.4
850	28	1,513	10.5	63	217	11.0
800	28	2,018	9.3	54	225	13.7
750	28	2,550	6.5	51	238	15.7
700	28	3,114	2.8	48	245	18.0
650	28	3,705	-.7	46	251	22.7
600	28	4,346	-5.0	47	250	26.0
550	28	5,017	-9.3		249	32.2
500	28	5,757	-14.2		248	36.9
450	28	6,550	-19.3	43	248	38.4
400	28	7,417	-25.0	43	248	42.3
350	28	8,375	-31.6	43	247	54.0
300	28	9,448	-39.4			
250	28	10,673	-47.9			
200	28	12,119	-55.2			
175	28	12,967	-57.4			
150	23	13,943	-61.2			
125	23	15,064	-65.7			
100	22	16,410	-69.7			
80	17	17,735	-72.0			
60	11	19,445	-68.0			
50	9	20,554	-64.0			
40	9	21,931	-61.3			
30	[illegible]	23,734	-58.9			
25	8	24,883	-57.4			
20	7	26,309	-54.7			
15	5	28,143	-53.1			

SAN DIEGO, CALIF. (1002 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	124	8.1	85	138	0.7
1,000	28	144			62	.9
950	28	568	9.7	63	205	2.3
900	28	1,019	7.2	59	237	4.0
850	28	1,487	4.8	55	248	5.6
800	28	1,979	2.1	52	261	8.1
750	28	2,494	-.5	46	264	10.2
700	28	3,048	-2.7	34	258	13.7
650	28	3,623	-5.9		269	16.1
600	28	4,256	-9.7		269	22.9
550	28	4,915	-14.3		267	26.8
500	28	5,639	-19.6		267	30.1
450	28	6,401	-25.1		268	34.9
400	28	7,260	-31.5		271	35.5
350	28	8,193	-38.1		268	41.9
300	28	9,239	-45.3		268	45.0
250	28	10,436	-52.6		269	45.8
200	28	11,862	-56.0		268	56.1
175	28	12,712	-55.9		268	57.5
150	28	13,690	-57.4		266	57.9
125	28	14,836	-60.0		264	46.2
100	28	16,219	-63.2		263	33.6
80	28	17,591	-63.7		264	23.7
60	27	19,362	-61.3		266	12.0
50	27	20,497	-59.9		271	6.8
40	27	21,895	-58.8		319	1.3
30	25	23,709	-57.0		65	3.8
25	20	24,873	-55.8		74	9.3
20	12	26,304	-54.9		75	12.4
15	9	28,148	-52.9			
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SAN JUAN, P. R. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	6	21.9	82	90	4.6
1,000	28	164	22.3	78	90	12.2
950	28	604	19.5	79	80	18.6
900	28	1,074	16.4	81	82	18.0
850	28	1,559	13.3	82	81	18.0
800	28	2,068	10.7	79	75	16.5
750	28	2,603	9.8	44	72	15.5
700	28	3,178	8.5		67	13.2
650	28	3,785	6.0		66	12.6
600	28	4,439	2.6		56	10.8
550	28	5,132	-1.8		53	10.4
500	28	5,889	-7.0		44	10.2
450	28	6,693	-13.4		37	10.1
400	28	7,587	-20.9		22	7.9
350	28	8,558	-28.4		12	8.3
300	28	9,645	-36.9		343	13.0
250	28	10,887	-44.0		313	22.7
200	28	12,356	-53.2		294	26.6
175	28	13,206	-58.5		298	26.4
150	28	14,161	-64.6		298	24.0
125	28	15,259	-70.4		308	20.0
100	27	16,565	-76.6		325	14.7
80	27	17,841	-78.2		359	9.9
60	27	19,511	-70.0		39	7.5
50	26	20,614	-62.8		52	6.4
40	26	22,002	-59.1		68	9.1
30	26	23,822	-55.7		71	13.7
25	25	24,985	-53.4		82	14.7
20	22	26,431	-51.2		86	12.6
15	14	28,311	-47.9		94	4.6
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SANTA MARIA, CALIF. (1009 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	27	74	6.5	87	84	1.5
1,000	27	149	8.6	77	75	2.5
950	27	576	8.9	63	48	.1
900	27	1,021	6.7	56	255	1.7
850	27	1,488	4.1	54	281	4.0
800	27	1,979	1.5	51	305	6.0
750	27	2,495	-1.0	40	304	9.5
700	27	3,045	-4.2	37	302	12.4
650	27	3,621	-7.6	33	299	15.3
600	27	4,244	-11.7	32	296	17.0
550	27	4,901	-16.1		285	20.7
500	27	5,617	-20.9		288	20.2
450	27	6,378	-26.5		287	27.0
400	27	7,228	-32.7		301	24.2
350	27	8,155	-39.5		310	27.7
300	27	9,194	-46.8		309	26.4
250	27	10,383	-54.0		302	21.7
200	27	11,802	-56.8		289	30.5
175	27	12,650	-55.6		284	33.2
150	27	13,632	-55.7		286	36.1
125	27	14,790	-57.4		283	34.0
100	27	16,192	-60.1		284	29.1
80	26	17,584	-61.4		283	19.0
60	26	19,370	-60.5		300	10.4
50	26	20,508	-59.1		289	4.4
40	26	21,910	-57.9		36	4.0
30	24	23,725	-56.9		63	7.9
25	23	24,881	-55.6		48	9.3
20	20	26,311	-54.9			
15	13	28,162	-52.6			
10	5	30,754	-51.8			

SANTA MONICA, CALIF. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	38	10.1	74	44	4.0
1,000	28	145	11.5	64	48	3.8
950	28	572	9.7	57	81	1.3
900	28	1,020	7.1	54	213	1.9
850	28	1,487	4.1	53	229	4.4
800	28	1,978	1.3	48	244	4.8
750	28	2,494	-1.2	41	260	9.3
700	28	3,043	-4.0	31	263	13.0
650	28	3,623	-7.2		264	16.7
600	28	4,244	-10.7		267	20.4
550	28	4,905	-15.0		270	24.0
500	28	5,623	-19.8		274	28.3
450	28	6,390	-25.0		276	33.2
400	28	7,243	-31.6		275	35.9
350	28	8,175	-38.3		278	37.3
300	27	9,226	-45.6		278	38.8
250	27	10,419	-53.5		275	39.0
200	27	11,841	-56.3		273	45.6
175	27	12,690	-55.9		271	50.7
150	27	13,670	-56.7		269	46.6
125	26	14,827	-58.4		269	41.3
100	26	16,222	-61.4		264	30.8
80	25	17,592	-62.6		266	23.3
60	23	19,367	-60.6		270	12.6
50	23	20,505	-59.5		282	6.8
40	21	21,901	-58.1		301	1.9
30	15	23,703	-56.7		58	3.8
25	14	24,855	-56.2		63	6.6
20	12	26,280	-54.9		35	9.9
15	9	28,140	-52.9			
10	5	30,727	-50.8			

SAULT STE. MARIE, MICH. (991 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	221	-15.1	85	39	1.5
1,000	28	148				
950	28	537	-12.9	71	263	1.9
900	28	950	-13.2	65	285	9.5
850	28	1,384	-14.0	58	288	14.9
800	28	1,844	-14.1	47	291	18.4
750	28	2,332	-15.3	48	287	24.6
700	28	2,852	-17.2	46	287	28.7
650	28	3,402	-20.0	45	285	33.8
600	28	3,995	-23.1		285	38.0
550	28	4,623	-26.6		283	43.7
500	28	5,310	-31.1		282	46.2
450	28	6,046	-35.9		281	51.8
400	28	6,861	-41.1		279	54.7
350	28	7,757	-46.9		275	63.3
300	28	8,767	-51.8		272	66.0
250	28	9,942	-54.0		272	69.9
200	27	11,372	-51.3		274	65.2
175	26	12,241	-50.0		274	62.7
150	26	13,249	-50.6		274	57.9
125	26	14,436	-50.9		276	55.7
100	25	15,891	-51.8		278	50.1
80	25	17,333	-53.0		278	40.0
60	25	19,186	-53.3		285	31.2
50	25	20,359	-53.2		289	27.2
40	23	21,801	-52.6		295	21.5
30	23	23,659	-52.4		308	17.2
25	21	24,835	-52.6		313	15.3
20	19	26,272	-51.8		328	14.5
15	17	28,150	-51.3		345	12.4
10	11	30,816	-48.2			

SEATTLE, WASH. (1000 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	125	3.3	86	132	5.4
1,000	28	128			154	6.9
950	28	543	2.6	78	182	8.5
900	28	981	.1	80	210	8.9
850	28	1,437	-2.3	82	219	9.7
800	28	1,916	-4.8	76	232	11.8
750	28	2,421	-7.4	71	243	13.2
700	28	2,957	-10.4	67	257	13.0
650	28	3,521	-13.6	65	261	14.1
600	28	4,129	-17.3	62	265	14.9
550	28	4,773	-21.6	58	273	17.0
500	28	5,472	-26.3	57	269	19.2
450	28	6,220	-31.7	55	272	22.9
400	28	7,049	-38.0		274	24.8
350	28	7,957	-44.1		278	27.0
300	28	8,978	-50.0		290	28.5
250	28	10,156	-54.9		294	31.6
200	28	11,577	-55.5		298	28.3
175	28	12,432	-53.3		293	26.4
150	27	13,425	-52.0		292	23.8
125	27	14,606	-52.2		293	22.9
100	27	16,049	-52.7		295	18.6
80	27	17,487	-53.3		301	15.1
60	26	19,346	-53.1		318	9.1
50	26	20,523	-52.7		341	6.8
40	25	21,964	-52.5		8	5.6
30	20	23,827	-52.1		40	9.5
25	19	25,008	-51.2		45	9.9
20	13	26,487	-51.2		58	12.6
15	9	28,379	-49.9			
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SHREVEPORT, LA. (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	76	7.5	78	51	2.5
1,000	28	164	7.7	71	82	4.4
950	28	588	7.6	66	174	5.0
900	28	1,034	8.2	59	225	8.1
850	28	1,507	7.8	55	254	13.2
800	28	2,005	5.9	54	259	16.1
750	28	2,531	3.1	60	259	22.7
700	28	3,088	.3	55	257	27.5
650	28	3,674	-3.2	49	261	33.8
600	28	4,309	-6.8	42	259	38.6
550	28	4,978	-10.9	43	257	44.3
500	28	5,710	-15.7	43	257	49.3
450	28	6,494	-20.8	45	255	57.3
400	27	7,357	-26.6	42	254	68.5
350	27	8,308	-33.0		253	77.7
300	27	9,375	-41.0		250	86.8
250	27	10,591	-49.5		251	96.7
200	27	12,027	-55.9		256	96.1
175	27	12,876	-57.0		256	95.0
150	27	13,846	-59.9		257	88.9
125	27	14,975	-64.1		259	77.5
100	27	16,328	-67.5		258	62.1
80	27	17,666	-68.6		260	43.9
60	27	19,402	-65.7		267	21.5
50	26	20,520	-62.4		268	13.6
40	23	21,903	-60.5		284	8.7
30	19	23,706	-57.6		313	2.5
25	16	24,861	-56.3		338	3.1
20	15	26,288	-54.2		302	2.5
15	9	28,155	-51.3			

SPOKANE, WASH. (931 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	722	-2.4	88	131	3.4
1,000	28	149				
950	28	560				
900	28	988	-2.1	80	160	4.6
850	28	1,442	-3.2	76	219	6.0
800	28	1,921	-5.1	72	251	9.3
750	28	2,426	-7.9	69	266	11.8
700	28	2,959	-11.1	65	274	14.3
650	28	3,522	-14.6	62	277	17.4
600	28	4,127	-18.1	60	276	19.2
550	28	4,767	-21.8	54	283	21.3
500	28	5,468	-26.4	51	287	24.4
450	28	6,212	-32.1	49	286	27.5
400	28	7,042	-38.1	45	289	28.3
350	28	7,949	-45.0		292	32.6
300	28	8,965	-51.4		299	35.7
250	28	10,135	-56.2		304	36.1
200	28	11,557	-54.7		298	33.4
175	27	12,416	-52.1		296	30.3
150	27	13,417	-51.4		293	25.2
125	27	14,602	-51.8		297	24.0
100	27	16,045	-53.0		295	19.8
80	27	17,484	-52.8		298	14.1
60	26	19,337	-52.8		320	9.9
50	25	20,512	-52.4		345	7.1
40	24	21,956	-51.9		19	6.9
30	22	23,822	-51.8		44	11.6
25	22	25,003	-51.7		48	14.7
20	20	26,461	-51.6		45	16.7
15	10	28,329	-51.7			

SWAN ISLAND, W. I. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	10	25.3	81	88	11.6
1,000	28	137	24.1	81	86	13.7
950	28	584	20.3	81	98	16.5
900	28	1,050	17.0	76	104	18.8
850	28	1,536	13.7	39	105	17.8
800	27	2,047	10.9	66	108	17.0
750	27	2,587	9.7	43	106	16.3
700	27	3,156	8.2		112	14.1
650	27	3,763	5.5		115	15.3
600	27	4,416	1.9		120	16.1
550	27	5,108	-2.3		122	15.1
500	27	5,863	-7.4		121	12.2
450	27	6,670	-13.1		110	6.8
400	27	7,564	-19.9		62	3.3
350	27	8,540	-27.3		302	4.2
300	27	9,631	-35.9		264	12.0
250	27	10,873	-44.8		254	22.1
200	26	12,337	-54.2		248	28.5
175	25	13,179	-60.1		251	26.0
150	24	14,128	-66.4		253	18.0
125	24	15,215	-72.6		261	13.2
100	21	16,509	-78.9		312	6.8
80	20	17,774	-80.8		60	6.4
60	19	19,423	-71.9		80	7.3
50	19	20,520	-64.4		74	8.9
40	19	21,899	-60.4		87	9.3
30	17	23,700	-56.5		71	13.7
25	15	24,849	-54.2		91	13.6
20	13	26,289	-52.2		87	9.9
15	12	28,152	-48.3			
10	5	30,866	-43.1			

TAMPA, FLA. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	8	16.5	92	80	2.5
1,000	28	170	16.8	86	114	4.8
950	28	611	16.3	82	186	6.0
900	28	1,068	14.4	78	221	9.5
850	28	1,549	11.8	75	226	11.8
800	28	2,056	10.0	58	234	13.2
750	28	2,594	7.8	53	237	17.0
700	28	3,158	4.8	50	245	21.3
650	28	3,759	1.7	47	246	25.2
600	28	4,401	-2.2	42	250	27.5
550	28	5,084	-6.1		253	31.4
500	28	5,829	-10.7		257	34.7
450	28	6,629	-16.6	32	257	40.8
400	28	7,507	-23.2	33	257	42.3
350	28	8,471	-30.5		260	44.1
300	27	9,548	-39.0		266	47.6
250	27	10,774	-48.5		269	42.5
200	27	12,214	-56.3			
175	27	13,058	-59.0			
150	27	14,015	-63.5			
125	27	15,119	-69.3			
100	27	16,434	-74.5			
80	26	17,727	-75.4			
60	26	19,416	-68.7			
50	25	20,520	-64.2			
40	21	21,896	-61.2			
30	20	23,703	-57.5			
25	19	24,861	-55.2			
20	18	26,289	-53.9			
15	15	28,145	-52.0			
10	5	30,837	-45.6			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

FEBRUARY 1959

Standard pressure surface (mb)	TATOOSH IS., WASH. (1010 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	31	5.6	85	123	8.3
1,000--	28	114			147	7.1
950----	28	530	2.4	80	148	9.9
900----	28	967	.2	79	191	9.1
850----	28	1,423	- 2.2	78	218	8.7
800----	28	1,902	- 4.8	78	242	11.2
750----	28	2,403	- 7.7	76	238	12.0
700----	28	2,942	-10.5	68	264	9.5
650----	28	3,503	-13.7	65	273	13.7
600----	28	4,113	-17.5	62	270	11.0
550----	28	4,753	-22.0	59	276	12.4
500----	28	5,454	-27.1	54	275	16.3
450----	28	6,195	-32.3	50	272	16.9
400----	28	7,027	-37.8		267	19.8
350----	28	7,936	-43.9		273	22.7
300----	28	8,957	-50.1		275	23.8
250----	28	10,134	-54.9		273	24.6
200----	28	11,556	-55.4		272	22.3
175----	28	12,410	-53.9		271	18.4
150----	28	13,406	-51.5		280	18.6
125----	28	14,589	-52.0		295	16.7
100----	28	16,031	-53.4		291	14.1
80-----	27	17,469	-53.4		292	12.4
60-----	27	19,321	-53.3		308	7.3
50-----	26	20,495	-53.3		321	3.6
40-----	26	21,934	-52.6		357	1.9
30-----	23	23,798	-52.1		52	4.2
25-----	21	24,987	-51.7		39	3.8
20-----	12	26,451	-51.3			
15-----						

Standard pressure surface (mb)	TOPEKA, KANS. (989 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	269	- 3.5	75	267	1.9
1,000--	28	177				
950----	28	583	- 2.7	68	267	5.2
900----	28	1,013	- 1.5	63	277	10.6
850----	28	1,468	- 1.5	57	276	15.7
800----	28	1,951	- 2.6	52	278	18.0
750----	28	2,459	- 4.0	48	276	23.5
700----	28	3,005	- 6.5	45	274	27.7
650----	28	3,573	-10.1	48	277	30.1
600----	28	4,194	-13.8	46	273	35.9
550----	28	4,843	-17.8	44	269	39.8
500----	28	5,557	-22.5		269	43.7
450----	28	6,314	-28.0		267	49.5
400----	28	7,159	-34.1		267	56.1
350----	28	8,081	-40.6		267	61.0
300----	28	9,117	-46.7		264	70.3
250----	28	10,311	-51.7		265	83.7
200----	28	11,750	-53.6		265	84.7
175----	28	12,609	-53.4		266	78.8
150----	28	13,599	-54.7		265	72.0
125----	28	14,762	-56.6		269	58.0
100----	27	16,173	-59.0		270	54.5
80-----	27	17,571	-59.9		270	36.9
60-----	26	19,369	-59.2		277	21.5
50-----	26	20,515	-58.1		290	16.1
40-----	23	21,926	-57.5		316	9.1
30-----	22	23,749	-56.1		355	7.5
25-----	19	24,918	-55.3		40	6.8
20-----	18	26,352	-53.9		23	9.1
15-----	12	28,210	-52.1			

Standard pressure surface (mb)	WASHINGTON, D. C. (1010 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	88	- 0.4	73	264	2.3
1,000--	28	166			284	2.3
950----	28	577	- .2	59	275	12.0
900----	28	1,010	- 1.1	56	282	17.8
850----	28	1,466	- 2.0	51	281	22.7
800----	28	1,947	- 3.2	48	281	28.1
750----	28	2,456	- 4.8	48	279	33.6
700----	28	2,998	- 7.1	46	276	35.5
650----	28	3,569	-10.3	46	271	43.1
600----	28	4,186	-13.7	46	274	49.5
550----	28	4,838	-17.6	47	273	54.5
500----	28	5,551	-21.6		274	60.4
450----	28	6,315	-26.7		272	68.3
400----	28	7,163	-32.2	40	277	73.0
350----	28	8,093	-38.5		278	75.9
300----	28	9,138	-45.0		275	89.3
250----	28	10,337	-51.8		272	99.8
200----	27	11,768	-56.1		275	97.5
175----	27	12,620	-55.2		277	89.1
150----	26	13,600	-56.6			
125----	25	14,747	-58.8			
100----	25	16,141	-60.6			
80-----	25	17,530	-61.0		278	36.1
60-----	23	19,326	-58.8		278	19.6
50-----	22	20,474	-57.8		277	10.8
40-----	22	21,886	-56.7		317	8.3
30-----	21	23,721	-55.4		15	4.4
25-----	19	24,894	-54.0		33	5.0
20-----	16	26,334	-52.2		58	10.1
15-----	11	28,203	-51.4			

Standard pressure surface (mb)	WINNEMUCCA, NEV. (868 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,310	- 4.0	81	118	0.9
1,000--	28	177				
950----	28	589				
900----	28	1,023				
850----	28	1,479	.1	66	138	2.3
800----	28	1,964	- 1.8	60	221	5.4
750----	28	2,471	- 5.0	58	242	9.7
700----	28	3,014	- 8.4	53	259	9.9
650----	28	3,579	-11.9	54	269	14.5
600----	28	4,194	-15.5	54	271	16.5
550----	28	4,841	-19.6	52	272	18.8
500----	28	5,548	-24.4	50	277	21.1
450----	28	6,300	-29.8	46	279	22.3
400----	28	7,138	-35.9		279	23.7
350----	28	8,052	-42.7		286	27.9
300----	28	9,077	-49.8		297	29.9
250----	28	10,254	-54.8		285	36.3
200----	27	11,675	-55.3		285	32.4
175----	27	12,528	-54.3		282	32.2
150----	27	13,517	-53.9		278	32.2
125----	26	14,688	-54.5		276	28.3
100----	24	16,115	-55.1		273	23.1
80-----	23	17,541	-56.6		275	13.0
60-----	22	19,364	-56.4		278	5.8
50-----	22	20,522	-55.9		330	2.9
40-----	21	21,948	-55.3		56	4.8
30-----	19	23,781	-55.0		75	10.6
25-----	19	24,946	-54.6		71	14.3
20-----	12	26,372	-54.1			
15-----						

Standard pressure surface (mb)	YAKUTAT, ALASKA (1009 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	12	- 3.6	87	104	2.7
1,000--	28	82			98	1.9
950----	28	491	- .4	66	87	5.0
900----	28	924	- 2.9	66	88	4.0
850----	28	1,375	- 5.7	66	103	1.1
800----	28	1,848	- 8.6	64	288	1.5
750----	28	2,339	-11.6	62	264	4.6
700----	28	2,871	-14.6	61	279	6.6
650----	28	3,424	-18.0	57	268	6.9
600----	28	4,024	-21.5	55	262	8.7
550----	28	4,655	-25.4	51	276	9.5
500----	28	5,346	-29.9	49	273	12.2
450----	28	6,083	-34.8		266	11.2
400----	28	6,903	-40.4		278	13.6
350----	28	7,802	-46.4		281	11.8
300----	27	8,807	-51.4		280	16.5
250----	26	9,985	-54.4			
200----	26	11,419	-52.3			
175----	26	12,287	-50.3			
150----	26	13,296	-49.6			
125----	26	14,491	-49.4			
100----	26	15,953	-49.7			
80-----	25	17,411	-49.8			
60-----	23	19,293	-49.9			
50-----	23	20,485	-49.8			
40-----	22	21,953	-49.5			
30-----	21	23,838	-49.3			
25-----	21	25,034	-49.2			
20-----	17	26,492	-49.1			
15-----	12	28,382	-49.4			

Standard pressure surface (mb)	YUCCA FLAT, NEV (881 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,196	- 0.5	71	229	0.7
1,000--	28	165				
950----	28	579				
900----	28	1,019				
850----	28	1,483	2.8	53	343	1.1
800----	28	1,972	.0	52	223	1.3
750----	28	2,485	- 2.8	51	236	3.1
700----	28	3,031	- 5.5	45	257	8.1
650----	28	3,601	- 8.7	38	267	12.2
600----	28	4,225	-12.5	33	263	15.9
550----	28	4,876	-17.1	33	262	20.5
500----	28	5,592	-21.9		265	23.8
450----	28	6,351	-27.4		265	27.7
400----	28	7,197	-33.8		263	30.1
350----	28	8,121	-40.4		269	35.1
300----	28	9,158	-46.7		271	38.8
250----	28	10,351	-52.8		269	44.8
200----	28	11,778	-55.6		271	43.1
175----	28	12,631	-54.8		270	44.3
150----	28	13,618	-54.5		271	41.9
125----	26	14,786	-56.0		272	33.0
100----	17	16,204	-59.1			

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun. FEBRUARY 1959

Sun's zenith distance

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
				MADISON, WIS.					
Air mass	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Feb.									
2	----	----	----	S 1.42	S 1.39	S 1.38	----	----	----
5	----	S 1.12	S 1.30	----	----	----	----	----	----
6	----	S 1.16	S 1.30	----	----	----	----	----	----
11	I 0.37	I .67	I .79	KM 1.24	S 1.31	----	----	----	----
19	S 1.05	S 1.15	S 1.29	S 1.43	S 1.49	S 1.44	S 1.29	S 1.16	S 1.05
20	S 1.04	S 1.13	M 1.20	M 1.40	M 1.38	M 1.37	M 1.22	.99	.91
21	S .99	S 1.11	S 1.23	S 1.39	S 1.46	S 1.38	S 1.21	S 1.09	S .95
23	----	----	----	----	M 1.45	S 1.40	S 1.24	S 1.03	S .91
24	S 1.02	S 1.13	S 1.26	S 1.44	S 1.51	S 1.37	M 1.18	M 1.07	----
25	----	----	----	I 1.02	----	----	----	----	----
Averages	0.89	1.07	1.20	1.33	1.43	1.39	1.23	1.07	0.95

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
				TUCSON, ARIZ.					
Air mass	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Feb.									
1	1.06	1.16	1.27	----	1.49	----	1.23	1.12	1.02
6	.91	1.01	1.16	1.33	1.44	1.29	1.18	1.10	1.03
10	.96	1.07	1.19	1.36	1.46	1.33	1.20	1.07	.98
19	.91	.97	1.10	----	1.41	1.35	1.19	1.08	.96
20	.95	1.06	1.16	1.35	1.48	1.31	----	----	----
22	.92	1.02	1.15	----	1.45	1.35	1.20	1.08	.98
23	.98	1.06	1.17	----	1.45	1.34	1.18	1.06	.94
24	.92	1.00	1.12	1.27	----	1.25	1.07	.94	.82
26	.92	1.01	1.16	1.33	----	1.34	1.17	1.05	.95
27	.87	.95	1.10	1.29	1.43	1.30	1.13	.99	.89
28	.87	.97	1.10	1.26	1 43	1.32	----	----	----
Averages	0.93	1.03	1.15	1.31	1.45	1.32	1.17	1.05	0.95

* Values corresponding to true solar noon
H Haze
M Moderate haze - indeterminable
S Slight haze - indeterminable
I Intense haze - indeterminable
KM Moderate smoke
† 1.53 gm cal. highest value ever recorded at Blue Hill.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
				BLUE HILL, MASS.					
Air mass	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Feb.									
2	----	----	----	----	1.49	1.44	1.31	1.18	1.06
3	1.14	1.22	1.34	1.46	1.42	1.42	1.23	1.05	.86
5	----	----	H 1.03	H 1.10	H 1.28	H 1.31	H 1.04	H .86	H .75
7	.95	1.04	1.18	1.45	1.37	1.23	1.10	.85	----
8	----	----	----	----	1.36	1.40	1.24	1.13	1.03
20	1.05	1.15	1.27	1.44	† 1.53	1.44	1.25	1.13	1.02
22	1.08	----	1.29	1.45	1.52	1.44	1.30	1.18	1.06
25	1.12	1.22	1.31	1.46	1.53	----	----	----	----
Averages	1.07	1.16	1.24	1.39	1.44	1.38	1.21	1.05	0.96

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
				OMAHA, NEBR.					
Air mass	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Feb.									
1	----	----	----	----	1.16	----	----	----	----
6	----	----	----	M 1.12	1.10	S 1.17	S 0.96	S 0.84	----
10	----	----	----	----	----	H 1.10	S .97	S .82	----
11	0.78	0.92	----	1.23	1.26	H 1.07	S .95	M .67	----
18	----	----	M 1.05	M 1.20	----	----	----	----	----
20	S .77	S .89	S 1.00	S 1.18	S 1.26	----	----	----	----
21	H .58	H .70	H .86	H 1.05	H 1.14	----	----	----	----
23	----	----	----	----	M 1.27	S 1.21	S 1.02	S .87	S 0.82
24	S .73	S .85	S .99	----	H 1.27	S 1.17	----	----	----
25	----	----	----	----	H 1.21	S 1.16	----	----	----
Averages	0.72	0.84	0.98	1.16	1.21	1.15	0.98	0.80	0.82

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
				GUAM, M. I.					
Air mass	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Feb.									
11	----	----	----	----	M 1.35	S 1.14	S 1.02	----	----
18	----	----	S 0.93	----	----	----	----	----	----
20	----	----	----	----	----	S 1.19	----	----	----
25	S 0.83	----	----	S 1.21	----	----	----	----	----

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and average daily totals by weeks of solar and sky radiation plus the radiation reflected from the ground as received on a vertical surface facing south at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25	
Langleys	526	318	550	501	94	28	58	296	583	189	177	341	258	172	31	250	339	584	513	[illegible]	51	71	[illegible]	308
Date	26	27	28	1	2	3	4																	
Langleys	300	265	316	43	166	371	219	240																

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date	5	6	7	8	9	10	11		12	13	14	15	16	17	18		19	20	21	22	23	24	25	
Langleys	48	75	47	51	76	28	64	56	75	126	164	98	92	--	17	96	---	42	80	39	68	117	41	64
Date	26	27	28	1	2	3	4																	
Langleys	170	145	132	41	111	114	94	115																

Note: Langley is the unit used to denote one gram calorie per square centimeter

B FORMAT 6801 (1-57)

SOLAR RADIATION DATA

1959	Albuquerque, N.Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Maine	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Davis, Calif.
Feb. 5------	423	142	437	83	438	9	55	257	302	255	277	374	489	216	258	338	237	157	326
Feb. 6------	424	131	425	142	403	16	34	190	202	159	226	114	337	388	231	(260)	355	347	288
Feb. 7------	277	47	---	201	412	12	47	203	317	87	301	253	599	470	304	384	181	200	162
Feb. 8------	348	49	---	98	40	9	44	161	305	172	274	332	415	335	288	135	147	87	343
Feb. 9------	284	197	193	78	72	8	44	184	107	253	101	395	390	55	246	131	73	25	101
Feb. 10------	431	206	237	112	112	11	--	256	48	99	31	148	386	251	222	348	206	249	42
Feb. 11------	279	41	288	268	128	13	74	271	86	61	68	83	616	248	278	277	260	366	137
Average ------	352	116	316	140	229	11	50	217	195	155	183	243	462	281	261	(268)	208	204	200
Feb. 12------	433	221	438	104	39	10	63	239	319	292	290	265	343	350	288	107	318	133	360
Feb. 13------	267	99	373	58	81	11	77	191	147	328	145	291	465	154	216	92	55	119	343
Feb. 14------	473	213	282	114	158	18	122	241	195	57	210	193	512	167	300	214	47	209	102
Feb. 15------	422	222	403	79	327	16	100	187	227	104	250	183	513	141	270	245	133	260	44
Feb. 16------	216	232	478	61	428	27	62	220	198	60	195	502	648	484	211	406	157	201	334
Feb. 17------	348	292	439	106	326	27	84	273	184	204	186	499	660	279	307	166	95	177	92
Feb. 18------	286	237	146	29	286	23	94	328	28	302	23	447	680	156	146	332	131	376	113
Average ------	349	217	366	79	235	19	86	240	185	192	186	340	546	247	248	223	134	211	198
Feb. 19------	453	239	490	102	388	30	96	329	256	217	264	55	685	439	219	438	306	347	378
Feb. 20------	474	84	171	163	358	33	91	327	379	327	395	56	686	219	310	119	331	422	121
Feb. 21------	108	43	526	263	508	53	143	(329)	355	255	315	71	678	542	257	479	215	400	186
Feb. 22------	495	210	524	142	317	56	119	(330)	393	236	402	357	611	542	376	462	326	34	161
Feb. 23------	508	15	414	278	78	85	118	332	85	188	81	287	243	86	387	278	14	340	417
Feb. 24------	474	85	411	81	372	98	130	340	135	384	136	230	488	506	363	371	173	424	432
Feb. 25------	487	47	56	151	101	70	113	320	415	183	417	172	663	344	357	56	382	240	415
Average ------	428	103	370	169	303	61	116	(330)	288	256	287	175	579	383	324	315	250	315	301
Feb. 26------	507	118	174	8	375	96	---	227	274	252	283	69	182	183	365	214	254	403	418
Feb. 27------	537	35	317	7	214	82	275	349	252	290	191	107	659	42	401	51	264	340	428
Feb. 28------	530	158	135	103	389	105	287	347	274	392	247	496	575	193	343	118	76	413	402
Mar. 1------	527	193	309	333	211	103	293	321	52	350	49	584	677	145	175	354	292	444	427
Mar. 2------	536	103	573	128	530	109	264	358	170	394	179	488	(660)	45	386	113	331	232	439
Mar. 3------	537	61	440	265	224	114	260	196	322	323	282	211	598	562	272	466	202	445	454
Mar. 4------	432	1	402	335	540	116	241	339	197	424	217	311	676	594	97	515	177	343	469
Average ------	515	96	336	168	355	104	270	305	220	346	207	324	(575)	252	292	262	228	374	434

1959	El Paso, Tex.	Ely, Nev.	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.
Feb. 5------	449	369	431	316	395	289	364	238	415	506	202	453	226	435	340	355
Feb. 6------	446	368	462	317	463	163	373	116	427	503	333	457	208	333	316	346
Feb. 7------	330	176	129	76	263	237	343	153	427	474	174	358	227	327	252	318
Feb. 8------	247	189	113	309	75	282	286	284	211	51	66	334	145	155	161	337
Feb. 9------	350	416	117	218	329	---	56	281	60	129	40	480	27	155	201	227
Feb. 10------	459	241	246	60	511	278	384	196	75	146	286	358	31	192	353	379
Feb. 11------	405	161	345	200	408	242	381	170	361	159	364	351	173	25	314	373
Average ------	384	274	263	214	349	248	312	206	282	281	209	399	148	232	277	334
Feb. 12------	441	280	63	238	304	298	297	316	285	54	268	500	347	129	217	362
Feb. 13------	220	477	120	377	417	261	392	300	276	136	38	501	28	216	373	388
Feb. 14------	483	340	244	268	454	322	408	192	69	229	48	391	28	231	375	391
Feb. 15------	469	231	(470)	41	318	200	284	148	318	499	93	177	107	209	203	151
Feb. 16------	477	271	374	273	477	213	142	155	402	653	277	158	121	458	377	132
Feb. 17------	461	446	450	332	290	245	337	140	225	330	203	490	118	414	158	345
Feb. 18------	313	232	401	240	446	349	356	223	179	345	280	463	75	373	351	248
Average ------	409	325	(303)	253	387	270	317	210	251	321	172	383	118	290	293	288
Feb. 19------	487	355	70	240	569	222	288	347	474	385	423	519	274	---	233	201
Feb. 20------	501	338	457	297	398	373	268	344	234	357	439	474	399	433	391	292
Feb. 21------	---	278	104	57	599	---	291	354	488	451	411	109	214	148	403	369
Feb. 22------	458	339	60	360	583	379	208	336	430	290	277	543	400	354	245	200
Feb. 23------	390	331	451	379	562	382	260	360	300	61	37	545	60	57	416	359
Feb. 24------	536	482	205	378	525	377	333	353	473	311	413	545	222	47	423	410
Feb. 25------	533	492	475	403	161	385	459	310	292	82	339	565	446	346	389	431
Average ------	484	374	260	302	485	353	301	344	384	277	334	472	288	231	357	323
Feb. 26------	535	455	235	405	300	291	313	334	415	305	239	561	383	192	319	381
Feb. 27------	534	479	477	389	59	299	415	375	209	166	353	557	251	314	427	287
Feb. 28------	543	494	501	402	100	380	469	331	403	356	48	567	377	426	434	435
Mar. 1------	519	484	538	407	240	259	466	186	285	143	162	536	42	549	442	381
Mar. 2------	545	492	517	401	595	400	439	379	332	481	309	580	160	500	465	467
Mar. 3------	517	497	542	370	474	196	404	107	222	136	257	572	93	526	358	152
Mar. 4------	517	493	73	388	516	351	398	284	529	497	390	599	190	271	404	413
Average ------	530	485	412	395	326	311	415	285	342	298	251	567	214	397	407	359

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

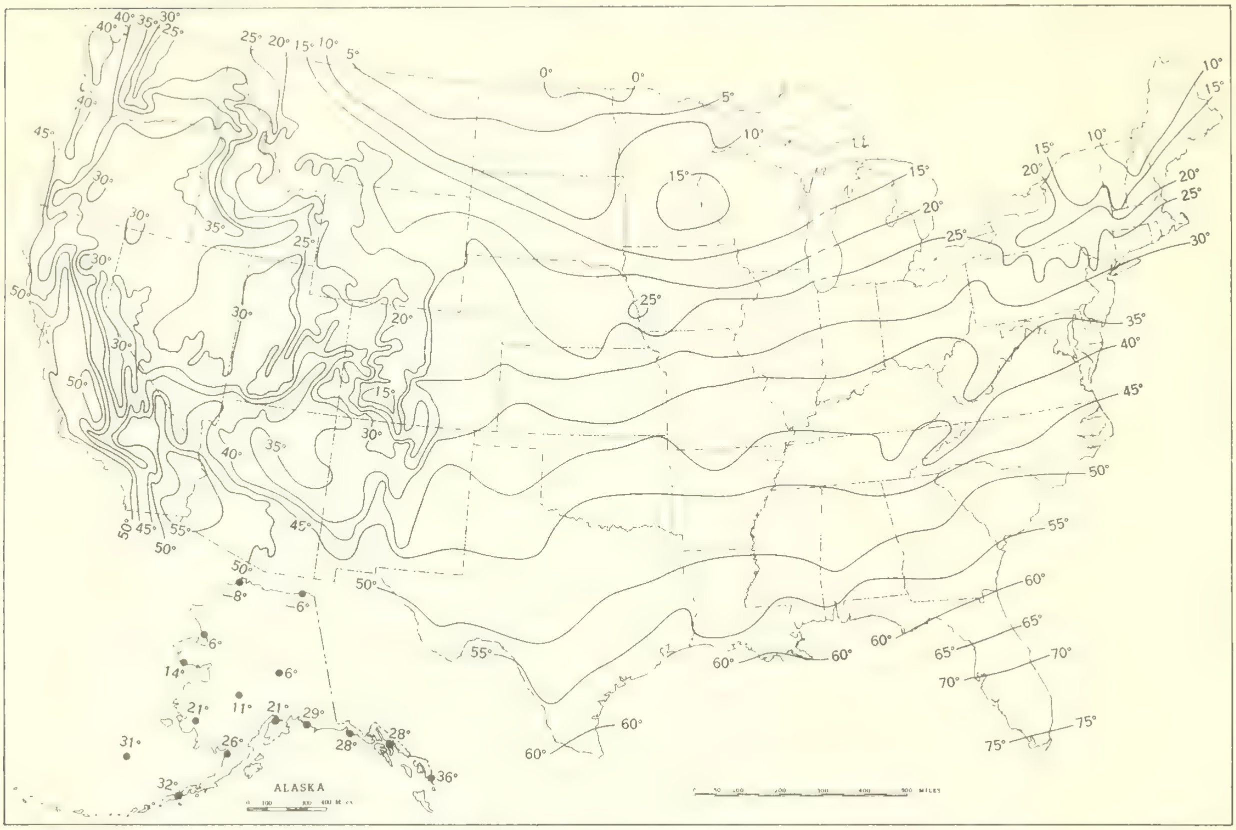
1959	Las Vegas, Nev.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Page, Ariz.
Feb. 5------	397	396	203	345	360	89	400	255	399	355	262	279	242	372	382	431	406
Feb. 6------	397	386	451	199	314	51	310	120	268	---	440	200	309	373	408	469	397
Feb. 7------	386	302	246	79	85	17	596	219	222	307	383	316	303	314	404	472	400
Feb. 8------	195	(80)	52	104	114	36	327	251	398	320	128	281	261	53	88	338	309
Feb. 9------	426	67	231	361	405	139	297	95	461	240	84	108	30	63	59	169	315
Feb. 10------	365	434	272	219	211	15	---	62	498	413	248	27	21	---	106	423	---
Feb. 11------	---	(452)	239	198	177	159	156	235	445	460	356	83	200	---	309	465	---
Average ------	361	(303)	242	215	238	72	348	177	385	349	272	185	195	235	251	395	365
Feb. 12------	224	398	54	373	418	120	---	245	325	311	85	363	274	---	148	218	---
Feb. 13------	435	42	40	362	422	119	---	148	483	205	59	84	109	94	69	199	441
Feb. 14------	298	428	34	293	311	130	665	11	449	458	155	228	44	---	170	355	395
Feb. 15------	216	286	456	118	139	142	670	81	332	472	234	174	133	---	377	441	244
Feb. 16------	303	200	289	84	41	144	667	173	350	464	344	148	233	---	322	402	303
Feb. 17------	401	99	427	252	167	172	587	237	499	469	343	251	190	---	268	376	390
Feb. 18------	337	408	268	335	286	67	631	77	482	448	126	27	81	---	185	329	366
Average ------	316	266	224	260	255	128	644	139	417	404	192	182	152	---	220	331	357
Feb. 19------	439	241	270	400	399	90	599	164	354	109	416	338	410	---	400	164	467
Feb. 20------	347	432	493	275	243	55	536	51	307	59	475	418	420	---	410	349	364
Feb. 21------	197	422	409	142	118	131	---	162	381	67	428	366	373	405	455	197	310
Feb. 22------	394	62	37	464	414	130	---	232	503	326	126	425	427	81	190	74	196
Feb. 23------	424	480	491	448	445	81	693	221	505	436	318	77	27	449	117	505	394
Feb. 24------	475	475	426	431	404	90	692	309	548	450	500	134	339	448	457	433	442
Feb. 25------	485	428	492	479	465	115	561	201	558	484	397	439	397	435	317	495	491
Average ------	394	363	374	377	355	99	616	191	451	276	380	314	342	364	335	317	380
Feb. 26------	481	449	423	476	467	173	691	244	376	316	462	312	278	406	426	543	489
Feb. 27------	469	491	375	446	448	138	703	265	421	532	308	264	276	429	301	392	486
Feb. 28------	489	---	302	452	459	136	714	369	468	532	213	382	223	447	314	451	511
Mar. 1------	477	483	492	419	408	182	715	377	110	546	312	30	33	425	95	---	513
Mar. 2------	494	510	498	382	393	106	695	391	507	457	503	230	173	382	474	---	516
Mar. 3------	503	496	541	300	412	200	657	(383)	516	558	395	399	355	444	219	---	540
Mar. 4------	531	29	409	475	468	114	735	(392)	339	393	530	354	353	69	488	---	577
Average ------	492	410	434	421	436	150	702	(346)	391	476	389	281	242	372	331	---	519

1959	Portland, Maine	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	* St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Sayville, N. Y.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Silver Hill Obs.)
Feb. 5------	193	84	285	384	226	433	265	181	312	260	48	416	81	185	---	175	439	579	347
Feb. 6------	212	185	302	380	268	390	146	239	286	224	121	401	250	331	---	297	440	575	364
Feb. 7------	304	298	147	102	241	133	140	127	364	239	226	248	201	304	---	90	270	506	367
Feb. 8------	320	126	247	67	105	88	310	242	328	317	46	66	109	113	---	313	160	582	178
Feb. 9------	170	222	108	441	247	100	303	96	75	32	87	120	167	26	---	335	321	604	41
Feb. 10------	58	279	366	282	100	323	87	103	26	41	90	157	244	56	---	---	---	385	90
Feb. 11------	111	107	331	102	273	151	223	254	242	346	(133)	101	286	263	---	357	409	583	313
Average ------	196	186	255	251	209	231	211	178	233	208	(107)	215	191	183	---	261	340	545	243
Feb. 12------	312	273	349	289	298	172	350	207	420	159	176	76	139	347	---	397	461	582	379
Feb. 13------	232	290	125	460	288	96	355	269	87	124	28	150	285	32	---	449	345	503	217
Feb. 14------	270	68	379	396	231	380	263	76	100	133	37	30	105	16	---	434	462	497	28
Feb. 15------	267	153	181	172	200	481	---	---	236	159	128	436	127	157	---	459	426	612	235
Feb. 16------	234	113	233	217	306	483	---	---	273	260	51	404	97	255	---	292	301	596	317
Feb. 17------	---	173	298	318	251	483	252	260	260	143	252	454	269	105	---	287	254	368	217
Feb. 18------	193	154	395	308	362	460	193	333	117	90	73	320	150	49	350	484	270	595	130
Average ------	251	175	280	309	276	365	282	229	213	152	106	267	168	137	---	400	360	536	218
Feb. 19------	274	182	369	399	360	110	364	325	461	361	53	144	180	279	75	478	497	619	431
Feb. 20------	299	327	397	335	356	130	344	309	467	377	229	492	286	276	388	309	500	597	291
Feb. 21------	299	377	403	81	350	52	232	331	413	266	260	285	349	294	139	518	121	633	434
Feb. 22------	415	46	276	432	267	145	457	168	494	393	82	212	155	360	---	506	518	634	410
Feb. 23------	135	123	418	497	347	378	487	148	81	63	104	421	129	84	---	521	525	615	152
Feb. 24------	231	265	410	457	353	99	474	345	309	247	64	416	231	239	377	407	525	537	308
Feb. 25------	429	89	273	524	82	269	498	286	480	404	184	492	104	422	366	329	525	599	422
Average ------	297	201	364	389	302	169	408	273	386	302	139	352	205	279	269	438	459	605	350
Feb. 26------	393	254	240	514	117	90	490	152	361	317	149	216	272	348	407	306	535	504	355
Feb. 27------	269	144	382	485	113	440	488	337	309	238	141	484	299	359	191	64	536	633	282
Feb. 28------	112	110	422	509	354	527	497	65	391	357	69	237	113	359	245	74	532	575	397
Mar. 1------	138	253	307	460	239	544	488	316	48	289	306	521	285	82	440	126	478	529	223
Mar. 2------	242	258	424	432	243	534	457	110	273	242	124	483	239	450	431	586	---	521	212
Mar. 3------	379	372	243	505	387	554	502	182	475	308	234	539	---	89	443	530	519	577	388
Mar. 4------	207	416	411	554	308	142	521	299	406	204	335	304	377	300	190	553	554	644	469
Average ------	249	258	347	494	252	404	492	209	323	279	194	398	264	284	335	320	526	569	332

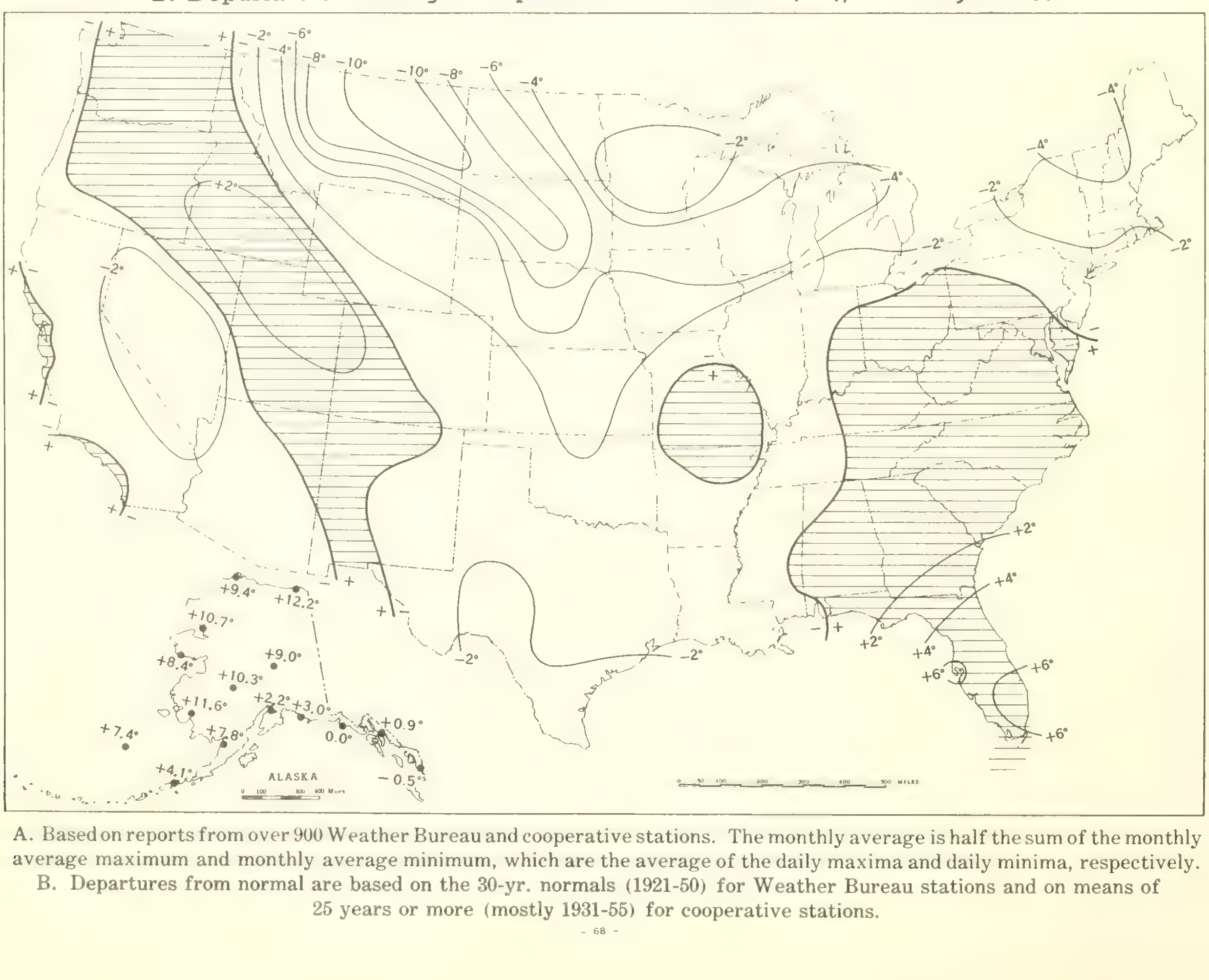
Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

* The daily total solar radiation for Saint Cloud, Minnesota, should be reduced by 2% from July 1, 1957, through January 1959.

Chart I. A. Average Temperature (°F.) at Surface, February 1959.

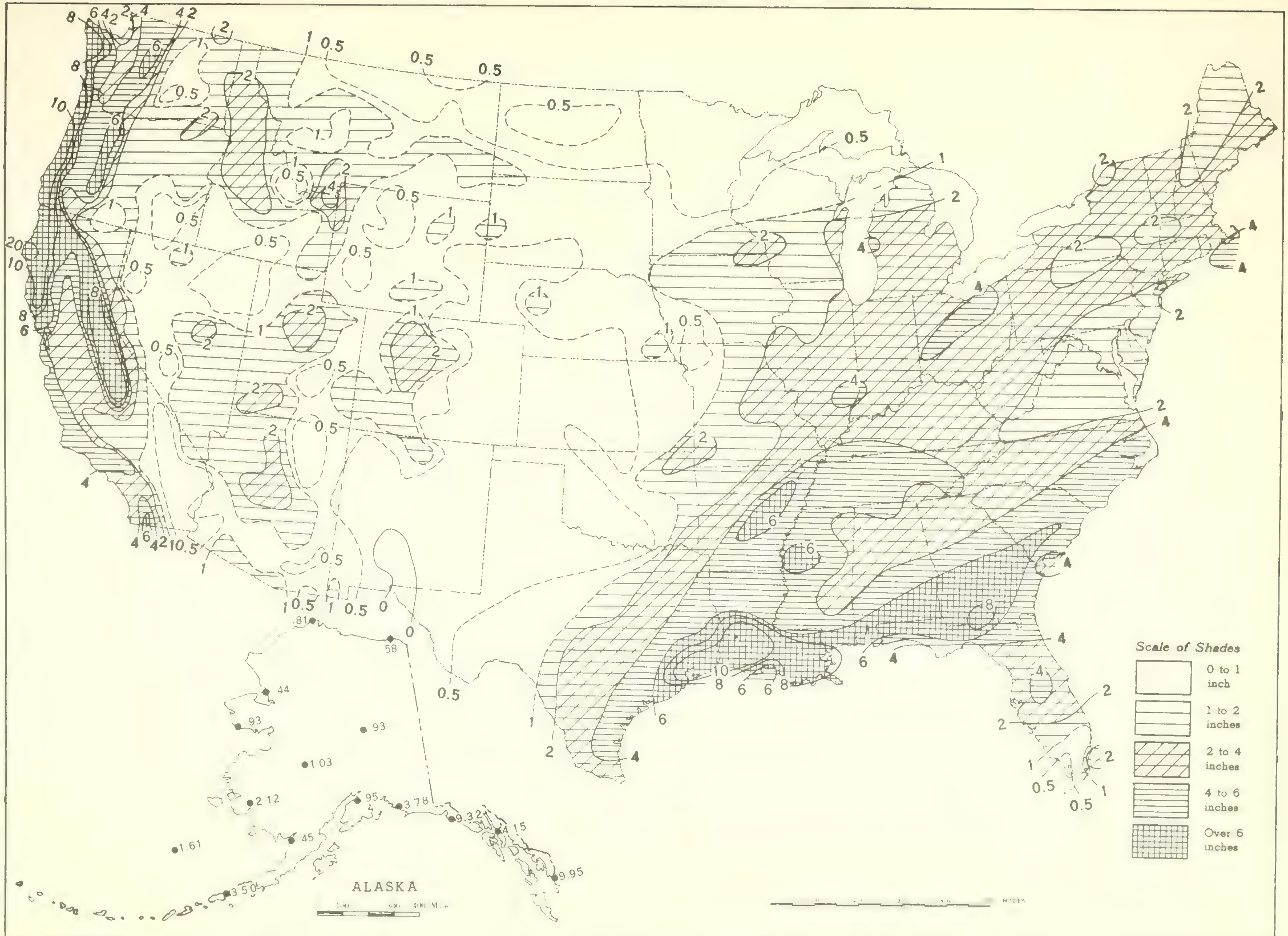


B. Departure of Average Temperature from Normal (°F.), February 1959.



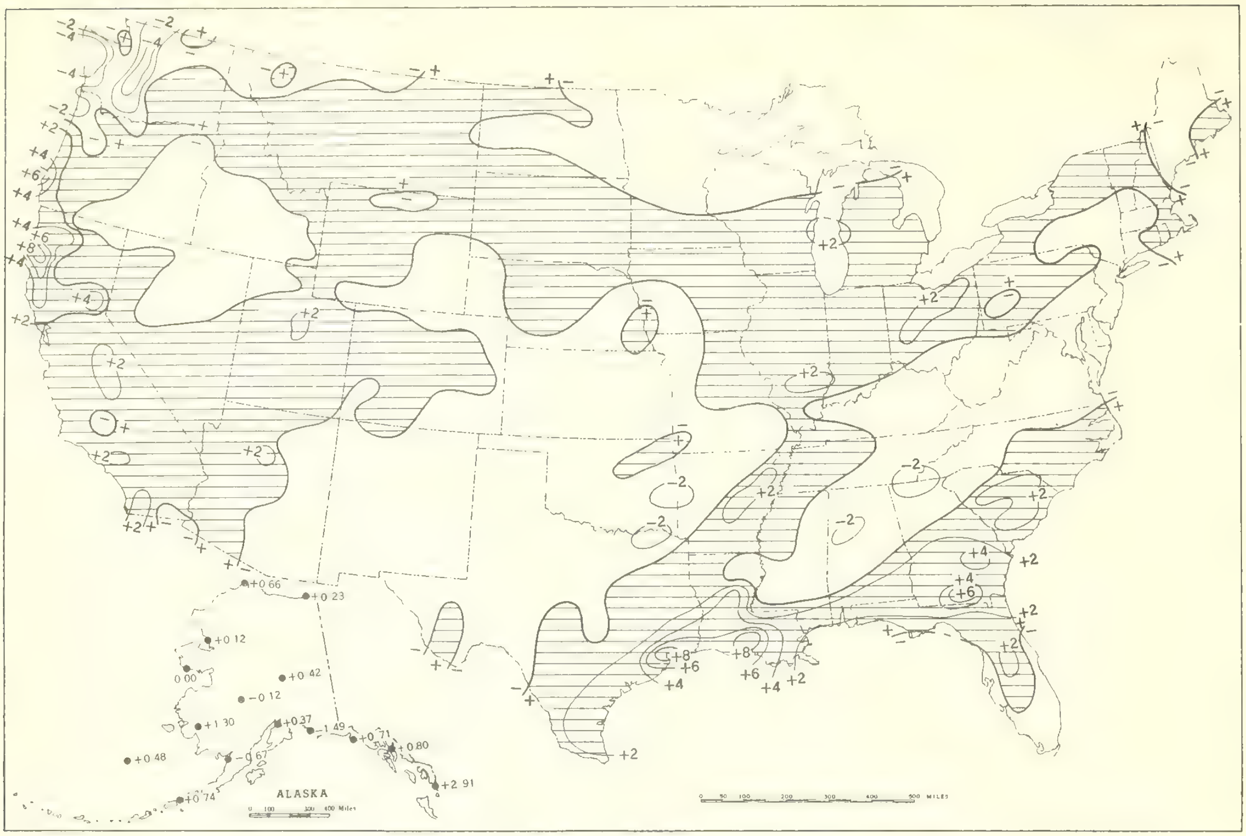
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), February 1959.

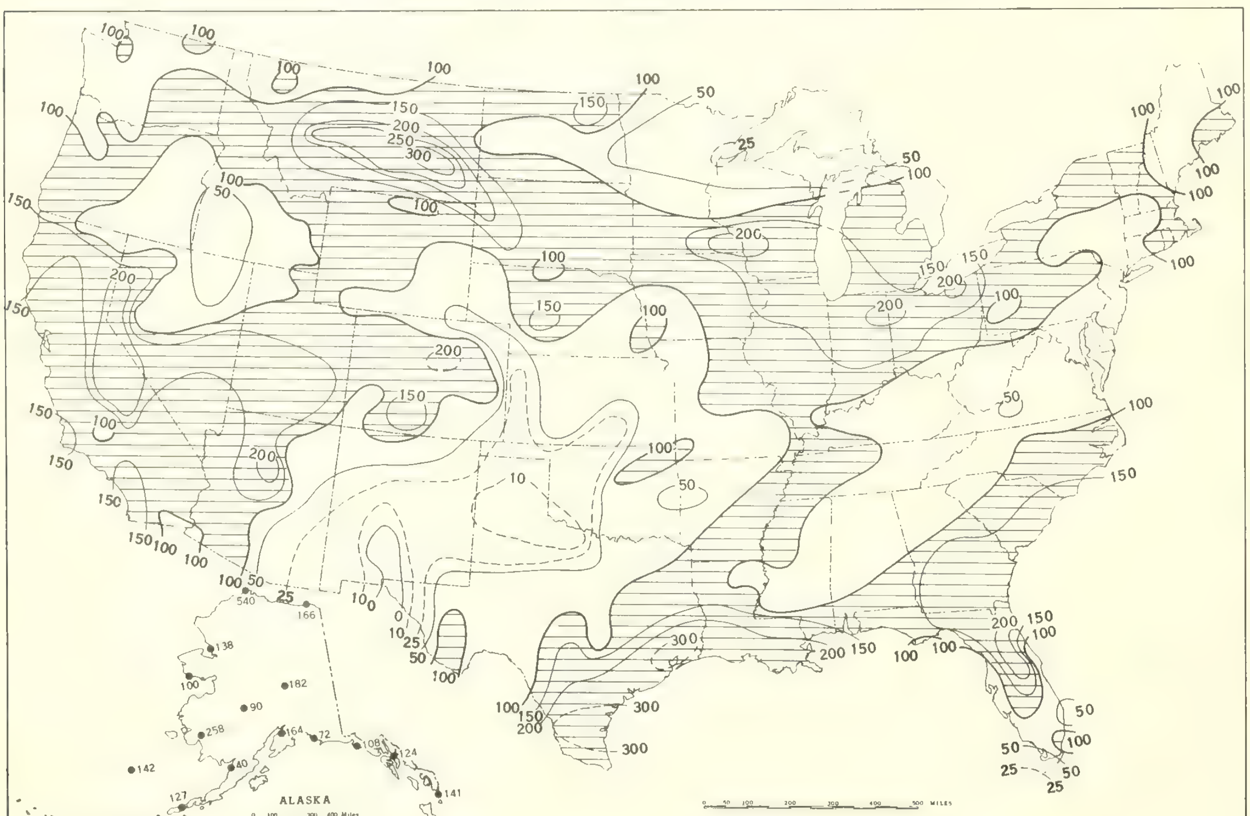


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations

Chart III. A. Departure of Precipitation from Normal (Inches), February 1959.

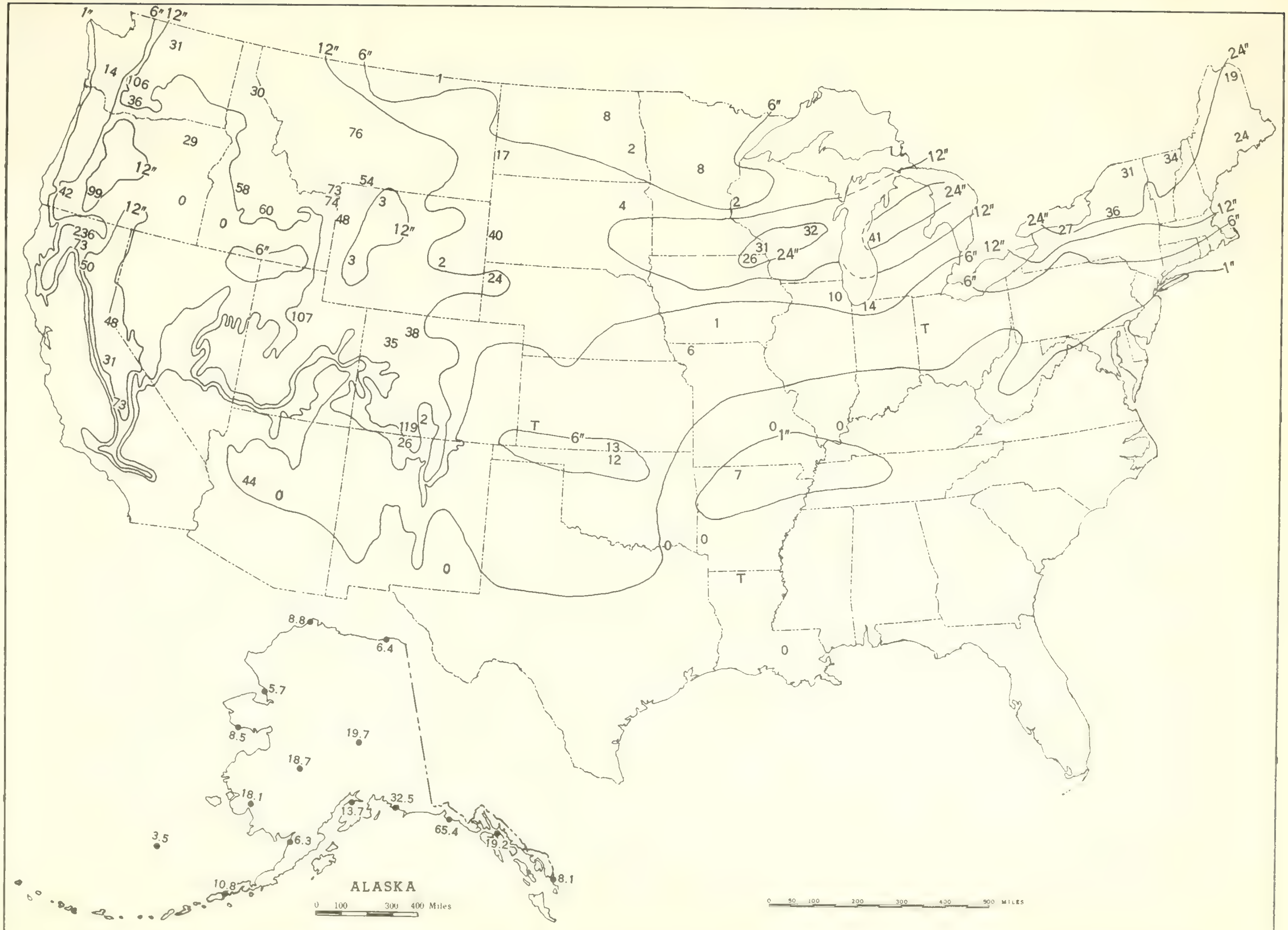


B. Percentage of Normal Precipitation, February 1959.



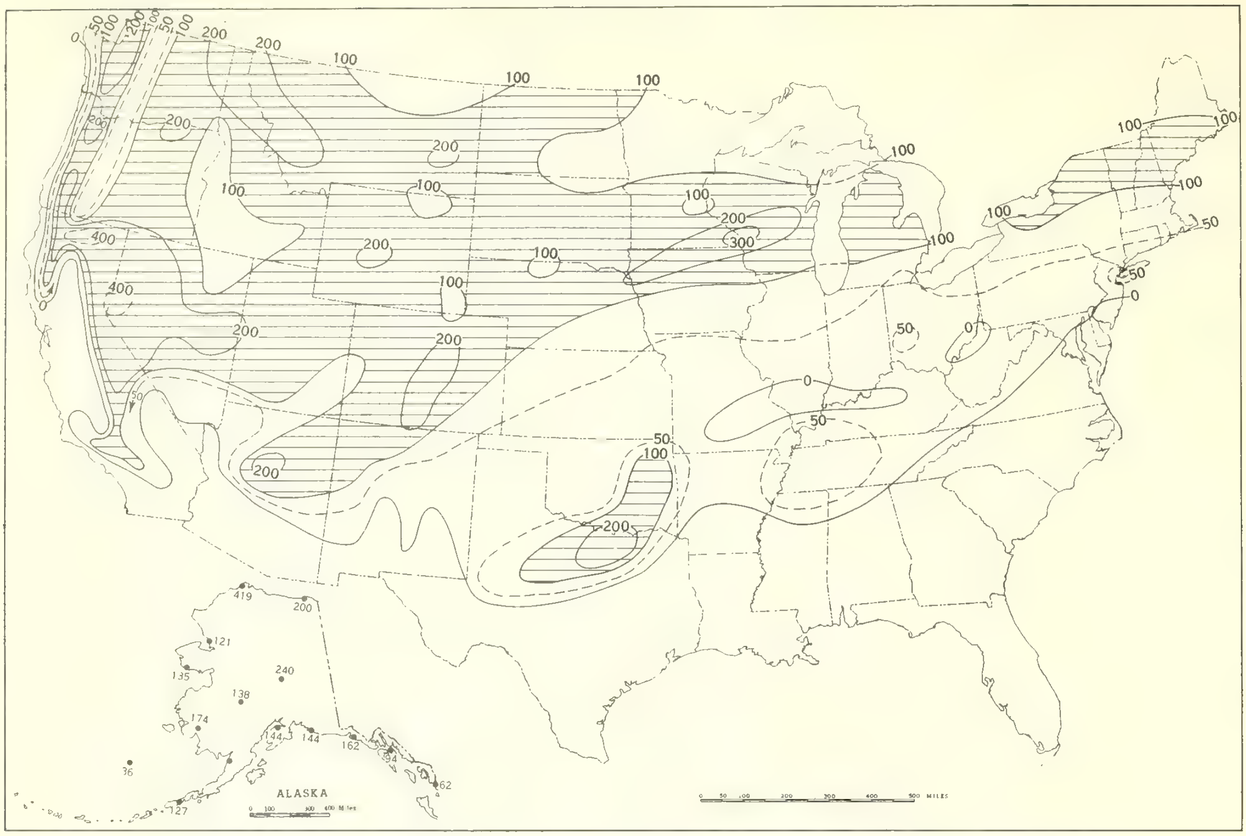
Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), February 1959.

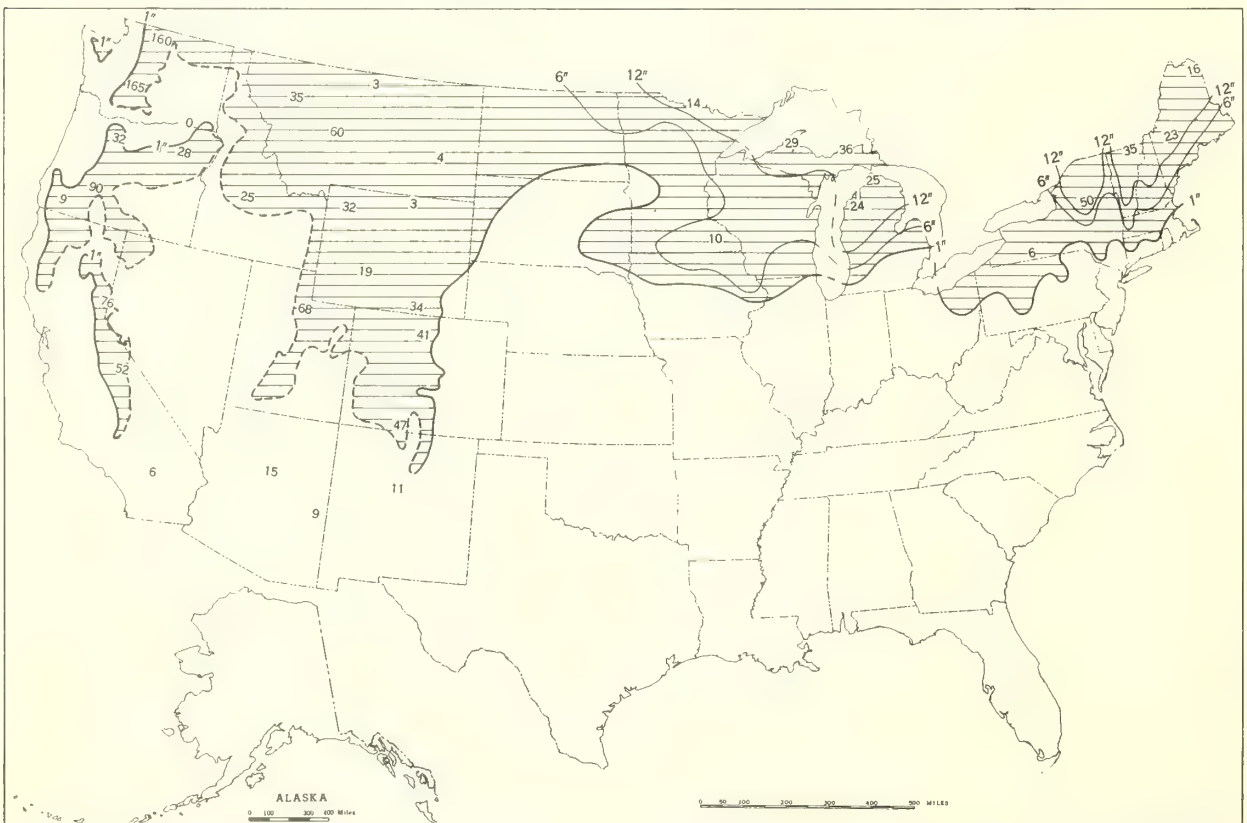


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, February 1959.

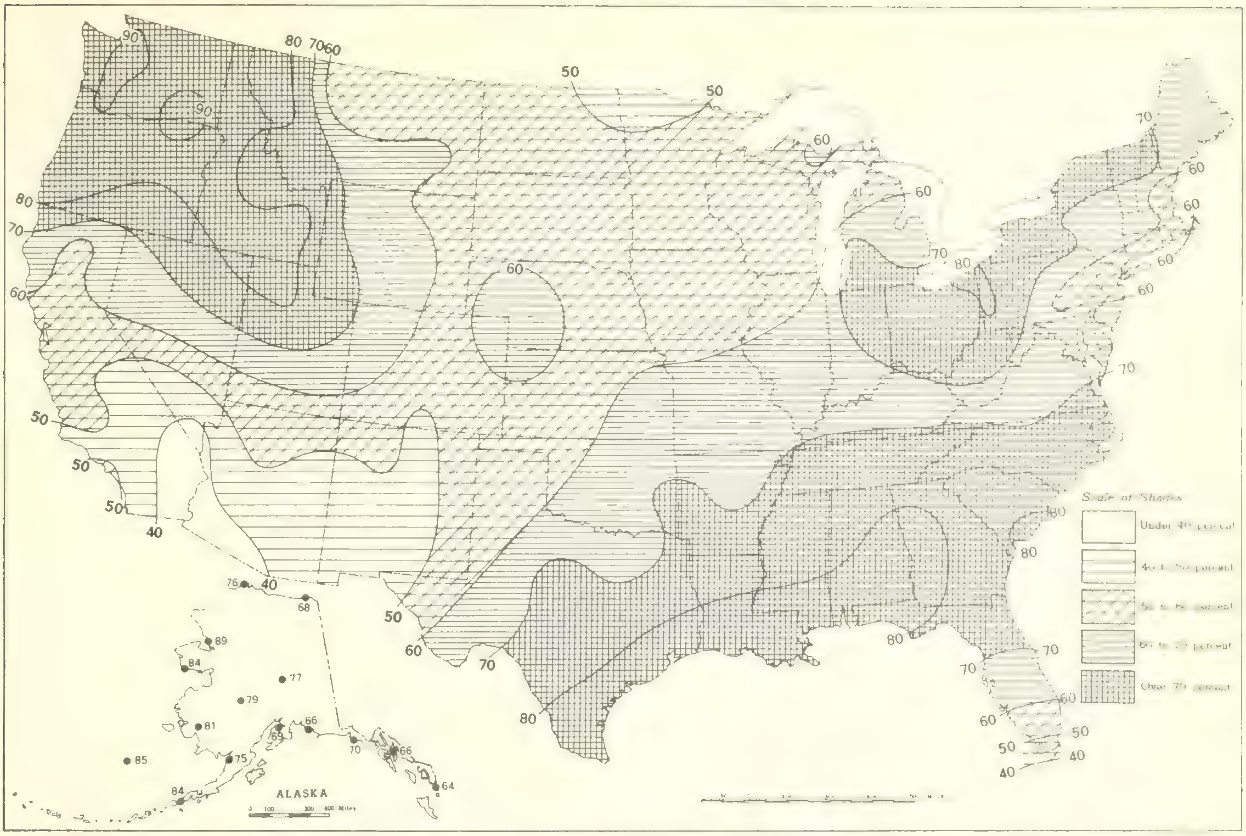


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., March 2, 1959.

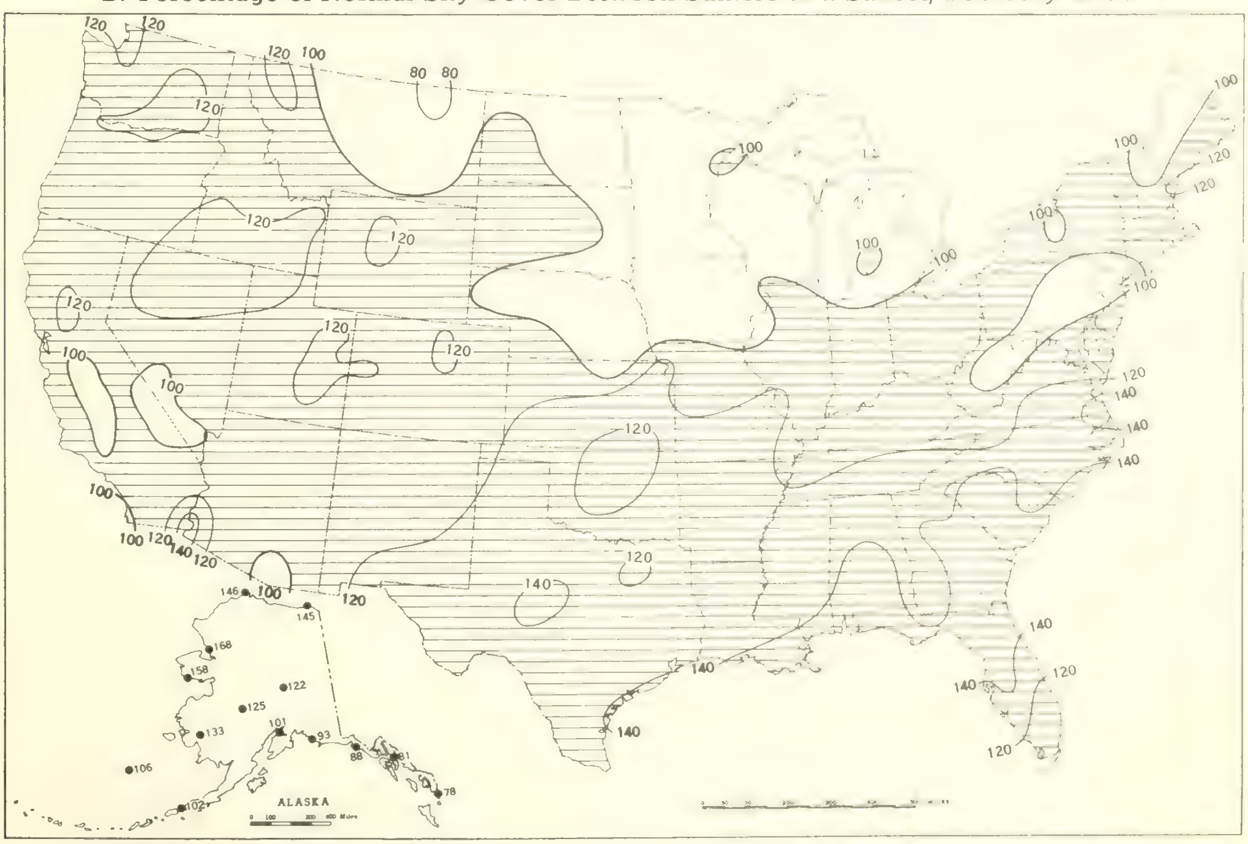


A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
B. Shows depth currently on ground at 7:00 a.m. E.S.T., of the Monday nearest the end of the month.
It is based on reports from Weather Bureau and cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, February 1959.

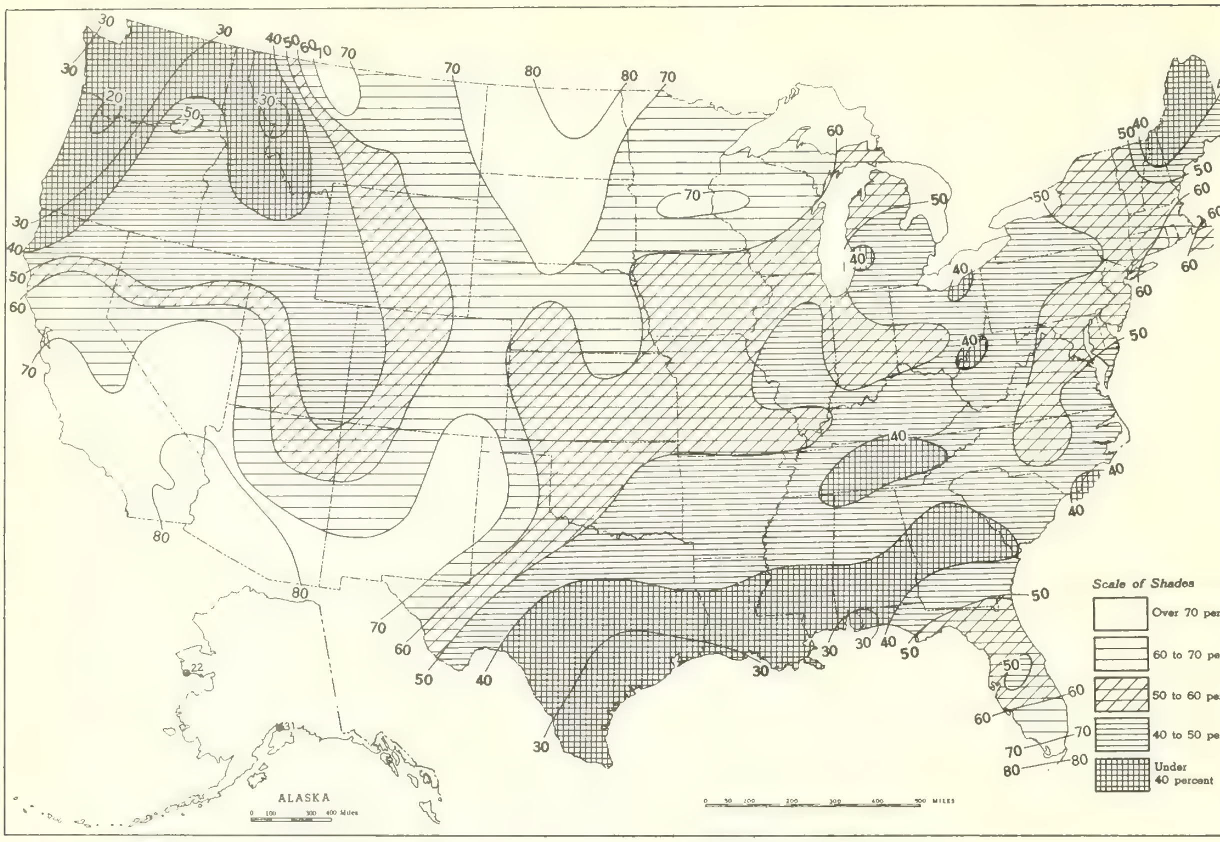


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, February 1959.

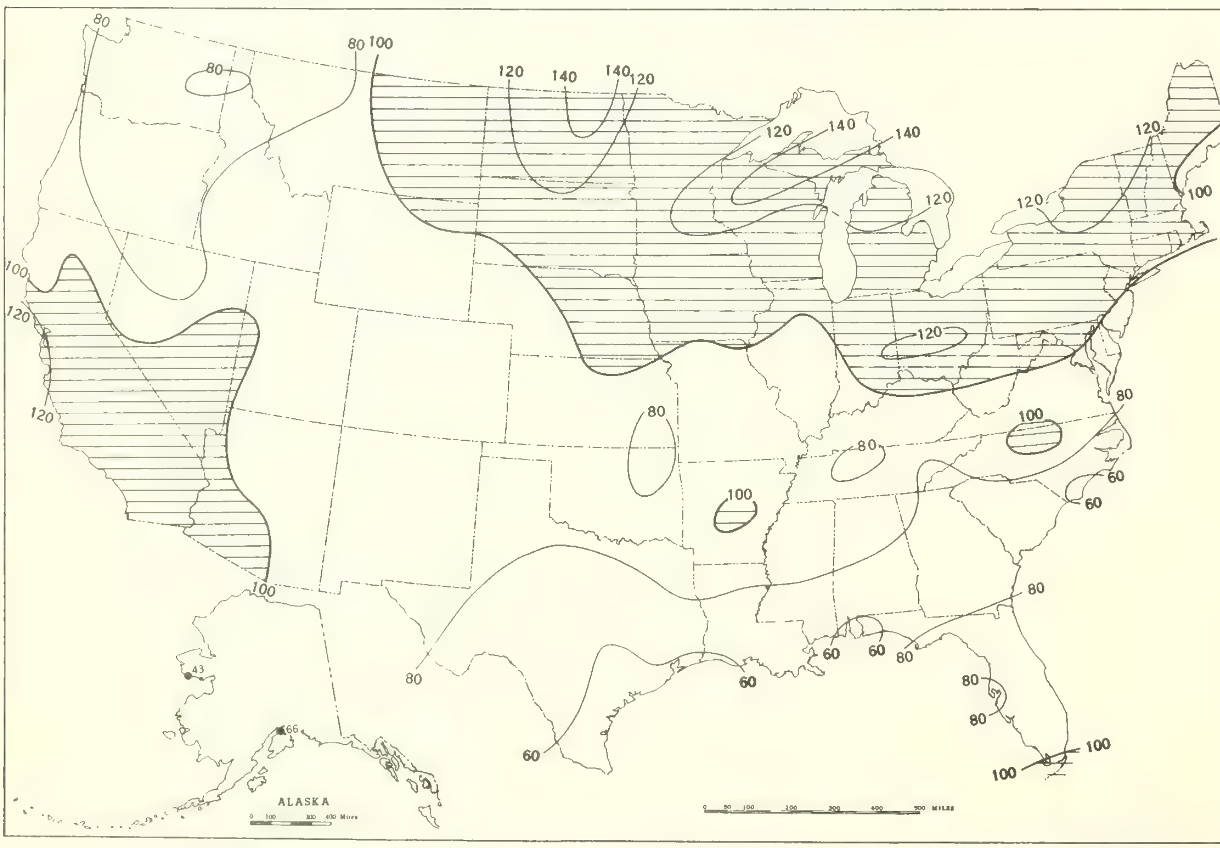


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, February 1959.

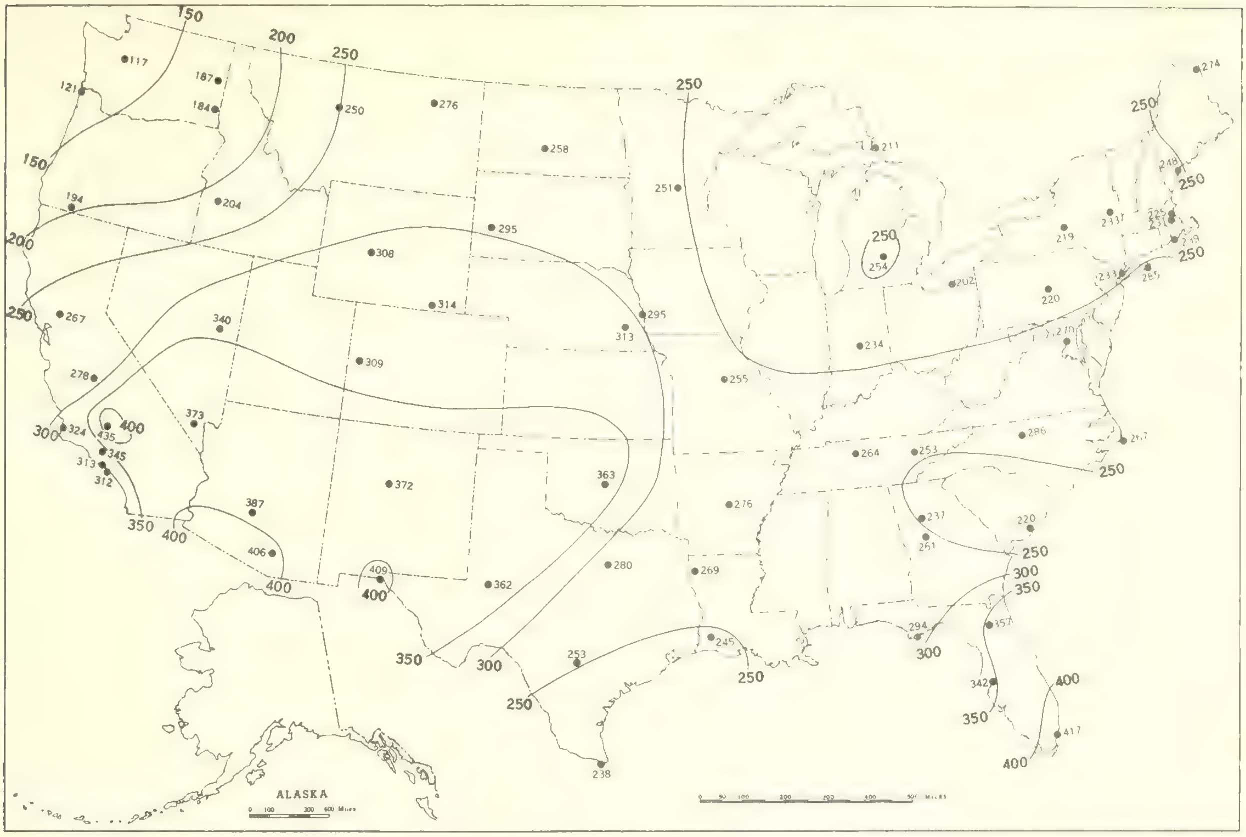


B. Percentage of Normal Sunshine, February 1959.

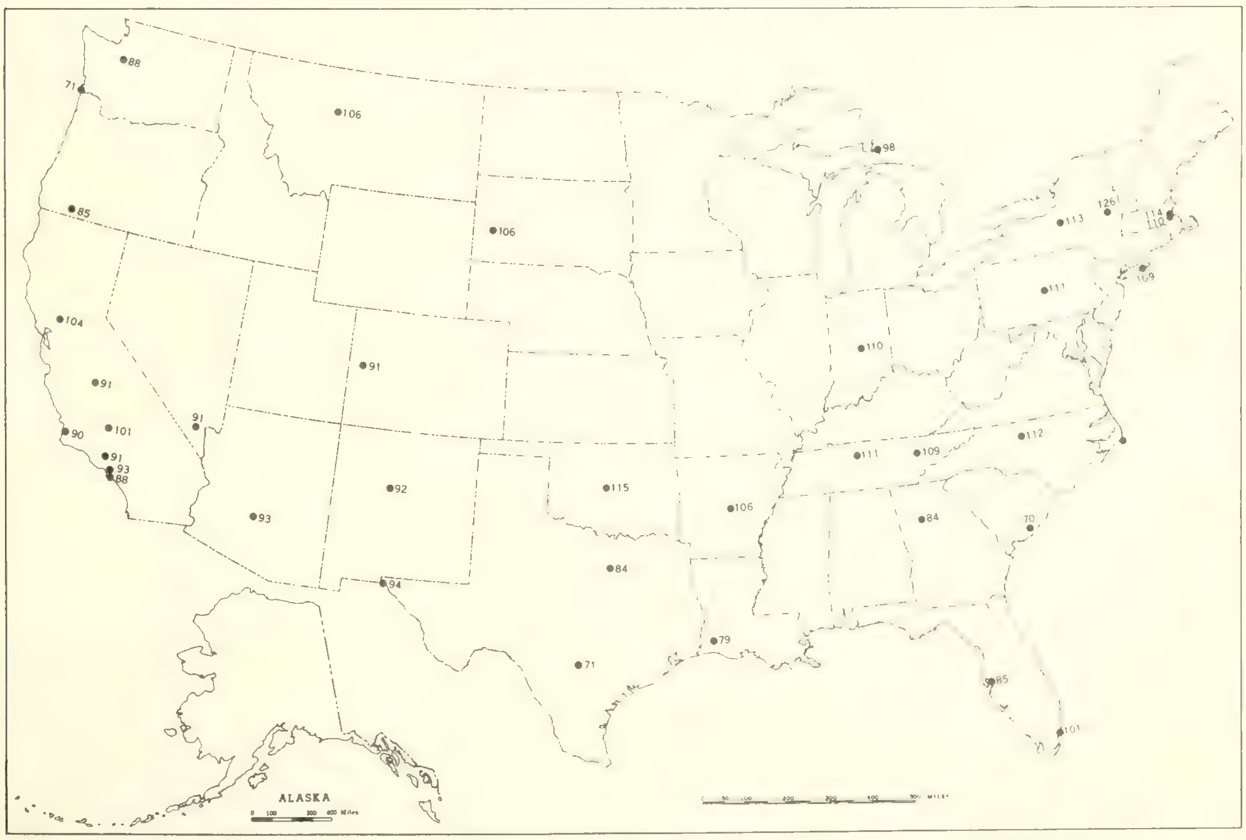


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, February 1959.



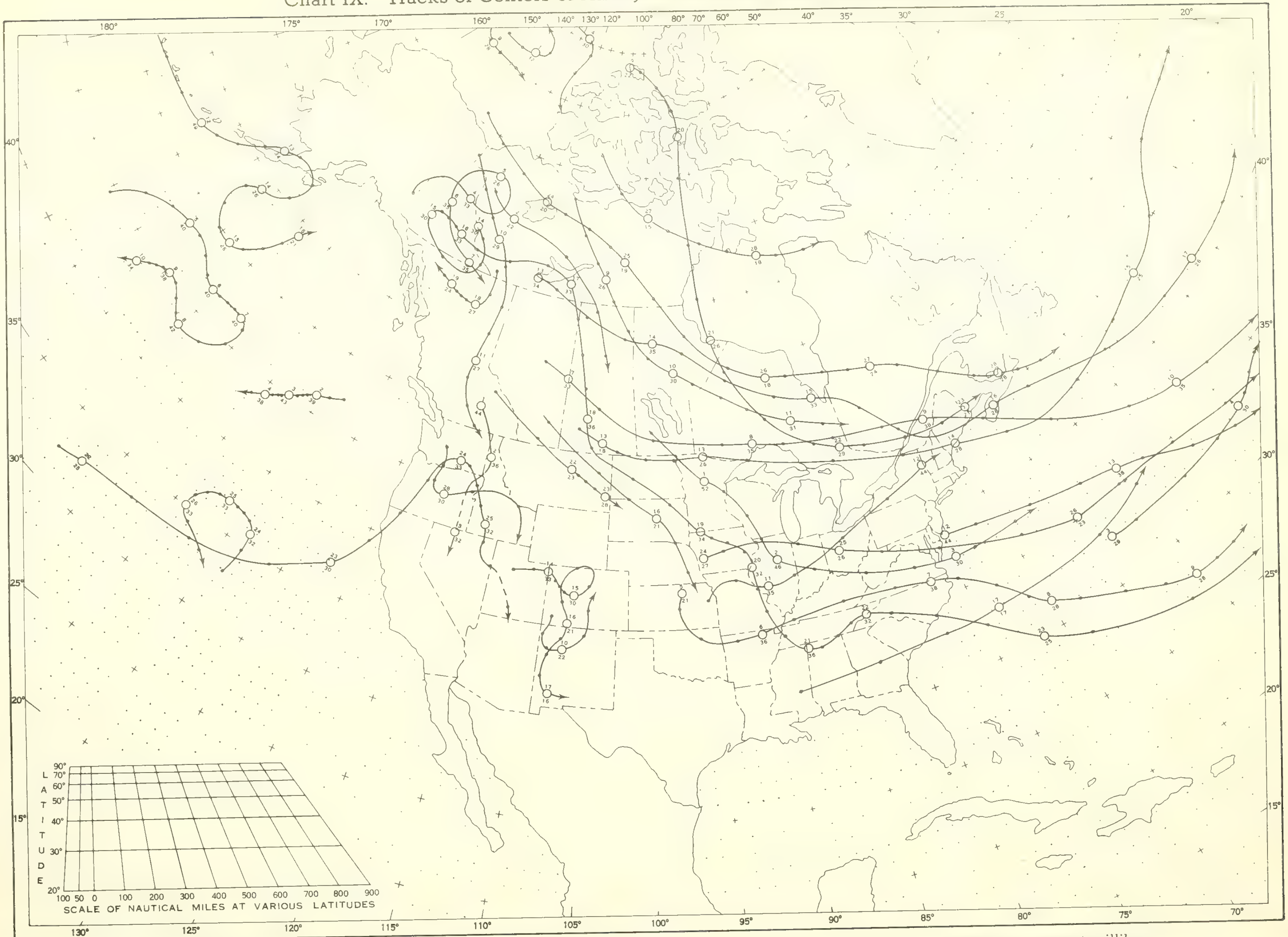
B. Percentage of Mean Daily Solar Radiation, February 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.$^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

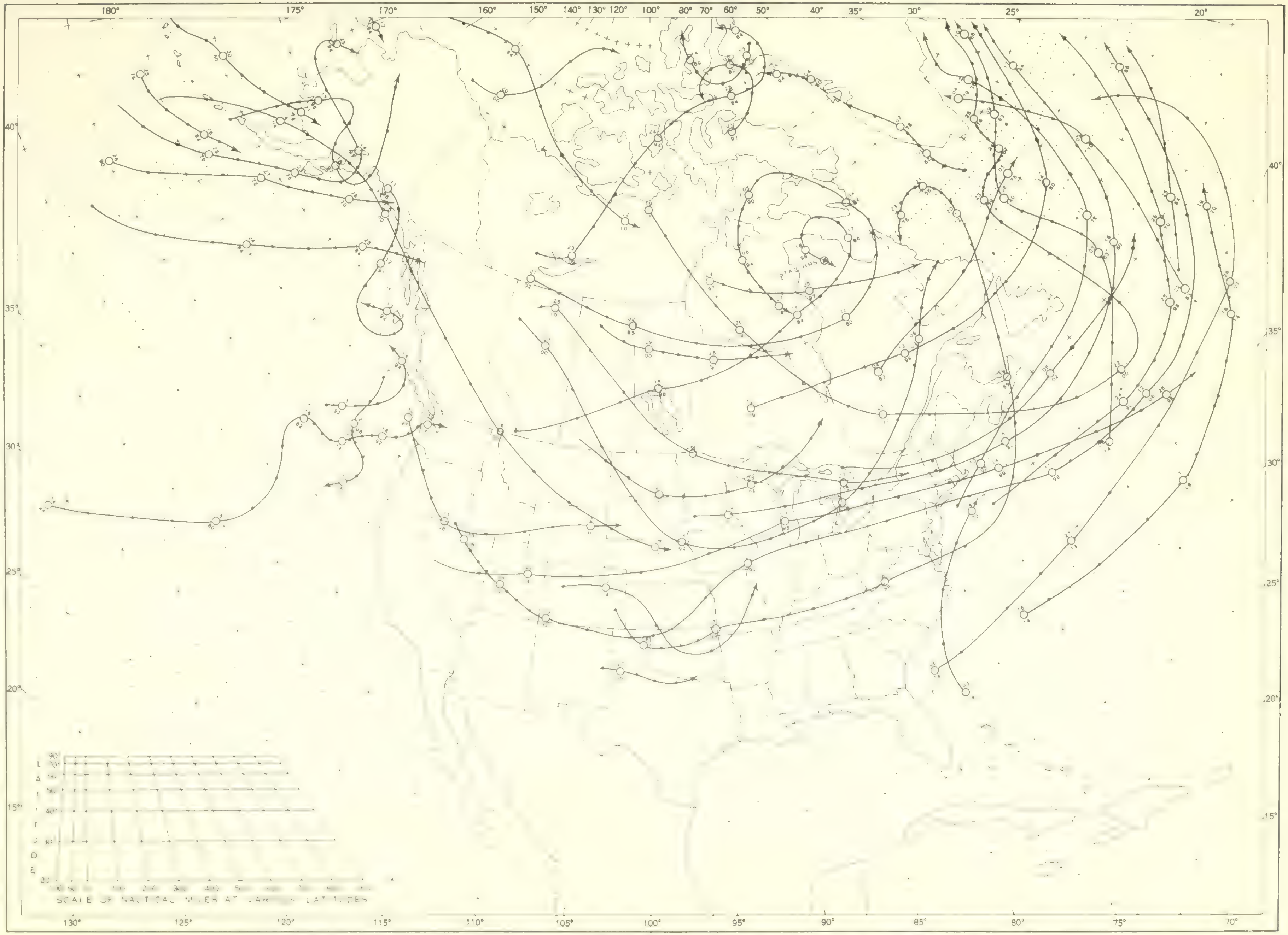
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, February 1959.



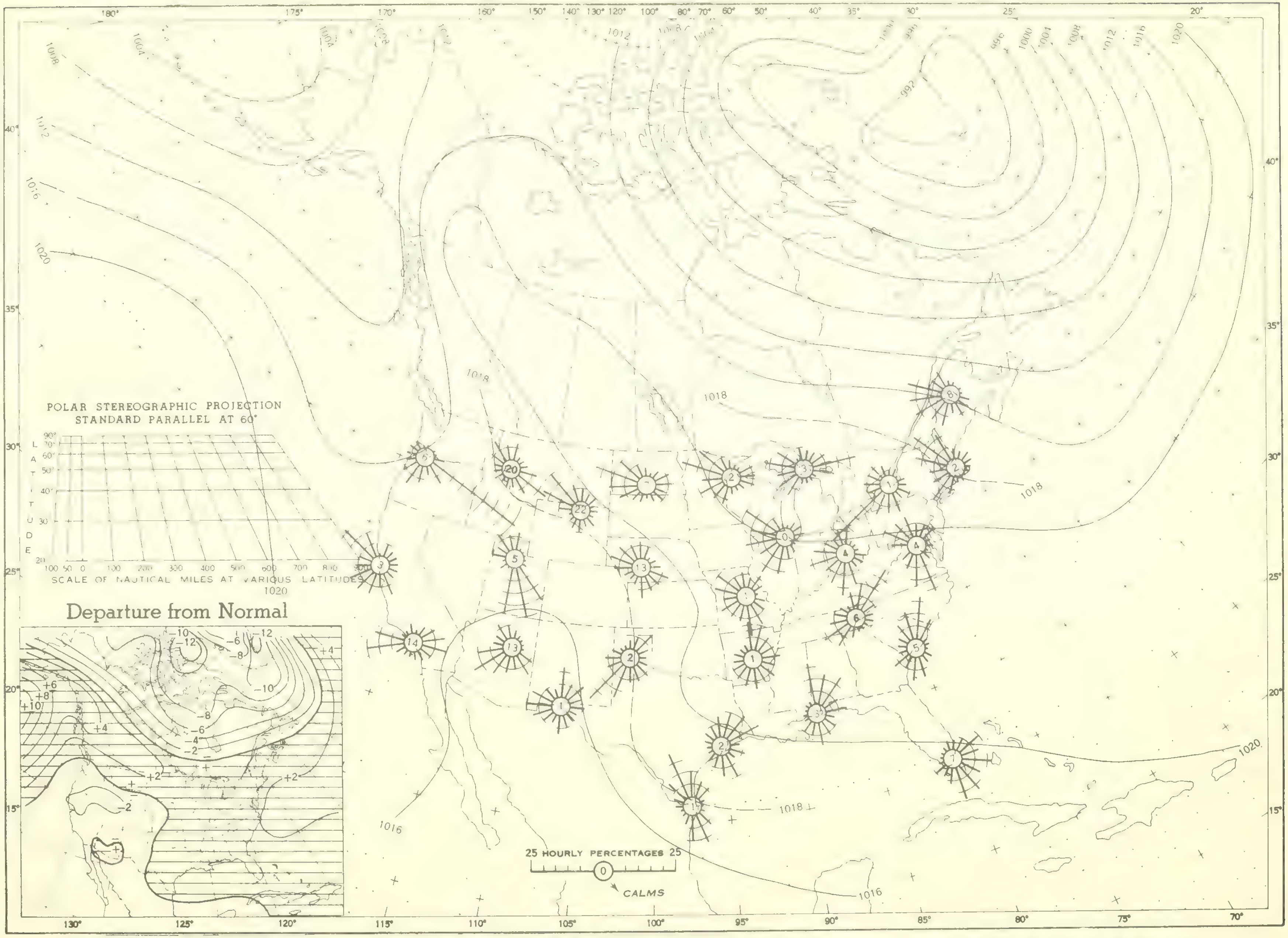
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track [illegible] Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, February 1959.



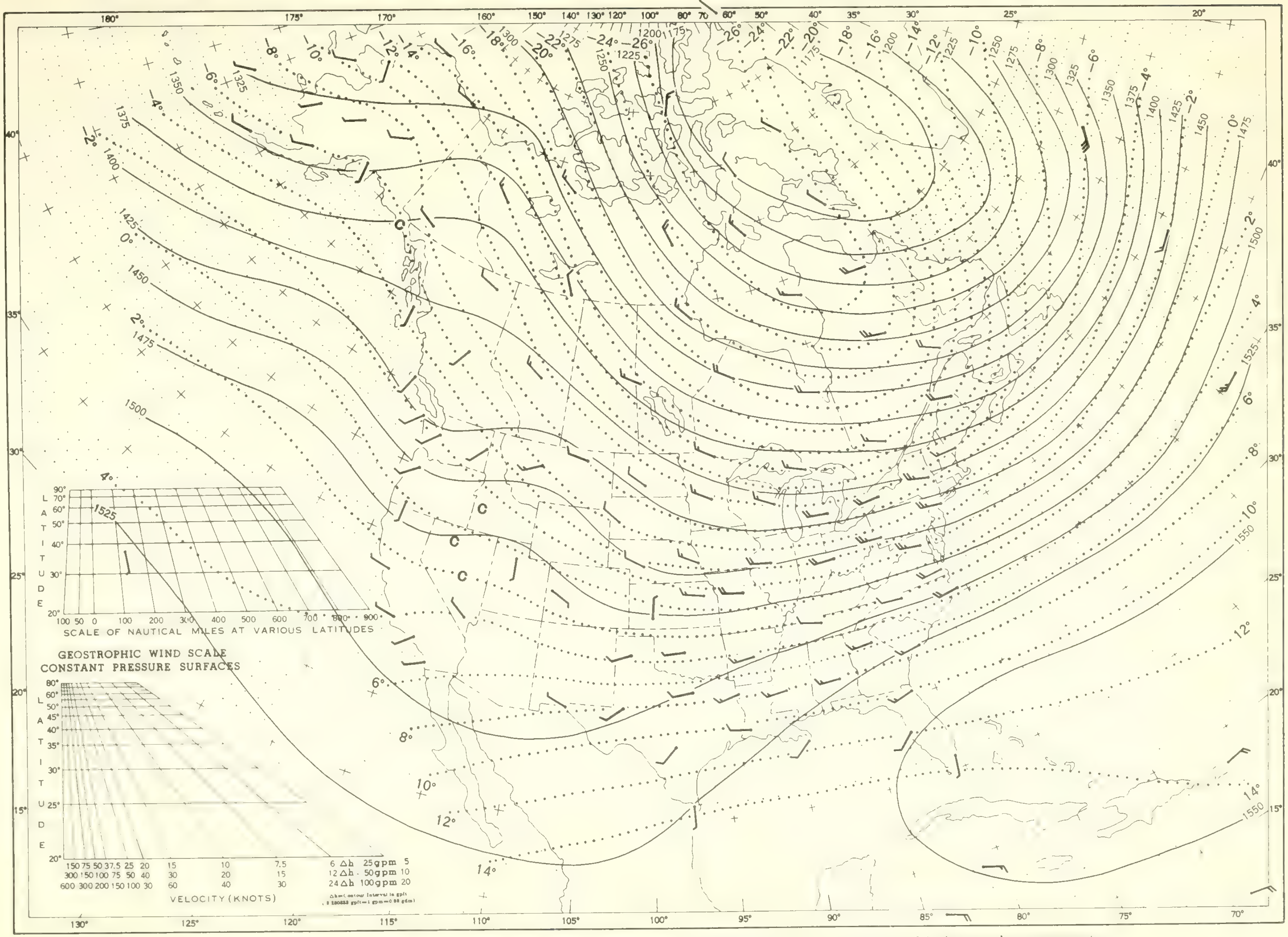
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, February 1959. Inset: Departure of Average Pressure (mb.) from Normal, February 1959



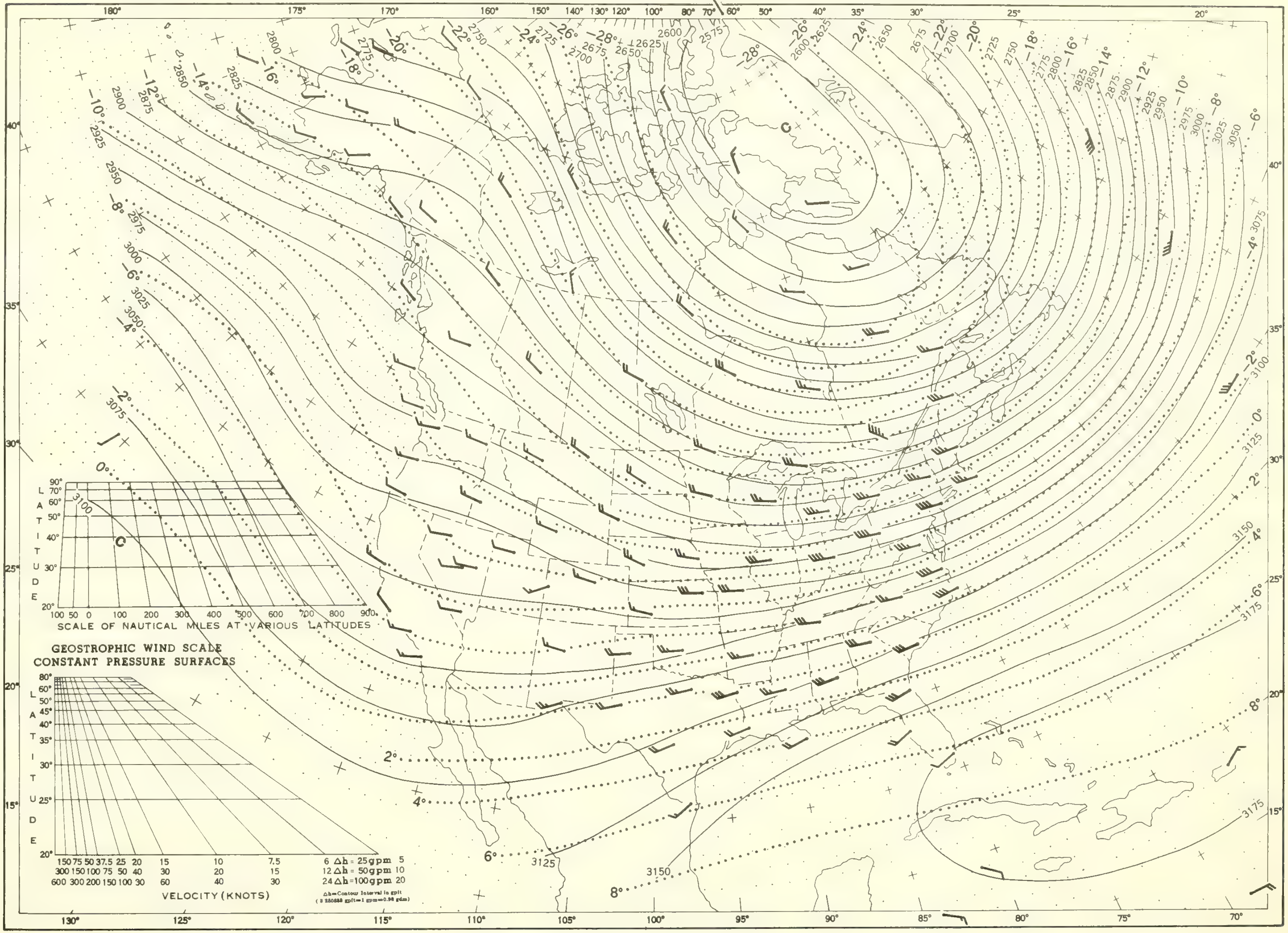
Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E.S.T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, February 1959. Average Height and Temperature, and Resultant Winds



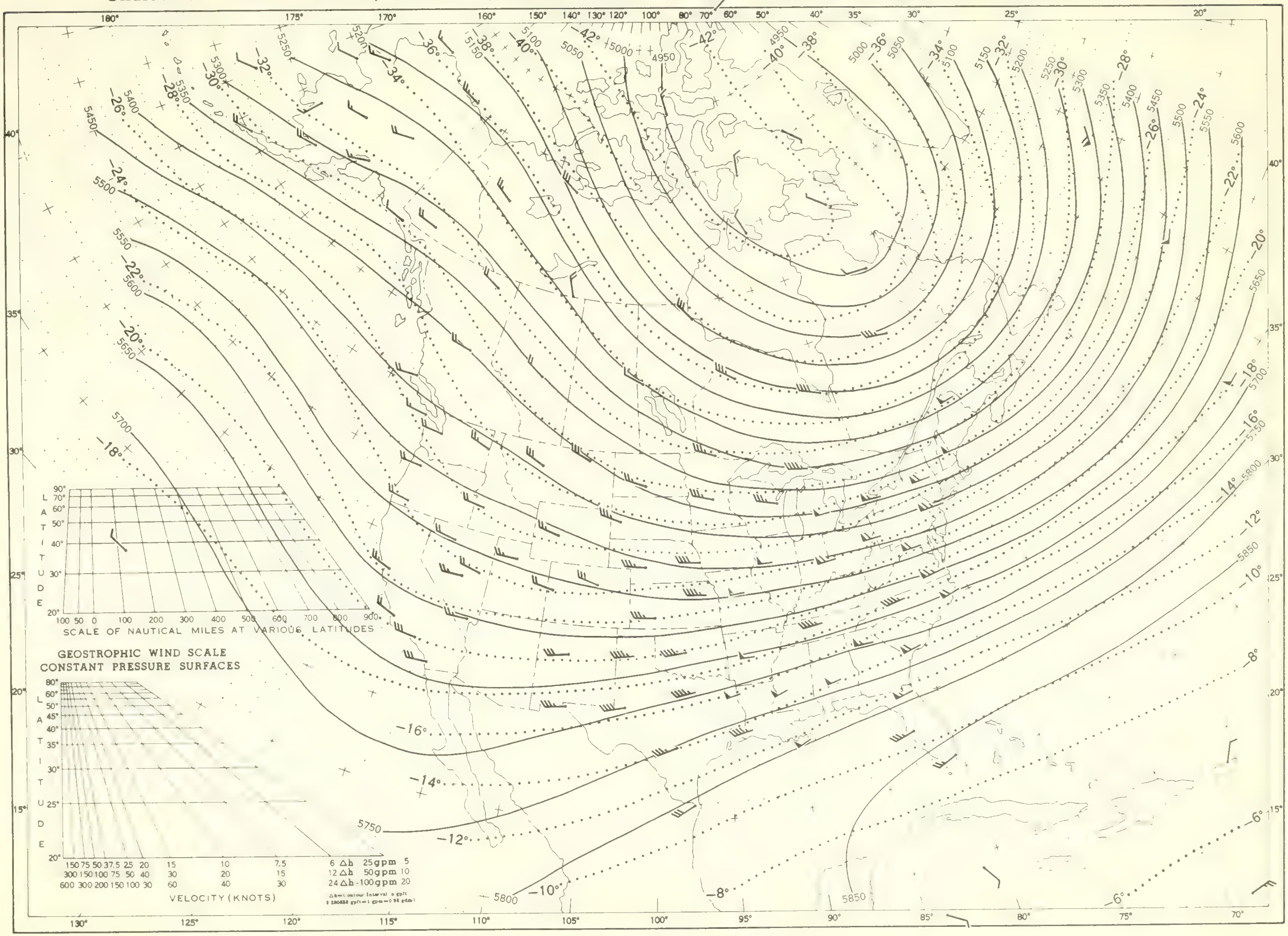
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, February 1959. Average Height and Temperature, and Resultant Winds.



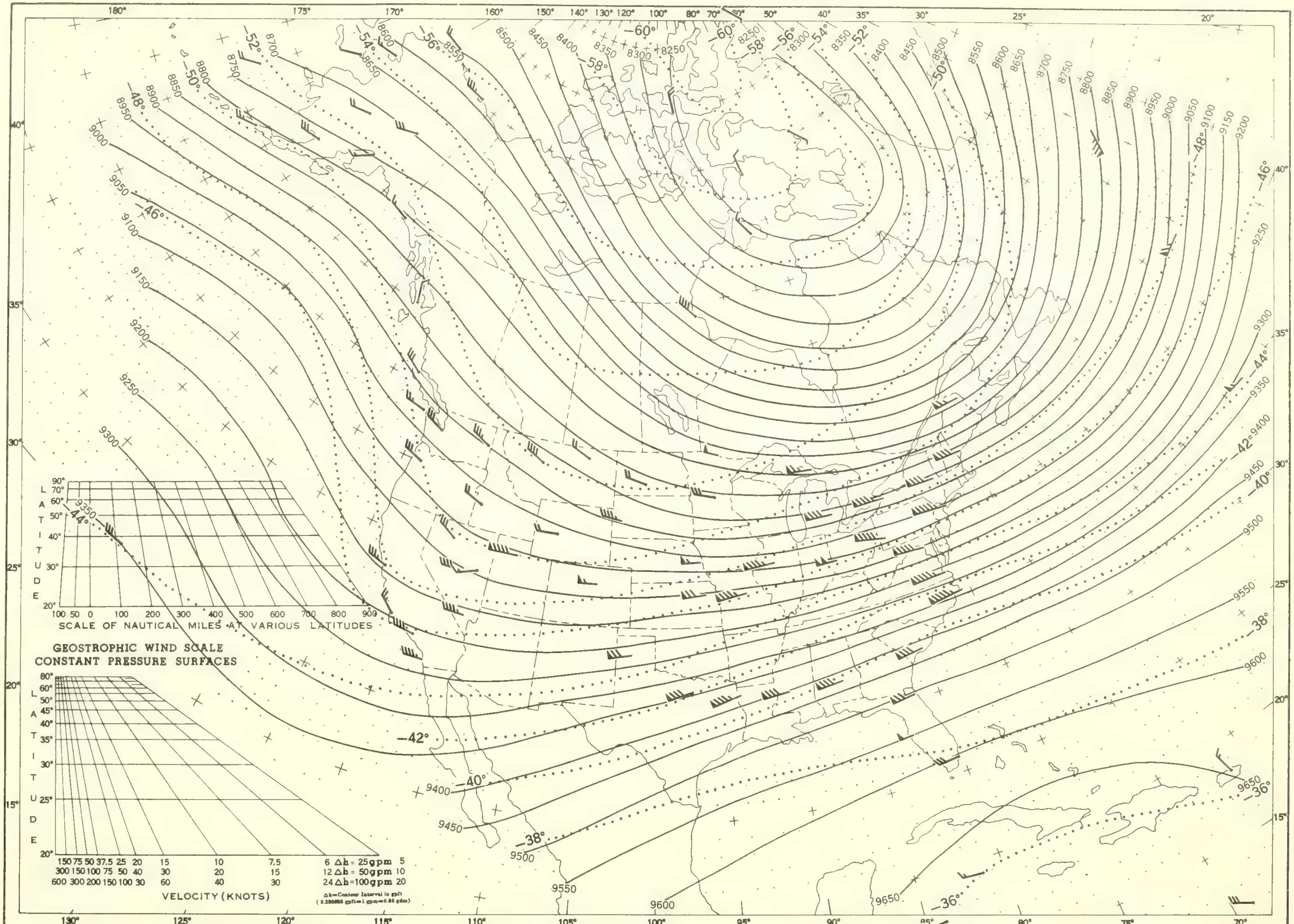
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, February 1959. Average Height and Temperature, and Resultant Winds.



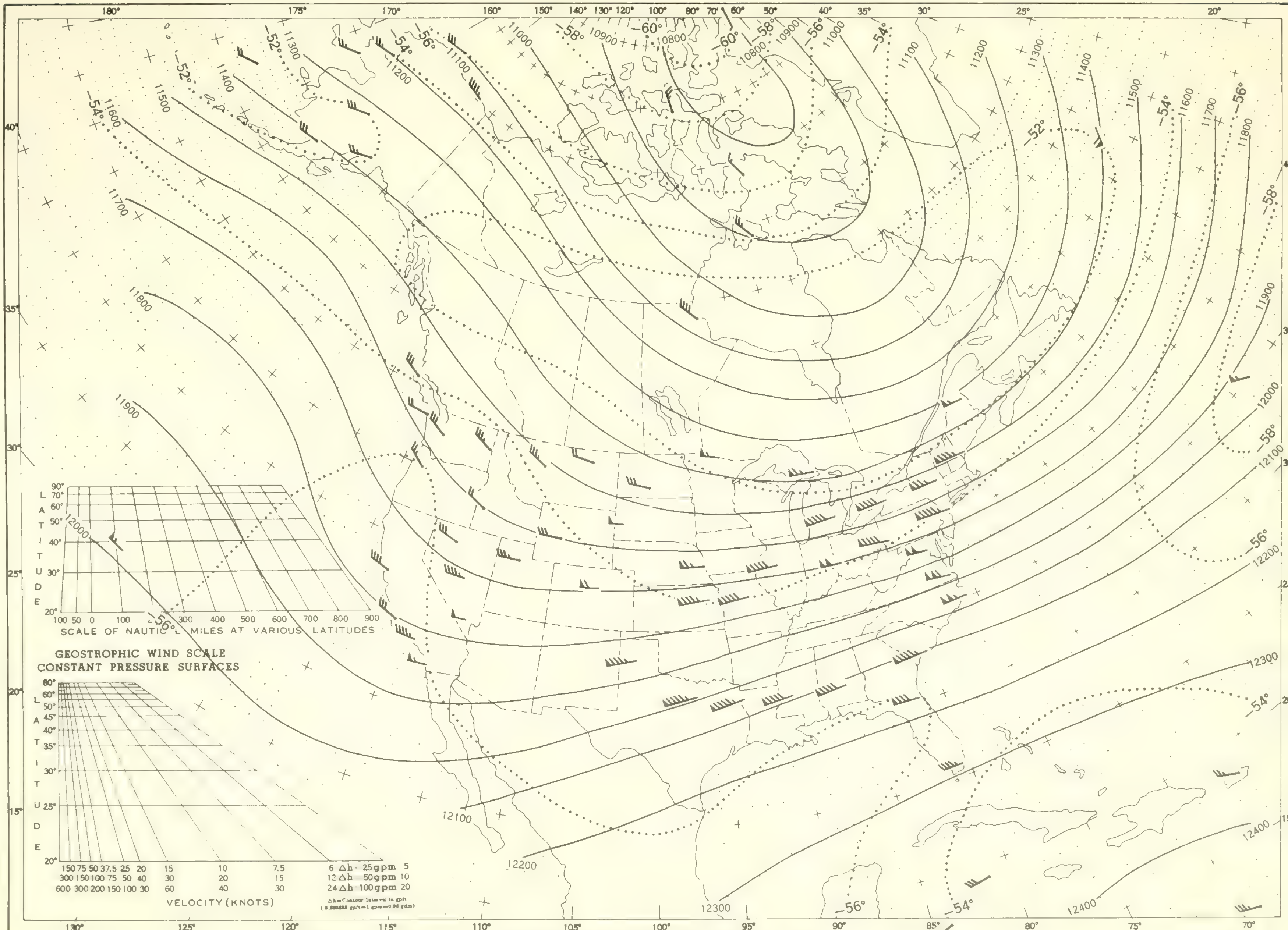
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, February 1959. Average Height and Temperature, and Resultant Winds.



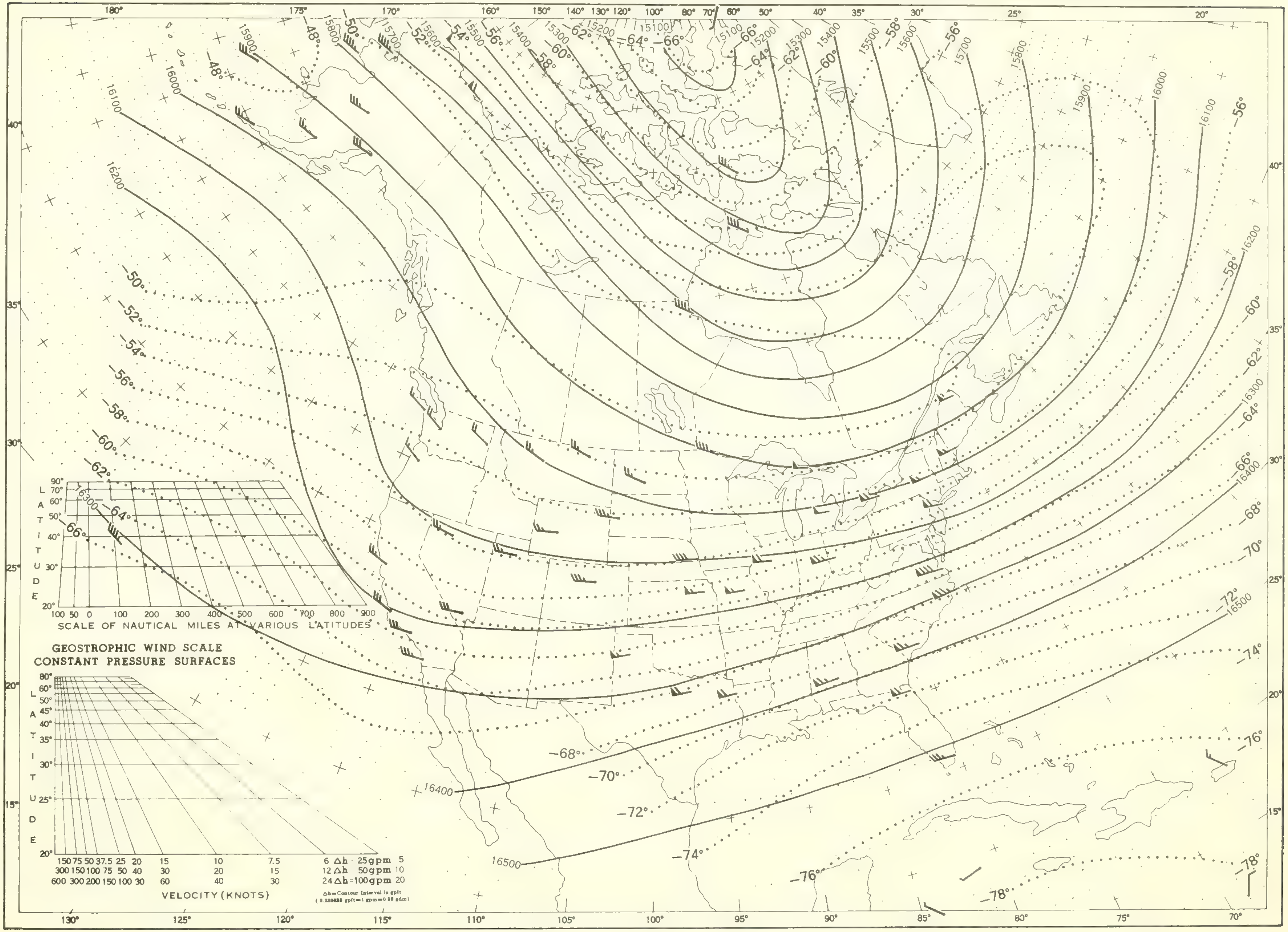
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, February 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, February 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 4/28/59 - 2300

U. S. DEPARTMENT OF COMMERCE
LEWIS L. STRAUSS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

MARCH 1959
Volume 10 No. 3

ASHEVILLE: 1959

CONTENTS

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 3 MARCH 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

March had its usual blustery weather as numerous low pressure areas developed moderate to strong storm intensity while moving across the country. Severe local storms, however, were relatively infrequent and caused less damage than usual. The month was extremely dry in the Southwest and northern Great Plains, and precipitation was well below normal in the Ohio and lower Mississippi Valleys. Unusually heavy precipitation was mostly limited to Nebraska, Iowa, and southern Wisconsin in the midcontinent area and Florida, southern Georgia, and coastal sections of the Carolinas in the Southeast. Snowfall was extremely heavy in many sections from the central Great Plains to the Great Lakes. The month was unusually mild in coastal California and the extreme northern Great Plains, but elsewhere temperatures, without any unusual extremes, averaged within a few degrees of normal.

TEMPERATURE.--In coastal California, San Diego temperatures averaged 63.3°, the highest average for March since the beginning of records there in 1872. Los Angeles had its second warmest March on record, and San Francisco its warmest since 1941. Average temperatures at a number of points in the northern Great Plains were among the 10 highest on record. Havre, Mont., had its warmest March since 1946, and Devils Lake, N. Dak., its sixth warmest on record.

Temperatures averaged from about 2° to 4° below normal in the Rio Grande Valley and east of the Mississippi River. Scattered light frost was reported as far south as Lake Charles, La., on the 2d, West Palm Beach, Fla., on the 3d, Victoria, Tex., on the 6th, and central Florida near mid-month. Freezing occurred at Abilene, Tex., as late as the 22d, and Meridian, Miss., as late as the 23d.

Ice, which became unusually thick during the past winter from the upper Mississippi Valley eastward through New England, melted rather slowly during March owing to below normal temperatures in that area. At Escanaba, Mich., where the December-March period was the coldest since 1919-1920, ice was the heaviest in a number of years. Green Bay, Wis., reported up to 40 inches with a few reports up to 48 inches, the greatest thickness there in modern times. At Concord, N. H., ice went out of the Merrimack River on the 27th, but ponds and lakes in the area still had thick ice at the close of the month. In Maine the opening of the fishing season was expected to be the latest on record owing to the persistence of thick ice on lakes.

PRECIPITATION.--In Florida and nearby areas, measurable rain fell on as many as 16 days, and monthly totals ranged up to 400 percent of normal. Heavy rains in the Florida Peninsula during the week ending the 22d totaled 6 to 9 inches in central and northern sections and 3 to 5 inches in northwestern and extreme southern portions. March totals in that portion of the Peninsula north of Lake Okeechobee, generally totaling from 8 to 12 inches, set new records at many stations. Tampa measured a new record amount for March of 12.64 inches. Heavy rains during the third week inundated much farmland.

Heavy precipitation in Nebraska, Iowa, and southern Wisconsin ranged up to 300 percent of normal. Measurable precipitation in this area also occurred on as many as 16 days. At Dubuque, Iowa, 6.50 inches was the greatest March total there during a record dating back to 1851. Lincoln and Grand Island, Nebr., had record March amounts of 4.56 and 4.35 inches, respectively.

Precipitation also was unusually heavy in Rhode Island and southeastern Massachusetts. Nantucket, Mass., measured 8.88 inches for a new March record. In the Pacific Northwest above normal precipitation was due to a series of storms the last 10 days of the month, when 90 percent of the month's precipitation fell.

The month was unusually dry from Texas to California, and from the extreme upper Mississippi Valley across the northern Great Plains to the Rockies. Prescott, Ariz., had not even a trace for the third March on record. In California, Los Angeles had no rain for its driest March on record; San Francisco had 0.30 inch for its seventh driest March on record; and Fresno, Calif., 0.09 inch for its sixth driest in 72 years. Roswell, N. Mex., had only 0.03 inch; San Antonio, Tex., measured only 0.13 inch for its fourth driest March on record; and Wichita Falls, Tex., had 0.57 inch for its 8th consecutive dry month, with a total of 3.53 inches or 24 percent of normal for the period from July 28, 1958 through March 31, 1959. Amarillo, Texas, reported 5.21 inches of precipitation for August 1958 through March 1959 for its driest 8-month period during 67 years of record.

The month was also among the driest Marches at numerous stations in the northern Great Plains. Minneapolis, Minn., reported its seventh consecutive dry month; Havre, Mont., measured 0.08 inch for its driest March since 1887; Helena, Mont., had only 0.02 inch for its driest March since 1881; Devils Lake, N. Dak., had only 0.12 inch for its second driest March on record; and Huron, S. Dak., had only 0.16 inch for its second driest March in the past 20 years.

SNOW.--At the beginning of March snow cover was limited to extreme northern areas and the higher mountains in other sections of the Nation. The only change in this cover at the end of the month was its disappearance from the northern Great Plains.

During the month some heavy snowfalls took place from the central Great Plains to the Great Lakes region. Some unusually heavy March totals in this area were as follows: Denver, 26.8 inches, third heaviest for March on record; Waterloo, Iowa, 19.9 inches, a March record and the second heaviest for any month during a 64-year record; Dubuque, Iowa, 30.2 inches, a March record and most for any month since 1929; La Crosse, Wis., 33.5 inches, greatest there in the past 74 years; and Lander, Wyo., 34.5 inches, the most there since 1906. Some other new records set during the month are as follows: Muskegon, Mich., by the end of the month had accumulated 129.4 inches since July 1958, already

a new seasonal record that far exceeded the previous record of 114 inches during the 1917-1918 season; Sault Ste. Marie, Mich., on the 16th and 17th measured a depth of 40 inches which exceeded the alltime record of 36 inches on January 12, 1894; 5.5 inches on the 4th and 5th set a new 24-hour record for any month at Dubuque, Iowa; and 15.7 inches on the 5th and 6th set a new 24-hour record at La Crosse, Wis., and helped boost the total for the winter there to 78.3 inches, a new record. Near records included 25.4 inches at Madison, Wis., the most for March since 1923; 29.1 inches at Albany, N. Y., 300 percent of the usual March total; and 19.1 inches at Hartford, Conn., the third greatest March total of record.

March snowfall was much lighter than usual in some areas. Rapid City, S. Dak., measured only 1.2 inches, the least for March in 37 years; and Saint Cloud, Minn., had only 0.8 inch, the smallest March total since 1925. Washington, D. C., had only an inch of snow the latter half of 1958, and only 4 inches during the first 3 months of 1959 or an accumulated seasonal total through March of only 5 inches, the least since the 1949-1950 season when only 3.4 inches were measured.

March snowfall was below normal in most of the western mountain ranges. This was also generally true for previous months of the 1958-1959 winter. At the end of March the mountain snowpack was much below the average in Nevada, southern Utah, southern Colorado, most of Oregon, southern Idaho, northern New Mexico, Arizona, and California. Above normal amounts were mostly limited to extreme northern areas.

SEVERE STORMS.--Severe storm damage was relatively minor for March. Frequent high winds occurred east of the Rockies, as numerous low pressure areas developed storm intensity. On the 14th locally strong winds caused considerable damage in Memphis, Tenn.; tornadoes were reported in Illinois; and grass and brush fires in Oklahoma, blown out of control by strong winds, burned several thousand acres and some cattle and other property were lost. Tornadoes were reported in northeastern Texas on the 20th and 31st and also in eastern Oklahoma on the latter date. High winds on the 15th caused widespread damage in northern Ohio and southern Michigan. Heavy snowstorms from the central Great Plains to the Great Lakes blocked roads and caused the usual inconveniences associated with heavy drifting snow. Glaze 3 inches thick in North Platte, Nebr., on the 25th and 26th caused about a quarter of a million dollars damage to power and communication lines.

CONDENSED CLIMATOLOGICAL SUMMARY

MARCH 1959

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	Ozark	83	25	Heflin	15	4	Slocomb	11.02	Hamilton	2.53
Arizona	2 Stations	91	31+	Springerville	2	15	Maverick	.19	148 Stations	.00
Arkansas	Booneville	86	31	Gravette	16	7	Mount Magazine	8.62	Flippin FAA Airport	1.55
California	Indio US Date Garden	95	4	White Mountain #2	-8	24	Gasquet RS	9.90	179 Stations	.00
Colorado	Eversoll Ranch	79	13	Taylor Park	-30	5	Roggen 2S	4.82	3 Stations	T
Connecticut	Norwich Pub Util Plant	72	21	Coventry	0	29	Groton	6.81	Falls Village	3.32
Delaware	4 Stations	79	26+	Georgetown 5SW	16	23	Selbyville	5.09	Wilmington N Castle WB AP	2.97
Florida	do	91	31+	Lake City 2E	30	8	Clearwater Beach	16.12	Everglades	2.06
Georgia	Bainbridge	88	24	Blairsville Exp Sta	14	8	Valdosta 4NW	11.63	Sweet Gum	3.93
Idaho	Grand View	72	17	Island Park Dam	-21	15	Burke 2ENE	4.61	2 Stations	T
Illinois	Harrisburg	82	31	Freeport	-1	18+	Rockford WB Airport	4.94	Elizabethtown	1.63
Indiana	Henryville	82	26	2 Stations	5	18	La Porte	4.02	Greensburg 3SW	1.30
Iowa	Burlington WB AP	77	24	Fayette	-11	17	Dubuque WB Airport	6.50	Rock Rapids	.63
Kansas	4 Stations	86	24	Leoti	4	21	Leavenworth	4.43	Syracuse 2WNW	.42
Kentucky	Pikeville	84	25	3 Stations	10	19+	Benham	4.77	Paducah	1.09
Louisiana	De Quincy	87	26	Many 4NNE	25	17	Marion	8.24	Point Au Fer Reef	.26
Maine	Sanford 2NNW	68	20	Squa Pan Dam	-25	10	Old Town FAA AP	5.50	Ripogenus Dam	1.54
Maryland	4 Stations	81	26+	Fort George G Meade	8	18	Snow Hill	4.54	Annapolis USN Academy	1.71
Massachusetts	Provincetown 1NW	76	20	2 Stations	0	29+	Nantucket WB Airport	8.88	Barre Falls Dam	2.63
Michigan	Bloomingdale	74	24	Kenton US Forest	-29	7	Niles	3.94	Eagle Harbor Coast Gd	.63
Minnesota	2 Stations	68	23	Roseau Power Plant	-21	21	Caledonia	5.91	2 Stations	T
Mississippi	do	85	31+	Corinth	21	2	Leakesville	7.79	Brookhaven	2.05
Missouri	Berryman 6NW	84	25	Princeton	9	7	Mercer 6NW	4.69	Morehouse	1.22
Montana	2 Stations	72	21	2 Stations	-11	20+	Summit	4.09	5 Stations	.00
Nebraska	do	78	23+	Wakefield	2	7	Minden	5.55	Gordon 27SE	.36
Nevada	N. Las Vegas Doxarm	83	18	2 Stations	4	20+	Lamoille PH	2.28	15 Stations	.00
New Hampshire	3 Stations	68	20	First Conn Lake	-22	9	Greenville	5.37	Bethlehem	1.28
New Jersey	Pemberton 3E	79	25	High Point Park	8	29+	Clayton	5.55	High Point Park	2.34
New Mexico	Jal	85	30	2 Stations	-16	7+	Lake Maloya	2.71	28 Stations	.00
New York	4 Stations	72	26+	Paul Smiths	-15	11	Bridgehampton	7.83	Plattsburgh	1.05
North Carolina	Lake Michie	85	26	Celo 2S	9	19	Haywood Gap	9.34	Yanceyville 2NNE	1.61
North Dakota	Granville	69	29	Pembina	-14	21	Wildrose	.66	2 Stations	.00
Ohio	Chesapeake Hunt'g FAA	82	25	3 Stations	9	18	Milford	4.59	Canal Winchester 6SE	1.02
Oklahoma	Frederick	93	24	Kenton	10	15+	Quinton	7.28	2 Stations	.04
Oregon	Powers	79	16	Seneca	3	14	Valsetz	14.86	Redmond	T
Pennsylvania	Donora	80	25	Coudersport 3NW	-4	11	Pimple Hill	4.99	Farrell Sharon	1.14
Rhode Island	Providence WB AP	70	20	Greenville	13	23	Block Island WB AP	8.52	Kingston	5.45
South Carolina	4 Stations	84	26+	Landrum 5ENE	18	19+	Hilton Head	11.77	Catawba	4.51
South Dakota	Armour	78	22	Deerfield 5NW	-5	12+	Centerville	1.94	Howard	.00
Tennessee	Clarksville	84	25	2 Stations	12	19+	Big Spring	7.70	Newbern	1.59
Texas	Eagle Pass	95	15	Dumas	11	15	Sulphur Springs	4.57	Numerous Stations	.00
Utah	2 Stations	76	31+	Soldier Summit	-14	4	Alta	8.49	5 Stations	.00
Vermont	Vernon	68	21	Newport	-12	10	Mays Mill	6.95	St. Albans Bay	1.28
Virginia	2 Stations	86	26	3 Stations	11	19+	Back Bay Wildlife Rfg	6.00	Berryville	1.70
Washington	Walla Walla 3W	72	16	Lemanasky Lake 2	8	10	Clearwater	16.76	Kennewick	.24
West Virginia	Williamson	85	26	Kumbrabow State Forest	-2	8	McRoss	5.82	Lakin	1.22
Wisconsin	Beloit	73	24	Mellen 2N	-23	7	Monroe 1W	6.41	Gordon 2ESE	.20
Wyoming	Metz Ranch	69	21	Bondurant	-28	15	Tennyson	2.98	2 Stations	T
Puerto Rico	3 Stations	94	24+	Garzas Dam	50	21	Guayabal Reservoir	6.74	3 Stations	.00

+ And also on an earlier date or dates.

Note Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station ø	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F	°F.		°F				°F	%	In.	In.	In			In.	In	M p. h.		M p h			0-3	4-7	8-10	0-10	%
ALABAMA																																
Birmingham	610	991.8	1017.8	64	40	51.9	-1.9	79	25	28	8+	0	7	38	62	5.13	-1.18	1.68	10	4	T	T	12.2	S	34	SW	6	10	10	11	5.2	70
Huntsville	605	993.5	1017.5	62	37	49.8	----	80	31+	26	8	0	10	36	62	3.29	----	1.46	8	4	T	0	9.7	SE	*23	N	21+	11	13	7	4.7	--
Mobile	211	1015.5	1017.9	67	47	56.8	-2.7	76	21	36	2	0	0	45	68	5.08	-2.54	1.71	15	4	T	0	12.5	SE	*35	N	21	7	8	16	6.5	--
Montgomery	195	1009.6	1018.1	66	44	54.9	-2.2	82	31	32	4	0	1	40	62	4.80	-1.70	1.33	8	4	0.0	0	8.4	NW	30	S	26	11	4	16	6.0	63
ARIZONA																																
Flagstaff	6993	------	------	53	22	37.3	2.9	60	31+	11	7	0	30	--	--	.08	-1.49	.08	1	0	1.0	1	----	---				21	8	2	2.5	--
Phoenix	1109	975.3	1014.6	78	49	63.6	3.7	84	19	37	6	0	0	25	24	.00	-.66	.00	0	0	.0	0	7.0	NE	*25	NE	21	19	8	4	2.8	98
Prescott	5014	847.3	1016.6	64	31	47.1	2.3	70	18+	20	7+	0	19	16	--	.00	-.98	.00	0	0	.0	0	10.5	S	38	N	4	21	6	4	2.5	88
Tucson	2584	925.8	1014.0	74	42	58.2	.3	82	22+	28	6	0	2	15	20	T	-.68	T	0	0	.0	0	9.7	SSE	32	SE	21	17	6	8	3.9	97
Winslow	4880	851.7	1015.8	63	29	45.6	.1	73	22+	16	5	0	20	6	22	T	-.40	T	0	0	.0	0	9.2	WSW	*32	WNW	19	21	5	5	2.8	--
Yuma	199	1009.5	1015.1	85	52	68.4	2.7	90	19+	43	6	4	0	24	23	T	-.26	T	0	0	.0	0	8.0	N	34	NW	15	20	4	7	3.3	98
ARKANSAS																																
Fort Smith	458	998.3	1015.6	65	38	51.2	-1.1	82	31+	25	7	0	9	36	61	4.87	1.78	1.51	10	8	T	0	10.1	NE	35	NE	21	16	6	9	4.5	69
Little Rock	257	1003.1	1016.7	65	42	53.1	.3	84	31	32	7	0	1	36	56	3.33	-1.52	1.12	9	6	T	0	11.8	WNW	56	SE	5	16	6	9	4.2	77
Texarkana	361	------	1016.8	67	42	54.5	-1.5	82	31	32	6	0	1	--	--	3.41	-1.52	1.51	10	8	.0	0	10.0	SSW	--	---	--	--	--	--	---	--
CALIFORNIA																																
Bakersfield	494	1001.7	1020.2	73	48	60.5	3.4	82	21+	44	28+	0	0	41	51	.02	-1.09	.02	1	0	.0	0	6.5	NW	*26	NNW	26+	18	4	9	3.8	
Bishop	4108	876.1	1017.6	70	32	50.5	3.1	79	31	24	8	0	20	--	--	.02	-.64	.01	2	0	T	T	--	---			-	20	8	3	2.6	
Blue Canyon	5280	841.5	1019.6	52	36	43.9	5.2	65	31	28	24	0	9	--	--	3.69	-3.77	1.50	7	0	20.5	26	8.9	---	42	NE	4	15	6	10	4.5	--
Burbank	699	990.9	1017.4	76	49	62.8	5.9	87	12	44	8+	0	0	40	50	.00	-2.25	.00	0	0	.0	0	3.4	S	*23	NW	24	20	3	8	3.5	--
Eureka (U)	43	1021.3	1023.7	55	43	49.3	.2	71	16	37	14	0	0	--	--	3.37	-1.27	.84	12	0	.0	0	7.3	---	29	NW	3	8	7	16	6.6	62
Fresno	331	1007.8	1019.7	72	44	57.7	2.2	81	17	39	27+	0	0	43	61	.09	-1.54	.08	2	0	.0	0	6.3	NW	22	NW	23	19	7	5	2.9	93
Los Angeles (U)	312	------	------	76	54	64.7	5.8	87	12	49	7	0	0	46	58	.00	-2.36	.00	0	0	.0	0	6.2	---	32	NW	24	18	7	6	3.4	94
Los Angeles	99	1013.5	1017.5	74	54	64.0	7.5	88	11	51	29+	0	0	49	65	.00	-1.91	.00	0	0	.0	0	7.1	W	*29	WNW	24	16	7	8	4.2	
Mt. Shasta (R)	3544	896.0	1021.7	56	31	43.6	1.9	69	16	24	29+	0	19	--	--	1.84	-2.24	1.01	6	0	4.6	T	----	---	--	---	--	12	7	12	5.2	--
Oakland	3	1020.7	1021.0	68	46	57.1	3.7	80	3	40	29+	0	0	44	66	.33	-1.98	.15	4	0	.0	0	8.5	WNW	*29	WNW	23	18	6	7	3.6	--
Red Bluff	341	1007.5	1020.5	71	45	57.7	3.4	80	2	38	24+	0	0	32	44	.41	-2.20	.16	4	0	.0	0	11.3	NNW	36	SE	30	13	9	9	4.5	84
Sacramento	17	1019.0	1018.7	70	45	57.2	3.3	76	31+	37	24	0	0	42	59	.53	-1.56	.22	6	0	.0	0	9.4	NNW	33	NW	15	16	8	7	3.7	86
Sandberg (R)	4517	864.9	1017.6	59	42	50.6	5.9	69	12+	30	24	0	2	--	--	.15	-1.66	.15	2	0	.9	T	17.7	---	*53	N	9	19	4	8	3.3	--
San Diego	19	1013.9	1017.0	72	54	63.3	5.1	88	11	50	26+	0	0	49	65	T	-1.52	T	0	0	.0	0	5.6	NE	17	SW	24+	18	5	8	3.9	88
San Francisco (U)	52	------	------	66	51	58.2	3.3	77	3	47	27	0	0	--	--	.30	-2.48	.18	5	0	.0	0	7.9	---	27	SW	23	--	--	--	---	87
San Francisco	8	1020.3	1021.2	68	48	57.9	5.1	80	3	44	27+	0	0	46	69	.30	-2.14	.24	4	1	.0	0	11.3	WNW	39	WNW	13	19	6	6	3.7	--
Santa Maria	238	1009.5	1018.4	71	43	56.8	2.8	83	11	36	24	0	0	43	65	T	-2.29	T	0	0	.0	0	8.5	WNW	*28	WNW	24+	17	8	6	3.7	-
COLORADO																																
Alamosa	7536	768.4	1017.3	47	13	30.1	-1.7	58	30	-2	6+	0	31	--	--	.42	-.01	.25	4	0	10.2	4	----	---	--	---	--	17	8	6	4.1	--
Colorado Springs	6173	807.7	1016.7	50	22	36.3	-.5	69	13	10	21	0	30	16	50	1.19	.50	.86	8	0	10.3	4	13.0	NNW	*49	WNW	14	9	13	9	5.3	--
Denver	5292	835.8	1016.5	50	26	37.6	-.2	68	18	14	21	0	28	18	51	2.85	1.66	1.48	10	0	26.8	12	13.1	SSW	34	N	14+	7	12	12	6.1	61
Grand Junction	4849	859.5	1017.6	54	29	41.3	.1	65	23+	18	5	0	21	15	38	.10	-.77	.08	3	2	.1	T	9.7	ESE	49	NW	3	11	8	12	5.2	60
Pueblo	4639	854.4	1015.5	56	24	39.9	-.1	72	13	11	16	0	29	17	46	.85	.15	.44	6	0	1.4	T	11.1	N	56	N	25	11	12	8	5.1	73
CONNECTICUT																																
Bridgeport	7	1015.3	------	45	30	37.4	.5	65	20	19	23	0	22	--	--	3.47	-.13	1.08	12	2	6.5	5	----	---	--	---	--	11	10	10	5.5	--
Hartford	169	1008.4	1014.5	44	25	34.8	-2.4	67	20	10	29	0	27	23	65	4.48	.67	1.37	12	2	19.1	9	11.9	N	40	W	22+	12	7	12	5.5	59
New Haven	6	1014.3	------	44	29	36.7	-.4	60	24+	19	23	0	21	--	--	4.32	.20	1.33	15	2	9.8	7	10.2	---	34	NW	13	10	9	12	5.7	62
DELAWARE																																
Wilmington	78	1012.1	1015.7	52	31	41.1	-1.4	71	24	20	23	0	18	28	64	2.97	-.64	1.16	13	1	1.9	1	11.3	WNW	*32	WSW	6	10	9	12	5.3	--
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	56	35	45.2	-.5	81	25	27	22+	0	12	--	--	2.59	-.77	1.04	7	1	----	--	9.0	---	43	SW	6	--		-	---	--
Wash. Nat'l. AP	14	1011.5	1016.3	56	35	45.4	.1	79	25	27	22+	0	10	26	53	2.20	-.83	.80	7	1	T	T	11.5	S	38	SSW	6	11	11	9	5.1	61
FLORIDA																																
Apalachicola (U)	13	1015.2	------	66	53	59.4	-1.5	79	27	40	13	0	0	--	--	14.33	9.41	7.32	12	5	.0	0	9.6	---	52	SE	29	7	8	16	6.5	66
Daytona Beach	31	1016.5	1018.5	71	53	61.9	-1.8	84	27	36	3	0	0	54	78	7.70	4.08	1.91	11	2	.0	0	12.1	NNE	*33	SSE	5	6	7	18	7.3	--
Fort Myers	15	1016.8	------	78	57	67.3	-1.3	87	16	40	13	0	0	--	--	6.33	4.15	1.68	13	2	.0	0	10.7	---	32	WNW	12+	6	9	16	6.9	--
Jacksonville	24	1016.8	1018.4	70	52	60.9	-1.4	82	27+	36	8	0	0	51	73	9.75	6.33	2.63	12	3	.0	0	11.3	NE	36	NE	18	5	8	18	7.3	49
Key West	4	1015.3	1016.2	78	68	73.3	-.4	85	31+	55	13	0	0	--	--	2.46	.89	.83	10	4	.0	0	11.6	---	35	NW	2+	9	14	8	5.6	64
Lakeland (U)	214	------	------	73	55	64.0	-2.6	85	31	43	13	0	0	--	--	12.16	8.36	2.77	16	3	.0	0	8.8	---	--	---	--	5	11	15	6.7	51
Miami	7	1016.0	1017.3	79	63	71.3	.0	87	12+	47	13	0	0	62	76	4.85	2.60	2.16	13	2	.0	0	8.9	ESE	*28	WSW	12	4	13	14	7.0	--
Miami Beach	9	------	------	79	67	72.7	.5	87	12	49	13	0	0	--	--	4.29	2.00	1.40	13	--	.0	0	----	---	¢36	¢W	12	6	14	11	---	¢48
Orlando	106	1013.6	1018.3	73	54	63.7	-3.0	85	27	40	13	0	0	54	76	7.69	4.43	2.06	14	0	.0	0	9.8	NNE	*25	N	15+	4	10	17	6.9	--
Pensacola (U)	13	------	------	65	51	57.9	-2.3	79	27	40	2	0	0	--	--	6.11	.11	1.92	13	1	.0	0	†12.2	---	33	SE	28	--	--	--	---	50
Tallahassee	64	1015.0	1017.9	69	48	58.8	-1.7	82	27	32	13	0	1	47	71	11.15	6.08	6.00	12	2	.0	0	7.5	S	--	---	--	3	12	16	7.4	--
Tampa	19	1016.8	1018.1	74	56	64.9	-1.1	84	31+	45	13	0	0	56	78	12.64	9.52	2.37	14	2	.0	0	10.3	NNE	*27	E	20+	4	11	16	7.1	56
West Palm Beach	15	1016.3	1017.5	78	62	70.0	.0	87	31	46	13+	0	0	61	75	4.71	1.49	1.98	15	4	.0	0	12.3	E	*40	WNW	12	3	12	16	7.4	-
GEORGIA																																
Athens	798	988.5	1018.1	62	38	49.9	-2.8	78	31+	26	8	0	7	35	63	5.96	.79	1.70	14	3	T	0	11.5	NW	*32	NW	12	11	7	13	5.4	--
Atlanta	975	975.3	1017.8	62	41	51.2	-1.5	78	25	28	4	0	4	38	66	6.61	.94	1.80	13	4	T	0	12.8	NW	40	W	12	11	8	12	5.5	59
Augusta	143	1010.5	1017.6	66	40	53.3	-2.2	82	31+	29	19+	0	4	41	68	5.82	1.56	2.52	12	2	.0	0	7.6	WNW	*30	WSW	27	8	8	15	6.2	--
Columbus	385	1004.0	------	66	41	53.5	-1.2	80	31+	27	8	0	4	--	--	8.12	2.31	2.02	13	6	.0	0	10.1	---	35	SSW	11	8	10	13	6.1	--
Macon	356	1003.9	1017.8	67	43	54.9	-2.9	82	31+	30	8+	0	2	39	63	6.37	1.26	2.56	14	3	.0	0	10.6	WNW	35	W	12	9	8	14	6.0	57
Rome	637	994.2	------	62	35	48.1	-3.6	80	25	20	8	0	14	32	60	4.41	-1.42	1.18	13	5	T	0	5.5	---	--	---	--	10	11	10	---	--
Savannah	48	1015.4	1018.3	67	46	56.7	-2.0	80	25	33	8	0	0	45	71	9.57	6.08	4.65	16	7	T	0	8.8	WSW	33	NW	12	6	10	15	6.5	58
Thomasville	283	------	------	68	49	58.5	-2.1	81	31	38	8	0	0	--	--	9.85	4.50	5.18	12	2	.0	0	----	---	--	--	--	--	--	-	--	-
IDAHO																																
Boise	2842	923.1	1021.3	52	30	41.0	-.8	66	17	19	15	0	17	26	58	1.08	-.26	.42	11	1	.3	T	9.8	SE	35	SE	21	2	16	13	7.2	67
Idaho Falls 46W (R)	4933	849.0	1019.6	46	19	32.4	2.4	60	17	4	15	0	31	--	--	.16	-.29	.13	3	0	1.4	1	10.2	---	a36	WSW	8	--	--	--	- -	-
Idaho Falls 42NW (R)	4790	------	------	48	19	33.2	4.5	60	17	7	15	0	30	--	--	.13	-.32	.09	3	--	---	--	9.7	---	a37	NNW	13	--			- -	
Lewiston	1413	968.2	1020.6	54	34	43.7	.1	62	25	25	15	0	11	--	--	.31	-.83	.13	7	0	T	T	----	---	--	---	--	2	8	21	7.8	-
Pocatello	4444	863.9	1019.6	48	27	37.7	1.1	60	17	14	15	0	24	23	57	.37	-.76	.17	8	0	1.4	1	15.4	SW	48	W	3	4	13	14	6.7	70
ILLINOIS																																
Cairo (U)	314	1003.1	------	59	39	49.1	.1	80	31	28	7	0	7	--	--	1.98	-2.74	.86	11	2	T	T	11.2	S	37	SW	5	13	11	7	4.9	76
Chicago (O'Hare)	656	989.5	1015.0	44	28	35.8	---	74	24	15	17	0	25	27	72	3.39	----	1.24	14	3	2.9	1	13.5	SSW	*43	NW	15	8	5	18	7.0	--
Chicago (Midway)	610	991.5	1015.2	45	29	37.3	.3	74	24	16	17	0	22	27	69	3.91	1.06	1.48	14	3	4.6	1	12.0	W	45	NW	15	7	8	16	7.0	53
Moline	589	992.2	1015.0	46	28	36.9	-.3	73	24	13	7	0	21	27	70	3.06	.58	.85	16	3	13.9	6	11.3	ENE	45	NE	26+	6	7	18	6.7	55
Peoria	654	992.6	1014.9	49	29	38.9	.6	73	24	18	17+	0	22	28	69	3.46	.67	.94	10	5	4.2	3	13.1	S	56	W	15	6	8	17	6.9	50
Rockford	728	986.8	1014.9	43	26	34.4	-.6	71	24	10	18+	0	25	26	74	4.94	2.39	1.70	13	2	13.5	5	11.7	ENE	*33	NNW	15	7	8	16	6.3	--
Springfield	589	991.2	1015.1	52	32	41.7	1.5	73	24	20	22+	0	19	30	68	2.91	-.40	1.04	10	4	.9	T	13.8	SSW	62	W	6	7	9	15	6.5	54
INDIANA																																
Evansville	383	1000.7	1016.9	56	33	44.7	-1.9	79	25	21	18	0	20	31	63	2.34	-1.95	.83	9	2	T	T	11.9	SE	53	SE	5	7	10	14	6.3	71
Fort Wayne	801	983.4	1015.6	46	27	36.2	-.6	68	24	12	18	0	24	27	73	2.50	-.66	.78	16	3	3.0	1	15.8	SW	57	SW	15+	6	9	16	7.1	48
Indianapolis	793	983.1	1015.8	49	29	38.8	-1.3	74	25	17	22	0	23	30	74	2.58	-1.31	.49	16	2	10.1	5	13.8	SSW	52	SW	15	7	5	19	7.0	61

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station Ø	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb.	Mb.	°F.	°F	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
INDIANA (Cont'd.)																																
South Bend	768	986.1	1014.8	45	27	35.8	0.1	71	24	12	18	0	25	26	72	3.58	0.63	1.52	16	2	12.3	6	13.5	SSW	*41	WNW	15	4	7	20	7.6	--
IOWA																																
Burlington	694	989.2	1015.6	48	29	38.4	-.1	77	24	15	7	0	21	28	70	2.48	-.33	.91	13	3	8.3	4	13.0	S	54	NW	15	8	6	17	6.4	65
Des Moines	948	983.7	1015.7	45	28	36.4	-.6	71	23	12	7	0	23	27	71	3.94	1.91	1.58	13	3	15.6	9	14.4	NW	47	N	5	5	8	18	7.0	54
Dubuque	1065	989.5	1015.7	39	23	30.8	-2.5	64	24	2	7	0	27	23	71	6.50	4.25	2.35	16	4	30.2	20	----	---	--	---	--	7	10	14	6.4	--
Sioux City	1094	973.2	1015.6	46	27	36.6	1.6	68	23	7	7	0	23	27	71	2.68	1.42	1.30	12	0	11.1	9	13.2	NW	38	NW	2	4	10	17	7.3	56
Waterloo	870	------	------	41	24	32.4	-1.7	60	24+	-1	17+	0	23	--	79	4.21	2.22	1.79	12	2	20.1	12	12.3	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	963.8	------	55	33	43.6	2.0	75	24	21	21	0	16	--	61	2.43	1.10	1.47	8	1	2.8	1	9.8	N	42	N	14	14	7	10	4.9	68
Dodge City	2594	924.8	1014.2	57	30	43.4	.8	79	24	18	15	0	20	24	56	1.58	.43	1.09	5	0	1.7	1	18.4	NNW	67	N	4	12	9	10	5.1	66
Goodland	3645	886.2	1015.3	52	23	37.6	1.1	74	23+	12	21	0	29	23	63	.97	-.12	.67	8	0	12.9	7	14.9	NNW	*52	NNW	26	7	12	12	6.0	--
Topeka	877	978.3	1014.9	57	32	44.7	2.1	75	24	19	7	0	19	30	62	2.30	.27	1.08	8	3	3.1	3	15.6	S	63	N	20	9	7	15	6.3	54
Wichita	1321	930.2	1013.7	60	34	46.9	1.6	81	24	22	16+	0	15	29	56	.85	-.89	.45	6	2	.9	1	16.8	S	54	NW	14+	12	9	10	5.3	62
KENTUCKY																																
Lexington	979	980.5	1017.2	53	32	42.4	-1.9	78	25	17	18	0	22	30	66	1.82	-2.64	.42	11	1	.4	T	13.4	S	--	---	--	10	7	14	6.0	--
Louisville	474	996.7	1016.5	56	34	44.7	-.9	83	25	19	18	0	16	31	62	2.13	-2.54	.64	9	1	T	T	12.1	SE	43	SW	15	10	7	14	6.2	54
LOUISIANA																																
Baton Rouge	64	1014.9	1018.0	71	47	58.9	-1.4	80	26+	35	7	0	0	46	65	2.23	-3.59	.69	8	3	T	0	10.5	SE	--	---	--	10	9	12	5.8	--
Lake Charles	12	1015.6	1017.1	69	49	59.1	-1.5	80	11	39	6	0	0	45	63	1.97	-2.79	1.06	8	5	.0	0	11.4	S	*32	ESE	4	9	9	13	5.6	--
New Orleans (U)	9	------	------	69	53	60.6	-2.4	79	26	42	6	0	0	--	70	4.23	-2.33	2.78	10	3	.0	0	7.8	---	20	NE	16+	8	6	17	6.3	55
New Orleans	3	1015.2	1017.7	69	52	60.0	-1.7	78	26	41	6	0	0	48	67	3.82	-2.08	2.77	9	2	T	0	12.2	SSE	*38	NW	12	8	6	17	6.5	--
Shreveport	252	1007.1	1016.8	69	43	55.8	-2.4	84	31	31	6	0	1	38	57	2.82	-1.88	1.31	9	8	.0	0	11.5	S	--	---	--	16	3	12	4.4	73
MAINE																																
Caribou	624	987.0	1011.1	32	9	20.6	-1.1	55	31	-11	10	0	31	10	65	2.57	.17	.80	11	0	37.7	39	13.0	W	*60	W	23	11	8	12	5.7	--
Portland	61	1009.3	1013.4	40	21	30.7	-.8	62	20	8	9	0	29	21	68	4.50	.47	2.18	10	1	21.0	15	11.9	WSW	41	NE	12	12	7	12	5.1	62
MARYLAND																																
Baltimore (U)	14	------	------	55	36	45.4	.1	78	24	28	29+	0	10	--	--	3.23	-.40	1.62	8	--	----	--	----	---	--	---	--	--	--	--	---	--
Baltimore	146	1011.3	1016.4	54	31	42.5	-.7	79	25	22	19	0	20	27	58	2.72	-.91	1.24	9	0	1.0	T	13.0	WNW	47	W	7+	9	13	9	5.3	67
Frederick	294	------	------	53	28	40.6	-2.7	78	25	17	23	0	22	--	--	2.44	-.87	1.15	8	--	2.0	2	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs.(R)	629	989.6	1013.6	43	26	33.6	-.5	67	20	12	23	0	25	--	61	5.70	1.83	1.40	16	1	22.3	8	18.3	W	61	S	6	11	10	10	5.4	58
Boston	15	1008.8	1013.7	45	29	37.0	-.6	70	20	18	23	0	19	23	62	5.81	2.38	1.40	15	1	14.6	6	14.6	NW	47	SSW	6	11	7	13	5.5	65
Nantucket	43	1013.4	1014.2	42	29	35.9	-.7	51	6	19	23	0	22	27	73	8.88	4.83	2.54	16	2	19.0	5	17.3	WSW	50	SE	12	9	11	11	5.7	64
Pittsfield	1153	------	------	41	20	30.5	-.3	63	20	6	29	0	29	--	--	2.77	-.45	.62	15	0	28.2	13	----	---	--	---	--	--	--	--	---	--
Worcester	986	975.6	------	41	23	32.0	-1.2	63	20	11	23	0	28	--	--	5.56	2.13	1.57	13	1	32.9	17	15.7	---	*43	WNW	22	15	3	13	5.3	--
MICHIGAN																																
Alpena (U)	587	992.2	------	35	18	26.3	-1.4	57	19	-2	10	0	31	--	74	1.53	-.51	.74	8	0	10.8	16	10.6	NW	40	NW	21	8	13	10	5.6	63
Detroit	619	988.2	1015.7	43	26	34.3	-.8	68	24	10	22	0	23	23	66	2.65	.12	1.00	14	2	6.6	3	12.6	SW	48	SW	15	6	9	16	6.7	49
Detroit (Willow Run)	722	985.8	1015.2	44	25	34.6	-.9	69	24	10	22	0	25	24	69	2.67	.32	1.00	15	1	6.2	2	14.8	SW	*51	W	15	6	7	18	6.9	--
East Lansing (U)	856	------	------	42	23	32.6	-.6	71	24	9	22	0	26	--	--	2.41	-.16	.79	14	2	6.6	6	6.6	NE	26	W	15	--	--	--	----	51
Escanaba (U)	594	992.6	------	33	16	24.5	-1.7	46	19	-4	18	0	31	--	77	1.56	-.22	.87	10	1	19.4	20	10.5	---	41	N	15	7	12	12	6.0	64
Flint	761	986.1	1015.0	39	20	29.6	-2.8	66	24	2	10	0	28	22	73	1.98	-.21	.49	12	0	11.9	5	12.6	WSW	*41	SW	15	5	11	15	6.8	--
Grand Rapids	681	989.2	1015.2	40	23	31.5	-1.0	69	24	8	18	0	26	24	74	2.99	.64	.99	16	2	19.9	9	12.2	E	38	NW	15	5	7	19	7.3	45
Inkster (Wayne Co.)	630	990.5	1015.4	43	25	33.9	----	68	24	10	22	0	27	24	69	2.41	----	.94	14	1	6.8	3	13.6	SW	--	---	--	7	6	18	6.9	--
Marquette (U)	677	987.5	------	35	19	27.1	.2	58	19	3	22	0	31	--	70	2.36	.31	1.09	10	0	29.6	27	8.3	S	45	SW	18	8	6	17	6.8	67
Muskegon	627	991.5	1015.5	39	22	30.3	-2.1	57	24	9	22+	0	27	24	75	2.99	.81	1.17	17	2	16.9	13	----	---	--	---	--	5	6	20	7.4	--
Sault Ste. Marie	721	992.2	1016.1	33	13	22.6	-.4	46	25+	-9	18	0	31	18	83	1.64	-.21	.57	11	0	23.8	40	10.2	WNW	*29	WNW	16+	10	6	15	6.0	59
MINNESOTA																																
Duluth	1409	972.9	1015.7	36	15	25.3	3.1	54	23	-3	21	0	30	16	68	.22	-1.56	.08	8	0	3.7	11	12.1	WNW	45	NW	15	6	11	14	6.5	68
Intern'l. Falls	1179	972.9	1015.5	35	11	22.7	2.7	52	29	-12	17	0	31	14	68	.42	-.61	.17	8	0	3.0	15	7.6	WNW	*25	SSE	22+	9	12	10	5.6	--
Minneapolis	830	981.0	1015.8	43	25	34.0	3.1	68	23	7	21	0	26	20	60	.59	-.89	.24	11	0	5.7	1	11.7	NW	34	NW	15	7	9	15	6.6	65
Rochester	1017	977.7	1016.1	38	20	28.9	-1.5	56	31	-5	7	0	28	22	73	1.16	-.39	.42	11	0	10.4	14	9.8	S	--	---	--	7	7	17	6.7	--
St. Cloud	1034	976.6	1015.7	43	20	31.5	4.6	65	23	3	21+	0	30	18	61	.10	-1.05	.06	4	0	.8	1	----	---	--	---	--	6	8	17	6.7	--
MISSISSIPPI																																
Jackson	305	1004.9	1017.2	68	42	54.6	-2.2	82	26	30	7	0	3	40	61	4.86	-1.37	1.38	9	9	.0	0	8.6	SSE	42	SE	4	14	7	10	4.5	70
Meridian	294	1003.6	------	68	41	54.3	-2.2	82	31	28	7+	0	6	--	--	3.87	-2.71	1.02	9	2	.0	0	----	---	--	---	--	14	7	10	4.6	--
Vicksburg (U)	234	1007.7	------	67	46	56.2	-1.9	79	26	35	6	0	0	--	--	3.20	-2.83	1.32	8	8	.0	0	9.5	---	31	SW	20	16	6	9	4.0	66
MISSOURI																																
Columbia	778	985.8	1014.9	55	34	44.7	1.9	77	24	20	22	0	15	30	62	2.79	-.22	1.52	12	7	.5	T	13.7	SSE	52	W	31	6	8	17	6.4	56
Kansas City	741	977.7	1014.2	56	37	46.4	2.6	78	24	26	7+	0	13	30	58	4.29	1.78	1.84	9	4	6.1	3	13.0	SSW	39	N	14	8	9	14	6.5	53
St. Joseph	809	978.7	------	54	33	43.3	1.4	74	23	19	7	0	17	--	--	3.78	1.57	1.66	10	5	6.9	5	15.0	S	*44	N	14	9	8	14	6.2	--
St. Louis RFC	465	------	------	56	36	45.7	.4	78	25+	25	22	0	12	--	--	2.27	-1.37	.90	10	--	1.0	T	----	---	--	---	--	--	--	--	---	--
St. Louis	552	994.2	1015.1	56	35	45.7	1.3	78	24	25	7	0	15	31	62	2.40	-1.02	.68	12	4	.4	T	13.3	SE	38	W	15	7	8	16	6.4	63
Springfield	1265	966.5	1014.8	57	34	45.7	.8	81	24	23	22	0	15	31	62	2.93	-.23	1.03	12	6	.8	T	17.3	SSE	50	NW	15	12	7	12	5.2	68
MONTANA																																
Billings	3567	889.3	1015.2	50	31	40.4	6.3	66	21	21	20	0	21	24	55	.23	-.70	.15	6	0	3.1	2	13.2	SW	47	NW	1	4	6	21	7.4	58
Butte	5530	828.0	1020.0	39	17	27.8	.6	55	21	-3	2	0	31	18	--	.07	-.71	.04	4	0	4.2	5	7.7	NW	*38	WNW	1	3	9	19	7.6	--
Glasgow	2277	939.4	1015.8	43	22	32.0	3.6	61	28	5	6+	0	30	--	78	.14	-.46	.08	4	0	.7	6	----	---	--	---	--	8	6	17	6.6	--
Great Falls	3664	886.6	1015.0	47	29	38.1	5.6	65	21	20	20	0	24	21	53	.58	-.41	.29	6	0	5.0	3	11.6	SW	56	NW	1	3	12	16	7.2	79
Havre (U)	2488	924.5	1015.2	49	29	38.6	8.3	69	21	18	20	0	25	--	--	.08	-.62	.03	4	0	.1	T	9.7	---	33	W	18+	7	11	13	6.0	65
Helena	3893	872.7	1017.6	46	26	36.3	4.1	65	17	16	20	0	30	22	57	.02	-.70	.01	2	0	.4	3	10.5	W	47	NW	1	3	11	17	7.1	56
Kalispell	2965	------	------	43	26	34.3	.6	53	25	12	2	0	27	--	--	.61	-.40	.17	12	1	3.4	7	----	---	--	---	--	2	5	24	8.0	--
Miles City	2629	929.9	1015.8	47	26	36.8	5.6	68	21	14	6	0	28	27	--	.07	-.63	.05	3	0	.6	5	10.3	WNW	*46	NW	1	3	10	18	7.0	--
Missoula	3200	903.2	1020.1	46	28	36.5	1.8	65	21	16	2	0	26	25	67	.62	-.21	.16	11	0	4.9	4	5.8	NW	40	NW	1	2	4	25	8.5	44
NEBRASKA																																
Grand Island	1841	947.5	1015.0	50	27	38.2	.6	75	18	11	7	0	24	28	70	4.35	3.07	2.06	10	2	12.2	7	15.8	NW	--	---	--	6	9	16	6.5	--
Lincoln (U)	1166	------	------	50	32	40.6	1.2	73	18	16	7	0	18	--	--	4.56	3.09	1.75	9	3	12.1	8	13.0	NE	53	SW	18	8	9	14	6.4	60
Norfolk	1544	958.3	1015.2	47	26	36.3	1.4	73	18	3	7	0	25	27	70	3.19	1.64	1.52	9	0	14.9	7	----	---	--	---	--	6	8	17	7.0	--
North Platte	2779	914.0	1014.9	50	23	36.6	.2	75	18	11	15	0	28	26	68	2.61	1.70	2.26	7	1	10.2	4	12.3	NW	47	NW	9	5	10	16	7.0	56
Omaha	978	974.6	1015.7	49	30	39.4	1.2	74	24	14	7	0	22	28	68	3.35	2.03	1.45	9	2	13.2	8	13.8	SSE	49	N	14	6	11	14	6.7	55
Omaha N.Omaha AP	1323	965.8	------	46	28	37.1	1.2	70	23	10	7	0	24	--	--	3.84	2.52	1.34	11	2	11.8	9	----	---	--	---	--	6	10	15	7.0	--
Scottsbluff	3950	877.4	1016.6	47	22	34.8	-.1	65	23	6	15	0	31	23	64	1.33	.45	.86	12	1	17.5	12	13.9	WNW	*40	NNE	14+	6	7	18	7.2	--
Valentine	2587	922.1	------	49	23	35.7	2.4	74	23	4	15	0	28	--	67	.47	-.78	.26	6	0	4.9	4	11.8	N	42	NW	2	4	5	22	7.7	57
NEVADA																																
Elko	5075	846.6	1020.5	52	19	35.7	-.4	64	17	8	11	0	30	17	48	.60	-.09	.36	5	1	1.7	1	6.9	SW	*35	WNW	13	9	10	12	5.8	--
Ely	6257	810.0	1019.6	51	20	35.6	.3	61	17	8	11	0	31	51	17	.31	-.98	.22	5	0	3.3	2	13.5	S	39	NW	19	16	7	8	4.5	85
Las Vegas	2162	950.6	1016.4	72	42	57.2	.7	81	18	33	5	0	0	14	20	T	-.35	T	0	0	.0	0	8.8	SW	*40	NW	19	21	4	6	2.9	94
Reno	4397	864.9	1020.9	61	24	42.6	2.0	68	12	16	25	0	26	20	44	.07	-.63	.05	2	0	.1	T	6.5	NW	46	SSE	30	14	11	6	4.2	86

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure		Temperature								No. of days				Precipitation					Snow, Sleet		Wind					No. of days (sunrise to sunset)				
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days .01 inch or more	No. of days With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile Speed	Fastest mile Direction	Fastest mile Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F.	°F	°F		°F				°F.	%	In.	In.	In			In	In.	M p. h.		M. p. h.			0-3	4-7	8-10	0-10	%
NEVADA (Cont'd.)																																
Winnemucca	4299	871.0	1021.3	57	20	38.8	-0.6	67	17+	9	15+	0	30	18	44	0.06	-0.80	0.06	1	0	T	T	8.3	S	33	W	30	11	6	14	5.7	51
NEW HAMPSHIRE																																
Concord	339	1003.0	1014.2	42	20	31.1	-.7	66	20	1	11	0	30	19	64	4.45	1.41	1.44	10	0	30.3	23	9.5	NW	32	E	12	15	2	14	4.9	63
Mt. Washington	6262	794.3	------	16	0	8.2	-3.8	31	31	-20	22	0	31	--	85	5.21	-.34	1.83	18	0	52.0	8	42.6	W	‡116	NW	13	7	6	18	6.8	43
NEW JERSEY																																
Atlantic City (U)	10	------	------	47	33	40.3	-1.2	70	24	24	23	0	16	--	--	3.94	.41	1.12	13		--	-	13.9	---	60	NW	13	--	--	--	--	59
Atlantic City	58	1013.2	1015.6	50	32	40.9	-.6	69	24	18	23	0	17	29	68	3.84	.49	1.14	15	1	T	T	14.4	W	-	---	--	11	8	12	5.4	--
Newark	11	1014.2	1015.6	49	31	40.3	-.2	73	20	20	23	0	18	26	62	4.09	.31	1.52	13	2	8.2	4	11.7	WNW	*32	NW	22	10	9	12	5.7	
Trenton (U)	56	1007.7	1015.5	50	32	40.8	-.5	75	25	21	23	0	18	--	--	3.80	.60	1.03	12	0	5.2	3	11.2	---	39	NW	13	12	6	13	5.3	60
NEW MEXICO																																
Albuquerque	5310	847.3	1014.1	60	32	45.9	-.1	71	30+	18	5	0	13	15	33	.42	-.02	.38	5	0	4.8	4	10.5	SE	50	NW	19	16	12	3	3.2	[illegible]
Clayton	4969	844.9	1015.9	56	24	40.3	-1.2	73	13	12	16	0	25	--	--	1.57	.91	.90	4	0	14.0	9	----	-	--	---	--	13	8	10	4.9	--
Raton	6379	802.2	1014.2	54	18	36.2	-1.9	68	24+	7	7	0	31	--	--	.22	-.42	.20	2	0	2.4	T	----	---	--	--	--	12	10	9	4.8	-
Roswell	3612	891.6	1013.5	69	31	49.7	-1.0	82	30+	16	6	0	18	18	62	.03	-.50	.03	1	0	.3	T	14.4	---	66	NW	14	18	11	2	3.4	--
NEW YORK																																
Albany	277	1011.6	1015.3	42	23	32.2	-.9	65	20	5	29	0	30	21	66	3.20	.87	1.18	12	0	29.1	12	10.8	WNW	42	W	7	13	3	15	6.0	62
Binghamton	1590	953.9	1014.6	39	23	30.8	-.3	66	25	8	22	0	26	20	67	2.34	-.65	.61	15	0	25.7	11	11.3	NW	57	NW	13+	4	14	13	6.9	54
Buffalo	693	986.6	1016.1	40	22	31.0	-2.0	59	15	7	22	0	26	23	72	3.87	1.15	1.19	15	0	29.2	6	13.3	WSW	68	W	7	5	10	16	7.0	55
New York (U)	10	1013.8	------	48	32	40.0	-.7	68	20	21	23	0	16	--	--	3.93	.37	1.12	11	1	6.8	5	16.4	NW	63	NW	13	13	6	12	5.2	64
New York	19	1013.6	1015.5	48	33	40.1	-.4	71	20	20	23	0	16	25	60	4.79	1.29	1.54	12	2	10.8	6	16.5	WNW	60	NW	22	12	8	11	5.8	--
Rochester	543	996.1	1016.0	38	22	30.2	-2.8	56	20	8	29	0	29	23	75	2.28	-.68	.80	17	0	40.3	17	13.3	WSW	56	W	15+	3	12	16	7.1	55
Schenectady	217	------	------	42	25	33.5	1.0	61	20	9	11	0	29	--	--	2.33	-.36	.79	9	0	23.9	12	----	---	--	---	--	19	5	7	3.6	--
Syracuse	424	993.1	1016.0	40	22	31.1	-3.1	60	20	8	22	0	28	23	76	2.93	-.31	.83	14	0	26.0	10	11.6	WNW	50	W	7	5	9	17	7.0	56
NORTH CAROLINA																																
Asheville (U)	2203	936.2	------	56	33	44.6	-2.2	78	25	24	8	0	17	--	--	3.37	-.20	1.43	11	3	T	T	9.9	---	35	NW	12	14	5	12	4.9	65
Cape Hatteras (R)	9	1016.3	1017.1	60	43	51.5	-1.2	71	26	32	3	0	1	42	71	7.82	3.93	1.53	16	3	T	0	12.3	SW	--	---	--	8	8	15	6.0	
Charlotte	725	989.4	1017.2	62	37	49.2	-1.8	80	25	26	19+	0	10	34	62	4.32	.23	1.16	12	0	1.3	1	11.8	SSW	39	SW	6	12	8	11	5.2	68
Greensboro	891	984.9	1017.6	60	33	46.6	-1.6	80	25	21	19	0	16	31	60	3.10	-.55	1.15	12	1	T	T	9.9	SW	34	SW	6	12	9	10	5.0	74
Raleigh	433	1003.1	1017.3	61	36	48.6	-1.5	82	25	21	19	0	12	34	62	3.22	-.38	.72	12	1	T	T	8.9	SSW	*35	SSW	6	11	11	9	5.1	64
Wilmington	30	1016.3	------	64	43	53.0	-1.7	80	25	33	24	0	0	--	--	6.48	3.03	2.90	14	0	T	0	14.1	---	45	SW	3	11	6	14	5.8	56
Winston-Salem	967	981.2	1017.1	60	35	47.4	-1.1	80	25	27	23+	0	13	31	56	3.18	-.65	1.30	13	1	T	0	11.2	SSW	*35	SSW	6	12	8	11	4.9	-
NORTH DAKOTA																																
Bismarck	1650	953.9	1016.1	43	24	33.1	6.4	60	29+	13	4	0	29	24	72	.24	-.52	.14	5	0	4.5	4	9.7	WNW	52	NW	2	3	10	18	7.4	61
Devils Lake (U)	1471	960.4	------	39	21	30.0	7.4	61	28	3	21	0	29	--	72	.12	-.61	.06	4	0	1.3	7	8.6	NW	28	NW	2	10	8	13	6.1	69
Fargo	895	980.4	1016.2	41	21	30.9	5.6	58	28+	1	21	0	30	21	69	.08	-.81	.06	3	0	.2	T	14.5	N	46	N	20	7	10	14	6.3	64
Williston (U)	1877	945.8	1015.3	43	26	34.5	8.0	60	29+	8	4	0	26	25	68	.17	-.58	.13	3	0	1.3	3	7.1	S	29	W	18	5	8	18	6.6	64
OHIO																																
Akron	1210	977.0	1016.0	45	25	34.8	-1.7	73	25	14	22+	0	25	26	73	2.38	-.78	.51	14	2	13.7	6	13.7	S	--	--	-	6	4	21	7.4	--
Cincinnati Obs.	761	------	------	53	32	42.1	-1.2	78	25	18	22	0	18	--	--	2.54	-1.53	.79	13	1	9.2	6	8.1	---	37	SW	15	-	--	-	---	51
Cincinnati	869	983.5	1016.3	51	31	41.1	-.6	77	25	17	22	0	18	27	62	2.52	-1.52	.86	13	1	7.9	4	11.7	SSW	*40	WSW	15+	5	6	20	7.3	-
Cleveland	787	986.8	1015.6	45	28	36.5	-.3	70	24	16	22	0	25	26	69	2.14	-.75	.53	19	1	14.6	7	15.9	S	70	SW	15	4	6	21	7.5	49
Columbus (U)	724	------	------	49	30	39.4	-1.7	74	25	15	22	0	20	--	--	1.94	-1.28	.65	15	1	8.8	6	----	---	--	--	--	-	--	--	---	-
Columbus	815	986.1	1017.0	50	28	38.8	-1.0	75	25	14	22	0	22	28	67	1.45	-1.98	.38	17	0	5.1	4	10.3	S	43	SW	6	5	9	17	6.9	56
Dayton	1002	978.6	1016.1	49	28	38.4	-1.4	73	25	15	13	0	23	26	67	2.60	-.64	.82	14	0	8.7	5	13.2	SSW	63	SW	6	5	9	17	6.9	55
Sandusky (U)	603	992.2	------	44	28	36.3	-1.2	70	24	17	22	0	24	--	--	2.58	-.31	.66	17	2	6.9	3	11.0	---	65	SW	15	6	18	7	5.7	67
Toledo	676	989.8	1015.8	45	26	35.3	-.5	69	24	11	22	0	24	26	71	3.15	.29	.90	17	2	3.5	2	11.7	SSW	38	SW	15+	5	9	17	7.1	66
Youngstown	1178	972.4	1015.7	44	23	33.9	-2.8	70	25	11	18	0	25	25	72	2.50	-.95	.58	19	2	15.0	6	12.6	WSW	*55	WSW	15	5	4	22	7.5	-
OKLAHOMA																																
Oklahoma City	1280	970.5	1014.9	63	37	49.6	-.1	85	24	25	22	0	11	33	58	1.40	-.69	.67	7	4	1.2	1	17.0	S	54	NW	14	16	7	8	4.1	69
Tulsa	672	989.8	1015.9	63	40	51.5	1.6	82	14	25	7	0	5	33	55	3.02	.41	1.35	7	6	T	0	12.5	S	50	N	20	18	4	9	4.4	64
OREGON																																
Astoria	[illegible]	1021.0	1021.3	52	38	45.0	-.3	65	16	30	4	0	2	40	83	7.88	-.39	1.28	26	0	T	0	10.0	SE	*28	S	7	0	3	28	9.1	--
Burns (U)	4140	875.4	1020.3	51	24	37.7	-1.2	68	16	15	14	0	30	23	61	1.29	.52	.59	10	0	6.6	3	----	--	--	---	--	5	8	18	7.2	--
Eugene	361	1009.1	1023.0	56	37	46.3	-.4	65	15	28	14	0	5	--	--	3.61	-.25	.82	18	0	.0	0	8.8	---	*25	SW	30	1	8	22	8.1	--
Meacham	4050	------	------	41	27	33.7	-.3	60	16	19	15	0	29	--	--	3.52	-.14	.75	19	0	31.3	10	----	---	--	---	--	0	3	28	9.1	-
Medford	1312	974.6	1023.2	59	34	46.4	-.8	71	16	25	14	0	13	35	70	.88	-.64	.38	11	0	.0	0	4.5	S	*32	NW	25	6	6	19	7.2	--
Pendleton	1492	965.8	1020.5	55	35	45.1	-.1	68	16	28	14+	0	11	32	63	.92	-.26	.33	13	0	T	T	12.1	SE	*44	W	10	1	8	22	8.2	--
Portland	21	1016.6	1022.1	55	39	46.8	.2	65	16	31	2	0	5	38	72	3.22	-.25	.89	18	0	T	T	8.6	ESE	35	SW	31	0	3	28	9.1	34
Roseburg	505	1004.1	1023.0	58	35	46.5	-.4	78	16	27	14+	0	12	--	--	2.36	-.57	.62	16	0	.0	0	4.5	---	24	NW	21	2	8	21	8.0	39
Salem	195	1015.6	1022.8	56	36	46.0	-.8	65	15	28	14	0	8	39	78	4.45	.26	1.00	19	0	.0	0	7.2	S	*24	S	29	0	5	26	8.5	-
Sexton Summit (R)	3836	887.2	1023.0	45	31	37.8	-1.5	63	16	22	14	0	23	--	--	1.97	-.99	.66	13	0	6.1	9	11.2	---	--	---	--	6	7	18	7.7	--
PENNSYLVANIA																																
Allentown	376	1001.1	1015.9	48	27	37.7	-.2	72	25	17	29	0	27	25	64	3.24	.05	1.07	12	0	11.7	6	13.6	W	48	W	13	11	9	11	5.5	--
Erie	732	------	------	42	23	32.5	-1.6	62	20+	12	22+	0	26	--	--	3.14	.35	1.21	16	0	15.5	6	8.2	---	*35	SSW	15	8	8	15	6.8	--
Harrisburg	335	1001.6	1016.0	50	30	39.8	-1.0	76	25	21	23	0	20	22	54	2.57	-.30	.96	12	1	8.8	6	9.5	WNW	39	NW	13	7	9	15	6.1	70
Philadelphia (U)	26	------	------	52	34	42.9	-.6	75	25	25	29+	0	10	--	--	----	----	----	--	--	----	--	----	---	--	---	--	-	--	--	---	--
Philadelphia	7	1010.9	1015.7	51	32	41.5	-.8	74	25	23	29+	0	16	27	61	3.55	.23	1.31	13	1	1.5	1	12.9	N	49	NW	13	9	9	13	5.7	63
Pittsburgh (U)	749	------	------	50	30	39.5	-2.1	76	25	18	22	0	22	--	--	2.08	-1.33	.69	19	--	10.0	--	----	---	--	---	--	--	--	-	---	42
Pittsburgh	1151	985.1	1016.2	47	27	37.0	-1.6	74	25	16	22+	0	25	25	66	2.11	-1.09	.59	18	0	7.6	4	10.4	WSW	*40	W	15	5	5	21	7.1	50
Reading (U)	266	1003.3	1015.5	51	31	41.0	-.6	75	25	22	23	0	15	--	--	3.34	.03	1.07	14	1	4.8	3	13.3	---	47	SE	6	8	9	14	5.8	62
Scranton	940	980.5	1015.9	45	26	35.4	-.9	70	25	12	29	0	23	24	68	1.77	-1.06	.73	14	0	11.5	6	10.8	WSW	42	SE	6	6	14	11	6.2	55
Williamsport	527	996.7	------	45	26	35.6	-2.7	70	25	16	23	0	27	--	--	3.55	.21	1.38	15	--	16.4	9	----	---	--	---	--	6	11	14	6.4	--
RHODE ISLAND																																
Block Island	110	1008.0	------	43	31	36.8	-.3	54	24	19	23	0	17	--	--	8.52	4.98	1.82	13	1	7.8	2	----	---	--	---	--	14	9	8	5.1	-
Providence	55	1008.1	1014.4	45	28	36.4	-.4	70	20	16	23	0	22	22	63	6.04	2.46	1.58	17	2	11.0	6	14.3	WSW	*60	S	6	12	10	9	5.1	65
SOUTH CAROLINA																																
Charleston (U)	9	------	------	64	49	56.1	-2.0	76	25	37	2	0	0	--	--	7.58	4.20	4.34	15	--	T	0	11.3	---	38	NE	29	--	-		--	--
Charleston	41	1015.9	1018.2	66	44	54.8	-2.4	78	26+	31	8	0	1	45	75	11.11	7.49	6.63	15	2	T	0	10.3	S	--	---	--	10	6	15	6.3	69
Columbia	217	1004.6	1017.8	66	40	53.0	-2.2	84	25	28	19	0	3	37	61	6.28	2.49	1.89	12	0	1.0	1	9.3	WSW	*35	WSW	27	10	8	13	5.5	65
Florence	146	1011.1	1017.0	66	41	53.3	-2.1	82	25	30	19	0	2	38	62	4.91	1.37	1.92	12	1	T	0	8.7	S	*25	SW	6	11	5	15	5.7	
Greenville	1018	978.8	1017.2	60	39	49.6	-1.9	79	25	29	7	0	6	32	58	5.53	1.02	1.92	13	0	.4	T	9.9	SW	*29	WSW	27	13	6	12	5.0	74
Spartanburg	801	------	------	61	38	49.3	-2.4	80	25	27	8+	0	8	--	--	4.66	.17	1.75	12	2	.0	0	9.2	---	*35	WSW	6	--	--	--	---	--
SOUTH DAKOTA																																
Huron	1282	967.5	1016.0	48	25	36.0	4.3	73	18	13	21	0	28	25	70	.16	-.93	.09	5	0	.4	3	13.3	SSE	*38	NW	2	1	10	20	7.8	62
Rapid City	3165	899.4	1015.8	50	26	37.9	6.6	69	21	17	6	0	28	22	58	.60	-.46	.29	8	0	1.2	T	12.2	NNW	50	NW	1	2	13	16	7.3	60
Sioux Falls	1420	962.8	1015.7	45	26	35.2	3.2	67	23	14	21	0	27	23	64	.53	-.82	.21	6	0	3.6	2	12.2	SSE	*40	NW	2	3	11	17	7.4	--
TENNESSEE																																
Bristol	1519	961.9	------	57	31	44.1	-2.6	79	25	22	18+	0	19	--	--	4.06	.29	2.50	12	0	2.0	1	----	---	--	---	--	11	8	12	5.5	--
Chattanooga	670	989.3	1017.6	60	35	47.4	-3.3	80	25	23	8	0	12	33	63	3.83	-2.22	1.59	10	2	T	T	8.8	S	35	SW	6	13	7	11	5.1	62

See footnotes at end of table.

State and station	Elevation (ground) Ft	Pressure ø Station Mb	Pressure Sea level Mb.	Temperature Average maximum °F	Average minimum °F.	Average °F.	Departure from normal °F.	Highest °F	Date	Lowest °F.	Date	No. of days Max. 90° F. or above #	No. of days Min. 32° F. or below	Average dew point °F.	Average relative humidity %	Precipitation Total In.	Departure from normal In.	Greatest in 24 hours In.	No. of days .01 inch or more	No. of days With thunderstorms	Snow, Sleet Total In.	Snow, Sleet Max. depth on ground In.	Wind Average hourly speed M. p. h.	Prevailing direction	Fastest mile Speed M. p. h.	Fastest mile Direction	Fastest mile Date	No. of days (sunrise to sunset) Clear 0–3	Partly cloudy 4–7	Cloudy 8–10	Sky cover, tenths (sunrise to sunset) 0–10	Possible sunshine %
TENNESSEE (Cont'd.)																																
Knoxville	950	981.4	1017.6	59	36	47.1	-2.3	79	25	25	8	0	10	33	62	4.12	-0.71	2.38	13	2	0.3	T	9.4	NE	46	W	6	13	4	14	5.2	55
Memphis (U)	271	------	------	61	43	52.1	-.3	81	31	32	22	0	1	--	--	3.98	-1.22	1.70	7	--	.0	0	----	---	--	---	--	--	--	--	----	--
Memphis	263	1002.0	1017.1	63	40	51.7	-.3	81	31	30	23	0	4	34	56	3.56	-2.03	1.41	9	3	.0	0	10.3	SSW	32	S	14+	17	8	6	3.7	76
Nashville	577	996.7	1017.1	60	36	47.8	-2.0	79	31	26	23+	0	12	35	64	3.71	-1.57	1.14	10	2	T	T	10.1	S	42	SW	14+	15	5	11	4.5	64
Oak Ridge	905	982.6	------	57	32	44.6	-3.5	80	25	20	8	0	17	--	--	4.28	-1.41	1.90	13	2	.1	T	5.6	---	41	---	6	13	5	13	5.1	--
TEXAS																																
Abilene	1759	953.3	1014.6	72	40	56.0	.9	88	31+	25	6	0	7	30	43	.42	-.70	.30	2	1	T	0	15.1	SSW	41	NW	20	24	5	2	2.3	85
Amarillo	3590	886.6	1013.4	62	29	45.9	-.2	79	24+	16	15	0	22	15	37	.26	-.78	.12	4	1	1.4	1	14.6	SW	54	NW	14	16	7	8	4.2	85
Austin	615	994.2	1016.9	73	47	59.9	-.4	91	14	32	6	1	1	42	56	.23	-2.31	.25	3	2	.0	0	10.8	S	34	NW	21	10	14	7	5.0	60
Brownsville	16	1013.5	1016.3	72	57	64.3	-3.7	82	14	41	6	0	0	57	78	.60	-.51	.29	5	0	.0	0	11.8	SSE	33	NW	21+	2	10	19	8.1	40
Corpus Christi	41	1015.9	1017.1	73	54	63.5	-1.8	91	14	36	6	1	0	52	69	.31	-1.32	.31	2	1	.0	0	11.5	SSE	34	S	4	4	11	16	6.9	61
Dallas	487	997.0	1016.1	69	45	56.8	-.6	89	14	32	6	0	1	36	50	1.26	-1.55	.60	7	5	.0	0	13.9	S	45	NW	5	19	6	6	3.4	77
Del Rio (U)	957	------	------	76	49	62.4	-.5	89	14	30	6	0	1	--	--	T	-.93	T	0	1	.0	0	----	---	--	---	--	--	--	--	---	--
El Paso	3920	885.5	1014.1	68	40	54.0	-.5	77	23	28	12	0	5	17	25	.07	-.21	.07	1	0	T	T	14.1	W	56	NW	19	21	7	3	2.9	93
Fort Worth	544	994.9	1016.0	70	43	56.6	.9	89	14	30	6	0	2	36	52	2.31	-.36	1.41	7	4	.0	0	16.3	S	*41	WSW	31	20	6	5	3.0	--
Galveston (U)	7	------	------	66	56	60.8	-1.0	75	26	45	6	0	0	--	--	.23	-2.87	.20	3	--	.0	0	13.5	---	38	NW	5	--	--	--	---	63
Galveston	5	1014.9	1017.6	66	55	60.7	-1.1	75	11	44	6	0	0	50	71	.24	-3.02	.19	4	1	.0	0	13.3	ESE	--	---	--	7	12	12	6.2	--
Houston (U)	41	1011.5	------	71	52	61.4	-1.2	81	26	42	6	0	0	--	--	.80	-2.30	.53	6	1	.0	0	11.6	SE	37	SE	4	10	9	12	5.5	66
Houston	50	1014.6	1017.6	70	50	60.3	-1.3	83	26	38	6	0	0	48	66	1.58	-1.20	.95	5	1	.0	0	13.9	SE	--	---	--	7	8	16	6.4	--
Laredo	500	1000.7	1016.0	77	53	65.0	-3.4	92	14	38	6	3	0	46	55	T	-.90	T	0	0	.0	0	11.7	SE	*31	NE	3	8	9	14	6.1	--
Lubbock	3243	901.5	1014.2	67	31	49.0	-.7	83	24	19	6	0	17	21	38	T	-.80	T	0	1	T	T	16.8	SW	*58	N	20	18	11	2	2.9	--
Midland	2854	915.0	1014.5	70	38	53.9	-1.8	84	30	28	12+	0	8	25	39	.16	-.47	.16	1	0	T	T	12.3	SSW	*44	WSW	25	20	9	2	2.8	--
Port Arthur	16	915.2	1017.1	70	49	59.4	-.9	82	26	37	6	0	0	49	71	.85	-3.15	.26	7	5	T	0	13.5	S	38	W	5+	8	11	12	5.9	66
San Angelo	1903	947.5	1015.1	72	42	57.1	-1.1	88	31+	28	12+	0	5	31	43	.11	-.84	.11	1	0	.0	0	16.3	SW	*46	NW	20	22	8	1	2.1	--
San Antonio	792	990.9	1016.5	73	47	60.0	-1.4	88	14	31	6	0	1	41	55	.13	-1.99	.10	3	1	T	0	11.0	SSE	39	NE	15	10	11	10	5.1	69
Victoria	110	1011.9	1016.8	73	51	61.6	-2.3	89	14	38	6	0	0	48	63	.38	-2.26	.27	3	1	T	T	11.4	SSE	‡43	NW	21+	6	13	12	6.1	--
Waco	500	994.2	1016.2	72	44	58.1	-.3	89	14	30	6	0	2	39	54	.22	-2.72	.12	3	3	.0	0	14.6	S	*44	WNW	5	16	10	5	4.0	--
Wichita Falls	1020	977.0	1014.4	70	39	54.8	1.8	91	24	25	6	2	8	28	41	.57	-1.04	.42	5	0	T	0	13.8	SSE	*42	NNW	14	17	7	7	3.4	--
UTAH																																
Milford	5028	845.2	1019.3	56	22	39.0	-.2	68	17+	10	5	0	29	--	--	.90	-.16	.86	4	0	6.0	1	----	---	--	---	--	12	10	9	4.8	--
Salt Lake City	4220	869.3	1019.6	53	30	41.4	.3	67	22	20	5	0	21	23	50	.79	-.87	.36	7	2	.4	T	9.8	S	33	NW	3	10	8	13	5.8	63
VERMONT																																
Burlington	331	999.8	1015.0	37	19	27.8	-1.5	56	20	1	11+	0	28	17	64	1.31	-.88	.45	10	0	13.1	10	9.0	NW	40	S	6	8	11	12	6.1	68
VIRGINIA																																
Lynchburg	947	981.8	------	57	34	45.5	-.9	80	25	23	[illegible]	0	16	--	--	3.40	-.17	1.20	12	2	T	0	9.8	---	34	SW	6	10	13	8	4.8	68
Norfolk	26	1015.5	1016.9	59	40	49.4	.3	82	25	30	19	0	3	35	63	3.96	.69	.93	14	2	T	0	11.6	SSW	47	SW	6	11	9	11	5.4	68
Richmond	162	1010.6	1017.1	59	35	47.3	-.2	83	25	24	8	0	11	30	57	2.92	-.50	1.07	9	2	.0	0	9.9	S	33	W	27	13	10	8	4.7	64
Roanoke	1174	973.8	1017.0	58	33	45.5	-.8	81	25	21	8	0	18	26	52	3.38	.19	1.47	12	2	T	T	10.5	WNW	--	---	--	10	12	9	4.9	--
WASHINGTON																																
Olympia	190	1013.5	1020.7	52	35	43.4	-.3	60	16	28	20+	0	10	36	75	4.63	.13	1.14	21	0	1.0	1	9.5	SW	*33	SSW	27	0	5	26	8.8	--
Seattle (U)	14	------	------	52	41	46.3	-.7	59	16	34	14	0	0	--	--	3.39	.33	.61	17	--	T	0	----	---	36	SW	30+	--	--	--	---	38
Seattle	14	1019.3	1020.3	--	--	----	----	--	--	--	--	--	--	36	69	----	----	----	--	--	----	--	9.1	S	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	1006.1	1020.2	50	38	44.2	-.3	59	16	31	20+	0	3	36	75	4.12	.72	.71	22	0	T	0	12.2	SSW	*35	SW	8	0	7	24	8.6	--
Spokane	2357	948.9	1018.8	48	31	39.2	1.1	57	25	22	14	0	23	29	69	1.21	-.13	.63	11	0	3.1	1	10.4	SSW	36	W	8	2	11	18	7.6	62
Stampede Pass (R)	3958	879.8	1021.0	34	26	29.9	-.8	54	16	18	14	0	31	--	--	13.69	3.09	1.89	26	0	97.3	122	----	---	--	---	--	0	1	30	9.7	--
Tatoosh (R)	101	1015.9	1018.9	48	40	44.2	-.5	53	17+	33	13	0	0	38	80	10.50	2.68	2.20	27	1	T	T	16.4	WNW	49	W	1	0	5	26	9.0	35
Walla Walla (U)	949	983.4	1019.6	56	39	47.2	.4	70	16	31	14	0	2	--	--	1.50	-.02	.44	12	0	T	T	6.7	---	26	W	13	0	11	20	8.2	41
Yakima	1061	980.4	1020.0	55	29	42.1	-1.6	64	17	20	20	0	24	27	57	.80	.34	.38	6	0	.0	0	8.8	NW	*32	WNW	2	6	7	18	7.2	--
WEST VIRGINIA																																
Charleston	950	980.3	1016.4	55	31	43.1	-1.8	79	25	19	23	0	16	25	54	2.28	-1.88	.60	14	2	.4	T	7.7	WSW	*25	WSW	6+	7	7	17	6.6	--
Elkins	1970	------	------	51	23	37.1	-2.2	74	25	13	23+	0	31	26	--	2.45	-1.34	.64	20	0	4.4	3	9.2	WNW	*36	NW	27	6	7	18	6.9	--
Huntington (U)	565	------	------	56	32	43.7	-3.5	81	25	19	18	0	17	--	--	1.91	-2.17	.60	12	--	T	T	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	------	53	30	41.4	-2.2	78	25	20	23+	0	21	--	--	2.20	-1.34	.47	16	1	2.6	1	6.9	---	33	W	15	8	7	16	6.2	55
WISCONSIN																																
Green Bay	689	992.6	1016.1	34	16	24.9	-3.6	44	19	-7	10	0	29	20	81	1.87	.11	.93	12	1	19.6	17	12.5	NE	45	NE	6	11	7	13	5.8	56
La Crosse	652	989.8	1015.1	38	19	28.8	-2.8	55	23	-2	17	0	28	22	72	3.07	1.21	1.55	10	0	33.5	31	9.6	S	*37	NW	15	7	8	16	6.6	--
Madison	857	979.0	1015.6	40	19	29.3	-3.2	59	31	-2	18	0	28	23	77	2.90	1.07	1.12	12	3	25.4	16	10.4	ENE	42	NE	26+	8	7	16	6.4	56
Milwaukee	672	989.2	1015.8	38	24	30.9	-2.4	60	24	10	18	0	28	24	78	3.03	.84	.94	10	2	14.5	5	12.2	NNE	43	E	26	8	7	16	6.6	60
WYOMING																																
Casper	5319	834.7	1015.9	43	23	32.6	.2	57	23+	5	14	0	28	22	67	1.32	.19	.47	17	1	22.1	4	15.4	SW	*44	N	19+	5	9	17	7.1	--
Cheyenne	6131	808.7	1016.5	41	21	31.1	-.7	57	17	9	15+	0	31	18	59	1.09	-.13	.45	14	0	14.3	6	18.5	NNW	59	W	3	7	13	11	6.1	80
Lander	5563	833.4	1016.8	44	21	32.9	1.6	57	30+	6	5	0	29	19	60	2.17	1.03	.88	12	0	34.5	7	6.6	---	37	N	3	9	11	11	5.6	80
Sheridan	3942	882.8	1016.7	45	24	34.7	3.1	65	21	9	5	0	29	24	67	.80	-.57	.16	15	0	6.8	3	10.3	NW	43	N	1	6	6	19	6.9	55
PACIFIC AREA																																
Canton Island	9	1008.8	1009.1	91	79	84.6	1.5	93	29	74	8	25	0	74	75	3.00	1.08	1.45	10	0	.0	0	14.9	E	*25	E	31+	0	1	30	9.5	--
Guam (R)	361	------	------	85	71	77.9	-.1	88	19+	62	28+	0	0	--	--	2.08	-.50	.61	14	0	.0	0	----	---	26	E	9+	--	--	--	---	89
Hilo	31	1018.0	1019.2	79	64	71.5	.7	82	26+	60	15+	0	0	63	76	7.83	-7.89	3.24	27	0	.0	0	9.1	WSW	*25	SE	1	4	20	7	6.0	53
Honolulu	7	1019.3	1019.6	81	69	75.2	2.2	85	2	62	3	0	0	62	67	.16	-2.14	.09	2	0	.0	0	15.7	ENE	33	E	8	6	24	1	4.6	87
Koror (R)	94	1006.8	1010.5	87	75	81.0	.1	89	9	74	26+	0	0	76	85	10.82	3.14	2.84	23	0	.0	0	----	---	--	---	--	0	3	28	9.1	--
Lihue	115	1014.9	1020.0	80	68	74.3	3.7	83	30+	58	3	0	0	64	74	1.37	-2.70	.51	15	0	.0	0	13.2	NE	25	NE	31+	8	16	7	5.1	59
Majuro	10	1009.8	1010.2	86	77	81.5	----	87	31+	74	3	0	0	75	80	8.72	----	3.12	16	0	.0	0	15.8	---	36	NE	3	0	0	31	10.0	56
Ponape (R)	120	1004.7	1009.9	85	76	80.6	-1.0	89	25	73	28+	0	0	75	84	22.03	10.67	5.37	24	3	.0	0	9.5	---	36	E	6	0	3	28	9.5	37
Truk, Moen Island	5	1010.2	1010.5	85	77	81.1	-.2	87	22+	74	8+	0	0	75	81	9.11	2.48	4.62	19	0	.0	0	----	---	26	SE	13	0	0	31	9.9	--
Wake Island	11	1016.3	1016.6	83	73	78.1	.2	85	31+	68	2	0	0	68	74	.55	-.85	.22	8	0	.0	0	15.1	ENE	*33	ENE	2	14	12	5	4.5	--
Yap (R)	55	1008.8	1010.8	86	77	81.3	-.2	88	31+	73	15+	0	0	74	81	9.07	4.36	4.52	18	0	.0	0	9.3	---	*21	NE	5+	0	2	29	9.6	--
WEST INDIES																																
San Juan, P.R. (U)	47	------	------	83	72	77.7	2.1	88	23+	70	2	0	0	--	--	.76	-1.66	.21	10	--	.0	0	----	---	--	---	--	--	--	--	---	--
San Juan, P.R.	15	1014.3	1017.3	85	68	76.7	1.7	90	28	63	23	1	0	67	76	1.34	-1.35	.48	9	0	.0	0	8.5	ENE	30	SE	4	10	19	2	4.5	80
Swan Island	31	1012.4	------	86	75	80.4	.8	87	31+	73	24+	0	0	--	--	.21	-.79	.06	5	0	.0	0	----	---	--	---	--	5	23	3	5.3	--
ALASKA																																
Anchorage	92	998.3	1004.2	25	3	14.0	-10.8	45	27	-15	17	0	31	3	59	.85	.25	.51	5	0	26.1	38	7.6	N	*23	NNE	20	15	5	11	4.6	71
Annette	110	1005.1	1009.1	43	34	38.7	.6	53	30	28	18+	0	12	33	83	23.57	14.89	3.32	29	0	16.2	4	15.3	SE	*46	SSE	4	0	4	27	8.9	--
Barrow	22	1020.0	1020.7	-19	-34	-26.6	-11.7	-5	31	-45	4	0	31	-37	56	.01	-.11	.01	1	0	.1	17	7.5	SW	25	E	31	20	5	6	3.2	--
Barter Island	39	1018.3	1020.2	-18	-32	-25.2	-10.9	-5	31	-44	11	0	31	-47	30	.16	-.10	.06	6	0	1.7	11	9.8	W	*35	W	13	14	10	7	4.7	--
Bethel	125	1008.8	1014.7	7	-13	-2.7	-14.2	38	30	-27	3	0	31	-9	74	.41	-.51	.12	10	0	5.5	16	12.3	NNE	*32	NNE	24	14	6	11	4.4	--
Cold Bay	90	1008.1	1012.2	26	13	19.4	-10.3	41	26	2	15	0	31	14	79	.76	-1.13	.20	14	0	7.6	4	16.3	NNE	*44	NNE	9+	7	6	18	6.5	--
Cordova	40	998.0	999.5	34	14	23.7	-6.4	46	26	-10	16	0	31	17	74	3.29	-2.63	1.41	15	0	44.6	25	5.5	ENE	*26	ESE	5	9	5	17	6.7	--
Fairbanks	436	995.6	1014.0	[illegible]	-21	-6.7	-15.7	42	31	-40	17+	0	31	-16	62	.15	-.43	.07	7	0	3.2	36	4.5	N	*14	NNW	1	12	6	13	5.5	--
Juneau	15	1003.7	1004.6	39	29	33.8	1.0	51	30+	16	18	0	24	29	83	4.56	1.09	.63	24	0	28.3	9	10.2	ESE	40	SE	4	2	0	29	9.3	--
King Salmon	44	1007.8	1009.7	16	-4	5.7	-15.6	43	27+	-21	7	0	31	-1	73	.10	-1.12	.04	5	0	3.3	2	9.0	N	*29	N	11+	20	3	8	3.6	--
Kotzebue	10	1016.5	1016.8	-4	-21	-12.4	-10.8	24	31	-35	9	0	31	-21	69	.28	.01	.08	5	0	2.7	19	9.7	E	*33	ESE	19	19	2	10	3.9	--
McGrath	334	1000.3	1013.8	11	-23	-5.9	-13.2	35	31	-36	17+	0	31	-21	52	.03	-.95	.02	2	0	.9	21	3.4	NNW	*23	N	11	20	5	6	3.4	--
Nome	13	1014.9	1015.5	5	-16	-5.3	-13.8	27	31	-31	14	0	31	-11	73	.57	-.34	.16	13	0	7.3	28	6.9	E	*29	NE	25+	13	6	12	5.2	57
St.Paul Island	22	1016.3	1017.3	26	12	18.7	-5.8	36	17	1	12	0	31	13	76	.26	-.91	.17	5	0	2.6	3	----	---	--	---	--	7	18	6	5.3	--
Yakutat	28	1000.3	1001.3	37	23	29.8	-1.0	50	31+	1	17	0	30	25	81	11.63	1.74	2.39	25	0	111.0	96	10.8	ENE	*37	SE	4	4	3	24	8.3	--

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural,sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
\+ And also on an earlier date or dates.
a Maximum hourly average.
ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
\# Number of days maximum 70° or above for Alaskan Stations.

¢ City Office Data
† Airport Data
‡ Peak Gust

HEATING DEGREE DAYS

(Base 65°F.)

MARCH 1959

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
ALABAMA			
Birmingham	400	2699	2622
Mobile	254	1745	1565
Montgomery	314	2093	2057
ARIZONA			
Flagstaff	850	5492	6161
Phoenix (U)	65		1430
Phoenix	66	1112	1624
Prescott	548	3488	3984
Tucson	205	1441	1692
Winslow	595	3833	4215
Yuma	9	542	937
ARKANSAS			
Ft. Smith	421	3234	3037
Little Rock	364	2884	2842
Texarkana	327	2495	2278
CALIFORNIA			
Bakersfield	140	1569	1989
Bishop	440	3261	3725
Blue Canyon	645	3621	4523
Burbank	84	959	1549
Eureka (U)	478	3121	3543
Fresno	218	1934	2344
Los Angeles (U)	49	655	1235
Los Angeles	55	594	1653
Mt. Shasta (R)	655	4116	4833
Oakland	240	1785	2550
Red Bluff	222	1827	2318
Sacramento (U)	203	1715	2314
Sacramento	237	1936	2490
Sandberg (R)	438	2900	3491
San Diego	73	647	1283
San Francisco (U)	209	1736	2362
San Francisco	213	1515	2666
San Jose	200	1454	1998
Santa Maria	250	1691	2277
COLORADO			
Alamosa	1077	6923	7317
Colorado Springs	881	5121	5317
Denver	841	4978	5256
Grand Junction	728	4608	5226
Pueblo	772	4775	5023
CONNECTICUT			
Bridgeport	849	5170	5048
Hartford	928	5942	5379
New Haven	871	5314	5146
DELAWARE			
Wilmington	734	4724	4398
DIST. OF COLUMBIA			
Washington (U)	607	3917	3864
Washington	601	3907	3923
FLORIDA			
Apalachicola (U)	177	1207	1274
Daytona Beach	125	668	857
Fort Myers	49	309	405
Jacksonville	149	1109	1220
Key West	4	46	77
Miami	16	124	178
Miami Beach	11	79	123
Orlando	98	535	650
Pensacola (U)	220	1453	1390
Tallahassee	202	1384	1481
Tampa	78	442	674
West Palm Beach	28	175	248
GEORGIA			
Athens	460	2806	2657
Atlanta	422	2669	2673
Augusta	352	2387	2076
Columbus	356	2280	2299
Macon	315	2097	1987
Rome	514	3241	2952
Savannah	257	1824	1667
IDAHO			
Boise	737	4456	5096
Lewiston	654	4338	4785
Pocatello	842	5319	5962
ILLINOIS			
Cairo (U)	487	3670	3527
Chicago	853	5673	5516
Chicago University	866	5592	
Moline	861	5891	5667
Peoria	800	5598	5419
Springfield	719	5120	5086
INDIANA			
Evansville	624	4370	4013
Ft. Wayne	885	5785	5492
Indianapolis	803	5267	4973
South Bend	897	5940	5683
IOWA			
Burlington	817	5696	5463
Des Moines	877	5929	5762
Dubuque	1054	6839	6385
Sioux City	807	6134	6256

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
KANSAS			
Concordia (U)	658	4853	4816
Dodge City	662	4638	4561
Goodland	842	5302	5534
Topeka	622	4742	4731
Wichita	555	4328	4183
KENTUCKY			
Lexington	692	4433	4456
Louisville	627	4135	4055
LOUISIANA			
Baton Rouge	194	1634	1547
Lake Charles	181	1608	1503
New Orleans (U)	144	1274	1156
New Orleans	162	1382	1286
Shreveport	287	2265	2056
MAINE			
Caribou	1372	8805	8551
Greenville (U)	1324	8362	
Portland	1053	7183	6477
MARYLAND			
Baltimore (U)	602	3968	3804
Baltimore	691	4443	4289
Frederick	752	4827	4380
MASSACHUSETTS			
Blue Hill Obs. (R)	972	6058	
Boston	862	5258	4979
Nantucket	899	5138	4927
Pittsfield	1064	6775	6563
MICHIGAN			
Alpena (U)	1194	7118	6739
Detroit	945	5787	5535
Detroit (Willow Run)	935	5894	5618
East Lansing (U)	998	6120	
Escanaba (U)	1245	7538	7216
Grand Rapids	1091	6387	6089
Marquette (U)	1165	7341	7074
Muskegon	1072	6313	5981
S. Ste. Marie	1306	8188	7906
MINNESOTA			
Duluth (U)	1185	8660	8086
Duluth	1223	8718	8439
Internat. Falls	1304	9610	9158
Minneapolis	956	6893	6944
Rochester	1110	7417	7105
St. Cloud	1028	7732	7793
MISSISSIPPI			
Jackson	321	2368	2121
Meridian	335	2368	2239
Vicksburg (U)	273	2172	1929
MISSOURI			
Columbia	623	4587	4638
Kansas City	569	4287	4477
St. Joseph	666	4978	4869
St. Louis (U)	589	4240	4098
St. Louis	594	4408	4290
Springfield	591	4224	4264
MONTANA			
Billings	755	5836	6119
Glasgow	1018	8139	7668
Great Falls	828	6251	6409
Havre (U)	815	7235	7178
Helena	886	6866	7000
Kalispell	945	6693	6810
Miles City	866	7005	6889
Missoula	872	6274	6723
NEBRASKA			
Grand Island	823	5716	5654
Lincoln (U)	746	5192	5284
Norfolk	883	6154	6253
North Platte	871	5858	5755
Omaha	790	5530	5564
Scottsbluff	928	5862	5888
Valentine	901	6296	6161
NEVADA			
Elko	898	5542	6162
Ely	901	5760	6186
Las Vegas	239	2164	2333
Reno	686	4601	5034
Tonopah	655	4371	4946
Winnemucca	804	5038	5413
NEW HAMPSHIRE			
Concord	1044	6717	6554
Mt. Washington Obs.	1758	11698	
NEW JERSEY			
Atlantic City (U)	759	4502	4060
Newark	761	4708	4643
Trenton (U)	744	4706	4495
NEW MEXICO			
Albuquerque	587	3809	4030
Clayton	760	4575	4510
Roswell	466	3328	3211

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
NEW YORK			
Albany	1010	6430	6069
Binghamton	1053	6477	6459
Buffalo	1050	6046	5815
New York (U)	768	4616	4423
New York	765	4586	4391
Rochester	1073	6229	5905
Schenectady	974	6123	6180
Syracuse	1045	6302	5666
NORTH CAROLINA			
Asheville (U)	624	3778	3677
Cape Hatteras (R)	412	2400	2196
Charlotte	482	3045	3004
Greensboro	565	3667	3519
Raleigh	504	3334	3126
Wilmington	370	2447	2212
Winston-Salem	538	3454	3440
NORTH DAKOTA			
Bismarck	980	8025	7905
Devils Lake (U)	1079	8713	8659
Fargo	1051	8013	8148
Grand Forks	1170	8799	
Pembina	1270		
Williston (U)	941	7880	7907
OHIO			
Akron	931	5853	5381
Cincinnati (U)	648	4188	4110
Cincinnati	736	4719	4631
Cleveland	877	5455	5206
Columbus	809	5221	4960
Dayton	820	5309	4944
Sandusky (U)	887	5489	5088
Toledo	914	5879	5534
Youngstown	958	5927	5344
OKLAHOMA			
Oklahoma City	481	3617	3422
Tulsa	416	3399	3367
OREGON			
Astoria	616	3634	3957
Burns (U)	838	5131	5858
Eugene	574	3429	3961
Meacham	962	5704	6317
Medford	570	3516	3890
Pendleton	609	4184	4570
Portland (U)	520	3137	3527
Portland	559	3576	3901
Roseburg	566	3187	
Salem	579	3413	3826
Sexton Summit (R)	834	4576	4876
PENNSYLVANIA			
Allentown	838	5397	5196
Harrisburg	773	4943	4693
Philadelphia (U)	677	4273	4061
Philadelphia	721	4638	4360
Pittsburgh (U)	779	4827	4496
Pittsburgh	861	5463	5188
Reading (U)	740	4758	4515
Scranton	911	5911	5300
Williamsport	905	5609	5215
RHODE ISLAND			
Block Island	868	4975	4809
Providence	879	5427	5239
SOUTH CAROLINA			
Charleston (U)	274	1795	1726
Charleston	314	2082	1910
Columbia	370	2514	2352
Florence	360	2450	2424
Greenville	469	2907	2867
Spartanburg	482	2975	2866
SOUTH DAKOTA			
Huron	890	7123	6985
Pierre	859	6699	
Rapid City	833	5983	6415
Sioux Falls	918	6885	6934
TENNESSEE			
Bristol	640	3967	3779
Chattanooga	540	3353	3160
Knoxville	550	3426	3344
Memphis	410	3049	2974
Nashville	526	3530	3284
TEXAS			
Abilene	299	2643	2544
Amarillo	584	3976	3948
Austin	183	1822	1663
Brownsville	84	802	617
Corpus Christi	105	1137	1005
Dallas	259	2303	2197
Del Rio (U)	133	1598	
El Paso	335	2320	2531
Ft. Worth	276	2406	2266
Galveston (U)	134	1286	1181
Galveston	137	1310	1205
Houston (U)	133	1361	1249
Houston	163	1437	1352
Laredo	91	1103	781

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
TEXAS (Cont'd.)			
Lubbock	490	3393	3350
Midland	341	2701	
Port Arthur	183	1579	1478
San Angelo	264	2394	2045
San Antonio	179	1684	1545
Victoria	139	1336	1112
Waco	231	2102	1959
Wichita Falls	329	2843	2869
UTAH			
Milford	796	5113	5583
Salt Lake City	722	4563	5099
VERMONT			
Burlington	1145	7241	6805
VIRGINIA			
Lynchburg	595	3875	3777
Norfolk	478	3123	3130
Richmond	542	3657	3618
Roanoke	597	3828	3782
WASHINGTON			
Olympia	660	4031	4482
Seattle (U)	575	3354	3689
Seattle-Tacoma	637	3840	4336
Spokane	794	5431	5815
Stampede Pass (R)	1083	6931	7238
Tatoosh Island (R)	638	4173	4432
Walla Walla (U)	544	3975	4301
Yakima	702	4128	5179
WEST VIRGINIA			
Charleston	674	4259	3989
Elkins	860	5367	5019
Huntington (U)	651	4135	3732
Parkersburg (U)	724	4620	4271
WISCONSIN			
Green Bay	1236	7552	7109
La Crosse	1114	7064	6774
Madison	1098		6484
Milwaukee	1049	6623	6124
WYOMING			
Casper	999	5172	6451
Cheyenne	1045	5986	6210
Lander	990	6513	7057
Sheridan	934	6514	6710
ALASKA			
Anchorage	1575	9588	8964
Annette	810	5421	5607
Barrow	2847	15406	15673
Barter Island	2805	14979	
Bethel	2101	10853	10587
Cold Bay	1407	7613	
Cordova	1273	7996	7601
Fairbanks	2225	13240	12336
Juneau	959	7237	7223
King Salmon	1839	9523	
Kotzebue	2405	12784	12867
McGrath	2202	12931	12261
Nome	2184	11518	11220
St. Paul	1427	7989	8163
Yakutat	1085	7349	7361

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

MARCH 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				Ø ALL OTHER			
								†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE	
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS
Alabama	2	2	0	0	4	0	0	4	1	0	1	4	1	1	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
Arkansas	5	2	3	20	5	0	0	3	2	0	0	3	0	0	0	4	0												
Colorado										0	0	3	0					3	0	5	0								
Connecticut										0	2	3	0	0	1	0	0	5	10	0	0					0	0	4	0
Florida										0	0	3	*																
Idaho	1	1	0	0	4																								
Illinois	4	3	0	3	5	0	0	*	0	0	0	A 3	0	0	0	*	0	0	0	*	0								
Indiana										0	3	5	0	0	0	4	0	0	0	4	0	0	0	4	0				
Iowa																		26	15	0	0								
Kansas	1	1	0	0	2	0	0	3	0	0	1	0	0					2	9	0	0								
Louisiana	1	1	0	0	2	0	0	4	0																				
Maine																		11	2	5	0					0	0	4	0
Massachusetts										1	0	5	0	0	0	4	0	7	39	5	0					0	0	4	0
Michigan										0	3	6	0					1	0	4	0								
Mississippi	2	1	0	0	4	0	0	1	0	0	0	4	0																
Missouri	2	14	0	0	4	0	0	4	0	0	0	5	0					0	0	5	0								
Nebraska																		2	0	6	0								
Nevada										0	0	3	0																
New Hampshire										0	0	3	0					4	4	5	0								
New Jersey																										2	0	0	0
New Mexico										0	0	°4	C																
New York										0	15	6	0					31	70+	5	0								
North Carolina	P 1	1	0	0	3					0	0	R 5	0																
Ohio										0	0	7	0					0	0	*	*								
Oklahoma	**14	3	0	14	5	0	1	5	0	0	5	5	0	0	0	5	0	1	15	4	0					0	1	4	0
Oregon										0	0	3	1																
Pennsylvania										0	3	5	0	0	0	4	0									2	36	5	0
Rhode Island										0	0	3	0					2	20	0	0								
Tennessee	1	1	0	1	5	0	2	3	0	0	2	5	0													0	0	3	0
Texas	7	4	6	50	6	0	0	°4	C	13	18	6	4					0	5	3	0					0	32	3	0
Utah										2	1	4	0																
Vermont										0	0	4	0					1	5	4	0								
Wisconsin																		7	17	5	0								

‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
° Includes crop damage.
* Not estimated.
** Does not include 8 funnels aloft on 3 days.
C Crop damage.
A Additional occurred, but no estimate available.
P Possible.
R Partly due to accompanying heavy rain.
Ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

MARCH 1959

The third highest flood since records began in 1927 occurred on the Suwannee River in Florida during the latter part of March and the first part of April. The alltime previous high records were equalled on the Turkey River in Iowa and on the Pecatonica and Rock Rivers in Illinois. Flooding elsewhere was mostly light.

ST. LAWRENCE DRAINAGE

Lake Michigan.--Minor flooding occurred on the Red Cedar River at Williamston, Mich., on the 6th and 7th. The crest was somewhat higher than anticipated because of ice jams between Williamston and East Lansing. Only minor damage resulted.

Lake Ontario.--No damage resulted from the high water on Oatka Creek at Garbutt, N. Y., and on Black Creek at Churchville, N. Y., between the 21st and 23d.

ATLANTIC SLOPE DRAINAGE

Six days of steady rain amounting to 2.5 inches caused a steady rise of the Neponset River at Norwood, Mass., to a little over flood stage on the 4th. It receded below flood stage on the 5th and rose again on the 6th to a crest of 10.1 feet, 1.1 feet above flood stage from nearly 1 inch of rain during the late morning and afternoon.

The minor flooding on the Neuse and Cape Fear Rivers in eastern North Carolina between the 6th and 16th was due to rainfall ranging from 1 to 3 inches. The rainfall was the heaviest in the middle and lower sections. No flooding occurred upstream. No damages were reported from the flooding downstream.

The Waccamaw River was in flood for 20 days at Conway, S. C. The crest on the 18th and 19th was 1.5 feet above flood stage. This was the highest crest since 1955. Low secondary roads were impassable, and lumbering and millwork in the swamps were suspended temporarily. The Black River at Kingstree, S. C., was in flood between the 7th and 13th. The crest of 13.6 feet (flood stage 12 feet) was the highest since September 1945. No damage was reported. The Edisto River at Givhans, S. C., was in flood from the 6th to the 19th. The crest of 13.9 feet on the 9th was the highest since September 1949. Low camp sites and approach roads were under 1 to 2 feet of water for a week. This resulted in mostly inconvenience. Only minor flooding occurred upstream on the North Fork. This flooding was due to torrential rains during the afternoon and early evening of the 5th and 6th.

Light flooding occurred on the 6th and 7th on the Broad River at Blair, S. C., on the Congaree below Columbia, S. C., and on the Wateree below Camden, S. C. This flooding was due to general rains of 1.5 to nearly 2.5 inches on the 6th and 7th. No damage of consequence resulted.

The heavy rains on the 5th and 6th caused light flooding on the Ocmulgee, Altamaha, Satilla, Savannah, and Ogeechee Rivers in Georgia. Additional rains between the 15th and 17th caused a secondary rise with minor flooding on the Satilla River. No damages were reported.

EAST GULF OF MEXICO DRAINAGE

The third highest flood since records began in 1927 occurred on the Suwannee River in Florida during the latter part of March and the first part of April. The flood was caused primarily by heavy rainfall on the 5th and 6th and 15th to 17th. The rainfall on the 5th and 6th averaged 4.5 inches in the drainage area above Ellaville, Fla., and 2.5 inches from Ellaville to Wilcox, Fla., during a period of about 18 hours. The heavy rainfall of the 15th to the 17th occurred intermittently over a period of 48 hours and averaged 3.5 inches above Ellaville and 5 to 6 inches over the basin between Ellaville and Wilcox. Crest stages in this flood were considerably lower than in the record flood of April 1948, except at White Springs, Fla., where the crest was only 2 feet below the record flood of 1948. About 140 dwellings in the basin were affected and a number of families were evacuated from the flood plain. There was considerable damage to agriculture and roads. A comparison of the crest stages in this flood with the floods of 1928 and 1948 is given in the following table:

COMPARATIVE CRESTS
(Furnished by U. S. Geological Survey)

River and Station	Current Crest (ft.)	Flood Date	Aug. 1928 Crest (ft.)	Apr. 1948 Crest (ft.)
Suwannee:				
White Springs, Fla.	34.6	22	----	36.6
Ellaville, Fla.	31.8	24	37.1	40.9
Branford, Fla.	27.5	29	32.0	34.1
Wilcox, Fla.	15.9	Apr. 2	20.0	22.3

The Alafia and Hillsborough Rivers overflowed their banks in the Tampa, Fla., area, forcing many families to leave their homes. Flood waters inundated houses and roads and drowned livestock in low-lying areas about 10 miles east of Gibsonton. Several houses were flooded to window level. The Alafia River, normally 50 to 100 feet wide, spread out for more than a mile in some sections.

The flooding on the Apalachicola River at Blountstown, Fla., was due to the excessive rains on the 4th and 5th. The rainfall averaged about 2 inches over the headwaters and 3 to 6 inches over the middle and lower portion. Frequent rain during the remainder of the month kept the Apalachicola in flood all month. No damages occurred as the areas inundated were mostly timberland.

Heavy rains of 2 to 5 inches on the 5th and 6th over the Choctawhatchee River Basin caused the river to rise to a stage of 18.1 feet at Geneva, Ala., on the 8th, and a stage of 12.4 feet at Caryville, Fla., on the 10th. Flood stage at Caryville is 12 feet. Work on the pipe line across the river was stopped during the high water. No other losses were reported.

Flooding over the lower Pearl River continued from February through part of the first week of March. Locally heavy rainfall produced brief local flooding of the east bank of the Pearl River at Jackson, Miss., between the 14th and 26th and at Bogalusa, La., between the 21st and 29th. No damage resulted.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The heavy snowfall of the 6th to the 7th and the 14th to the 15th over

southeastern Minnesota, northeastern Iowa, and central and southern Wisconsin increased the potential snowmelt flood outlook in the upper Mississippi Basin. A comparison of the snow depths on March 17 with that of 1951 and 1952 on about the same date is given in the table below:

COMPARATIVE SNOW DEPTHS (INCHES)

Station	1959	1952	1951
Rochester, Minn.	10	T	11
Decorah, Iowa	14	T	3
La Crosse, Wis.	23	1	3
Prairie du Chien, Wis.	23	T	3
Viroqua, Wis.	27	3	5
Wausaw, Wis.	22	2	4
Portage, Wis.	28	1	3
Lone Rock, Wis.	21	T	1

There was little or no snow along the Mississippi River and its tributaries from its headwaters downstream to Lake City, Minn. This was the second year in a row deficient winter precipitation resulted in no spring rise for the Mississippi River in that area. Warm afternoon temperatures in the 50's beginning on the 22d caused snowmelt runoff along tributary streams with flooding along the Whitewater and Root Rivers in Minnesota, the Trempealeau and Kickapoo Rivers in Wisconsin, and on the upper Iowa River in Iowa. The warmest temperatures occurred over southeastern Minnesota and northeastern Iowa and, as a result, rivers in these areas had the greatest runoff. The daily minima were generally at or very near freezing. Ice jams increased the flood crests on the Root River. The most serious ice jam occurred on the Root River at Mound Prairie, Minn., between Houston and Hokah, Minn. Numerous farms were surrounded by water, but there was little damage. An ice jam formed on the upper Iowa River at Freeport, Iowa, approximately 4 miles downstream from Decorah, Iowa, on the 26th. Some bottom land was flooded but no damage of consequence was reported. The jam broke on the 29th and 30th.

An unusually heavy amount of snow accumulated during the winter in northeastern Iowa, southern Wisconsin, and northwestern and north-central Illinois. At least three periods of alternate thawing and freezing resulted in rapid changes in streams in the area. The Turkey in Iowa, the Pecatonica and the upper and middle Rock in Illinois equalled the alltime previous high records. Lesser magnitudes were attained in the Maquoketa and Wapsipinicon Rivers in Iowa. Severe flooding occurred on the Little Maquoketa in Dubuque County, Iowa. The Pecatonica at Freeport, Ill., the Rock River at Rockford, Ill., and at Beloit and Janesville, Wis., and the Sugar River in Wisconsin reached record or near record high stages. Heavy losses resulted from the flooding.

Light flooding occurred on the Iowa and Des Moines Rivers during March. There were three separate rises on the Iowa; the first was due to an ice jam, the second to snowmelt, and the third to heavy rains. Flooding was confined to low-lying areas, and damage was minor. The only flooding on the Des Moines River was at Eddyville, Iowa, where the river rose above flood stage twice during the month. The first rise was due to snowmelt and the second to heavy rain.

The flooding on the Illinois River was a continuation of the February floods. Minor flooding occurred on the Sangamon, Kaskaskia, and Big Muddy Rivers in Illinois during the middle part of the month and on the Mississippi north of St. Louis near the end of the month. These floods were due to moderate rains on the 8th, 9th, and 14th. One to 2 inches of rain on the 26th and 27th, augmented by rapid snowmelt, caused the Mississippi to rise slightly above flood stage at Dams 24 and 25 on the 29th. No damage was reported.

Missouri Basin.--The flooding on the Yellowstone River at Glendive, Mont., between the 19th and 21st was due to a huge ice jam. Many families in West Glendive were evacuated. Total property damage in Glendive and vicinity amounted to $25,000.

The Heart River overflowed the bottomlands near Mandan, N. Dak., between the 22d and the 26th. The flooding was due entirely to ice that had no place to go, because the river winds through the area and the Missouri had a heavy coating of ice. About 2,500 acres of river bottomlands were flooded. This was mostly wooded areas and pastures. Another minor flood occurred in the Williston-Trenton area in northwestern North Dakota on the 23d. This was due to high water when the ice jams on the Yellowstone River in northeastern Montana broke loose and another ice jam southeast of Williston, N. Dak., held back the water long enough to cause a stage of 20.6 feet. Flood stage is 20 feet. About 200 acres of bottomlands were flooded.

Minor flooding occurred on Stranger Creek at Tonganoxie, Kans., on the 26th due to 1- to 2-inch rains on the 25th and 26th. Damage was negligible.

Ohio Basin.--Frequent light rains during the first 2 weeks produced rises to a little above bankfull stage at several points along the Wabash and lower White Rivers in Indiana. No damage resulted from these slight overflows.

White Basin.--The only flooding in the White Basin during the month was on the White River at St. Charles, Ark., on the 1st and 2d due to heavy rains on February 13 and 14.

Red Basin.--There was slight flooding on the Sulphur River in Texas between the 5th and 11th due to heavy rains on the 5th. Little or no damage resulted from this overflow.

WEST GULF OF MEXICO DRAINAGE

Minor flooding occurred on the Sabine River at Quitman, Tex., on the 13th and 14th due to the heavy rains on the 5th and 11th. No damage was reported.

FLOOD STAGE DATA

(All dates in March unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From–	To–	Crest * Stage	Date
ST. LAWRENCE DRAINAGE	Ft.			Ft.	
Lake Michigan					
Red Cedar: Williamston, Mich.	7	6	7	8.2	7
Lake Ontario					
Oatka Creek: Garbutt, N. Y.	5	21	22	5.2	21
Black Creek: Churchville, N. Y.	5	21	23	6.0	22
ATLANTIC SLOPE DRAINAGE					
Neponset: Norwood, Mass.	9	4 6	5 9	9.1 10.1	5 6
Neuse: Smithfield, N. C.	13	7	9	#14.5	8
Goldsboro, N. C.	14	6	14	17.5	11
Kinston, N. C.	14	7	16	15.4	13
Cape Fear: Elizabethtown, N. C.	20	7	9	23.3	8
Waccamaw: Conway, S. C.	7	7	26	7.7 8.4	8 18-19
Black: Kingstree, S. C.	12	7	13	13.6	9
Broad: Blair, S. C.	14	7	7	16.0	7
North Fork Edisto: Orangeburg, S. C.	8	6	9	8.4	7-8
Edisto: Givhans, S. C.	10	6	19	13.9	9
Ocmulgee: Abbeville, Ga.	12	9	10	12.4	9
Altamaha: Charlotte, Ga.	15	9	20	16.4	16, 17
Satilla: Waycross, Ga.	16	9 21	15 23	19.3 16.6	10 22
Atkinson, Ga.	13	9	31	19.1	13
Savannah: Clyo, Ga.	11	9	16	12.0	12-13
Ogeechee: Dover, Ga.	7	8 10	8 18	7.3 7.5	8 12
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.	15	6	31	19.7	9
Choctawhatchee: Caryville, Fla.	12	8	10	12.4	9
Pearl: Jackson, Miss.	18	14	26	19.9	18
Bogalusa, La.	15	Feb. 1 21	4 29	18.5 17.5 16.8	Feb. 5 1 25
Pearl, La.	12	Feb. 4	6	14.6 13.4	Feb. 8 1
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Whitewater: Beaver, Minn.	7	24	26	9.1	25
Trempealeau: Dodge, Wis.	7	25	27	8.3	27
Root: Houston, Minn.	15	25 1	26 1	17.2 15.0	25 1
Hokah, Minn.	47	24 30	28 Apr. 4	49.2 49.1	25 1
Kickapoo: Steuben, Wis.	8	25	Apr. 11	9.1 10.9	28 Apr. 3
Turkey: Garber, Iowa	11	19 23	22 Apr. 6	21.5 19.9	26 Apr. 1
Maquoketa: Manchester, Iowa	A 12	24 27	25 27	14.2 14.6	25 27
Maquoketa, Iowa	13	20 27	22 27	17.6 14.9	21 27
Wapsipinicon: Independence, Iowa	12	26	31	13.7	27
Dewitt, Iowa	10	30	Apr. 9	11.2	Apr. 4
East Branch Pecatonica: Blanchardville, Wis.	11	21 30	27 Apr. 3	12.3 15.3	25 Apr. 1
Pecatonica: Darlington, Wis.	11	20	Apr. 3	14.2 17.2	26 Apr. 1
Martintown, Wis.	11	19	Apr. 8	19.55 20.2	28 Apr. 3
Freeport, Ill.	13	21	Apr. 7	16.7 16.9	29 Apr. 5

River and station	Flood stage	Above flood stages -dates From–	To–	Crest * Stage	Date
MISSISSIPPI SYSTEM (Cont'd.) Upper Mississippi Basin (Cont'd.)	Ft.			Ft.	
Rock: Rockton, Ill.	10	26	Apr. 15	14.1	Apr. 4
Joslin, Ill.	14	Apr. 5	Apr. 11	14.4	Apr. 7
Iowa: Marshalltown, Iowa	13	14 20 26	14 22 28	13.25 15.5 15.6	14 20 27
Wapello, Iowa	10	22 27	24 1/	11.5 10.7 11.3	22 31 Apr. 3
Des Moines: Eddyville, Iowa	15	21 27	21 28	16.45 15.45	21 28
Sangamon: Riverton, Ill.	13	10	21	14.6	13
Illinois: La Salle, Ill.	20	Feb 23 7	1 7	22.0 E21.0	Feb. 24 7
Peoria, Ill.	18	Feb. 26	1	18.2	Feb. 26-28
Havana, Ill.	14	Feb. 14	23	17.7	Feb. 19
Beardstown, Ill.	14	Feb. 12	24	19.7	Feb. 19-20
Kaskaskia: Carlyle, Ill.	21	15	24	21.9	22
Vandalia, Ill.	18	17	17	18.2	17
Big Muddy: Murphysboro, Ill.	16	11	22	E19.0	15
Mississippi: Dam 24, Clarksville, Mo.	23	29	1/		
Dam 25, Winfield, Mo.	23	29	1/		
Missouri Basin					
Yellowstone: Glendive, Mont.	2054	19	21	2060.5	19
Stranger Creek: Tonganoxie, Kans.	23	26	26	23.4	26
Ohio Basin					
White: Edwardsport, Ind.	15 16	16 18	18 19	16.3 16.25	18 19
Wabash: Lafayette, Ind.	11	16	17	11.5	17
Covington, Ind.	16	17	17	16.0	17
Montezuma, Ind.	14	11	19	16.25	17
Terre Haute, Ind.	14	16	19	14.5	17-18
Mt. Carmel, Ill.	17	Feb. 14	2	24.2	Feb. 18
New Harmony, Ind.	15	Feb. 15			
White Basin					
White: St. Charles, Ark.	25	Feb. 25	2	#25.1	Feb. 26
Red Basin					
Sulphur: Hagansport, Tex.	38	5	6	40.85	5
Naples, Tex.	22	10	11	22.3	10
WEST GULF OF MEXICO DRAINAGE					
Sabine: Quitman, Tex.	16	13	14	16.7	13

* Provisional
A Tentative flood stage
E Estimated
1/ Continued at end of month
\# Highest stage observed

RAWINSONDE DATA

Average monthly values

MARCH 1959

ALBANY N. Y. (1005 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	86	- 3.9	76	291	3.8
1,000--	31	126	- 3.7	70	304	3.4
950----	31	530	- 3.6	62	297	9.1
900----	31	959	- 5.4	63	295	14.7
850----	31	1,406	- 6.5	61	293	18.8
800----	31	1,879	- 7.8	55	294	21.5
750----	31	2,381	- 9.3	51	289	23.5
700----	31	2,911	-11.6	51	286	27.5
650----	31	3,474	-14.4	51	283	32.8
600----	31	4,080	-17.6	49	277	35.5
550----	31	4,724	-21.2	44	271	39.4
500----	31	5,425	-25.7	42	269	45.0
450----	31	6,175	-30.8	43	268	47.6
400----	31	7,010	-36.2		267	54.2
350----	31	7,925	-41.9		265	59.4
300----	31	8,957	-47.2		267	58.4
250----	31	10,152	-51.6		264	60.6
200----	31	11,598	-51.5		264	57.1
175----	31	12,468	-50.0		267	52.0
150----	31	13,477	-49.7		263	50.5
125----	31	14,668	-50.7		263	44.4
100----	30	16,116	-52.6		264	34.9
80-----	29	17,557	-52.5		267	24.2
60-----	29	19,413	-53.3		265	13.9
50-----	27	20,587	-53.0		296	5.6
40-----	27	22,026	-52.8		53	3.1
30-----	25	23,884	-52.2		84	8.9
25-----	23	25,066	-51.8		80	12.2
20-----	20	26,509	-51.1		83	18.0
15-----	15	28,381	-49.0		81	21.3
10-----	5	31,031	-45.5			

ALBUQUERQUE, N. MEX. (837 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,619	2.2	44	93	0.9
1,000--	31	156				
950----	31	577				
900----	31	1,023				
850----	31	1,494				
800----	31	1,987	3.1	36	286	6.8
750----	31	2,504	.1	37	293	13.7
700----	31	3,057	- 3.7	38	294	19.2
650----	31	3,635	- 7.6	37	294	22.1
600----	31	4,258	-11.5	35	296	21.9
550----	31	4,914	-16.1	32	285	25.2
500----	31	5,632	-21.4		289	24.0
450----	31	6,395	-27.2		297	19.0
400----	31	7,240	-33.3		302	20.2
350----	31	8,165	-40.2		313	24.0
300----	30	9,199	-47.4		322	25.6
250----	30	10,387	-53.5		292	25.2
200----	29	11,817	-55.1			
175----	28	12,668	-54.4			
150----	28	13,655	-55.5			
125----	28	14,809	-58.9			
100----	27	16,203	-61.5			
80-----	26	17,586	-61.7			
60-----	26	19,374	-60.6			
50-----	24	20,508	-59.5			
40-----	24	21,908	-58.7			
30-----	22	23,726	-57.6			
25-----	21	24,878	-56.9			
20-----	19	26,292	-56.2			
15-----	16	28,140	-54.5			
10-----						

AMARILLO, TEX. (890 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,095	1.5	48	284	4.6
1,000--	31	139				
950----	31	557				
900----	31	1,003				
850----	31	1,465	4.9	38	298	13.4
800----	31	1,959	3.7	32	302	17.6
750----	31	2,478	1.0	31	297	18.8
700----	31	3,032	- 2.6	32	292	19.6
650----	31	3,609	- 6.6	34	283	21.5
600----	31	4,236	-10.7	34	284	22.5
550----	31	4,891	-15.6	30	285	27.2
500----	31	5,612	-20.9	30	279	29.9
450----	31	6,373	-26.9		279	33.4
400----	31	7,221	-33.5		277	35.9
350----	31	8,144	-40.5		275	39.6
300----	31	9,177	-47.8		274	47.6
250----	31	10,363	-53.6		277	52.0
200----	29	11,789	-54.5		277	56.1
175----	29	12,647	-53.6		276	61.5
150----	29	13,636	-55.1		278	53.4
125----	28	14,795	-57.8		277	47.0
100----	28	16,197	-59.7		277	37.8
80-----	26	17,587	-60.4		279	24.2
60-----	23	19,379	-60.3		281	10.1
50-----	23	20,519	-59.2		310	3.3
40-----	20	21,915	-58.3		23	2.1
30-----	16	23,725	-57.1		36	2.3
25-----	11	24,873	-56.2		74	7.1
20-----	11	26,296	-54.7		66	11.0
15-----	7	28,149	-52.1			
10-----						

ANCHORAGE, ALASKA (999 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	30	-11.5	61	8	4.2
1,000--	31	22	-13.2		5	6.9
950----	31	416	-10.0	54	360	8.1
900----	31	833	-10.9	54	16	8.3
850----	31	1,271	-12.9	55	19	7.5
800----	31	1,731	-15.4	54	36	6.2
750----	31	2,213	-17.9	53	67	4.2
700----	31	2,729	-20.8	51	105	2.9
650----	31	3,267	-23.8	47	166	2.7
600----	31	3,854	-27.4	44	178	3.8
550----	31	4,468	-31.2	43	216	5.4
500----	31	5,144	-35.6	44	224	6.9
450----	31	5,869	-40.2		229	9.1
400----	31	6,666	-44.8		255	9.3
350----	31	7,550	-49.1		260	14.1
300----	31	8,555	-51.6		262	20.4
250----	31	9,737	-52.3		259	21.5
200----	30	11,192	-48.9		254	27.3
175----	30	12,071	-48.2		248	29.7
150----	30	13,087	-48.0		247	31.0
125----	30	14,290	-47.6		245	28.3
100----	30	15,768	-46.4		237	30.8
80-----	30	17,250	-46.4		238	30.1
60-----	30	19,167	-45.2		232	29.1
50-----	30	20,385	-45.2		229	26.4
40-----	30	21,875	-45.4		231	23.5
30-----	28	23,785	-45.8		222	19.2
25-----	28	24,999	-46.1		217	17.0
20-----	25	26,492	-45.9		212	16.5
15-----	14	28,436	-45.4			
10-----						

ANNETTE, ALASKA (1005 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	37	2.9	86	147	7.3
1,000--	31	77	2.6	85	184	6.2
950----	31	486	.7	82	207	9.5
900----	31	923	- 2.2	82	209	12.8
850----	31	1,375	- 5.2	82	219	14.7
800----	31	1,849	- 8.2	80	225	13.6
750----	31	2,346	-11.0	73	240	16.9
700----	31	2,875	-14.2	62	246	20.0
650----	31	3,429	-17.7	57	231	19.4
600----	31	4,029	-21.6	54	239	21.3
550----	31	4,658	-26.0	51	249	20.7
500----	31	5,348	-30.7	49	257	19.8
450----	31	6,083	-35.7	48	232	17.8
400----	31	6,900	-41.2			
350----	31	7,796	-47.1			
300----	30	8,812	-52.0			
250----	30	9,988	-53.0			
200----	28	11,432	-50.2			
175----	28	12,306	-49.2			
150----	27	13,316	-48.9			
125----	27	14,513	-48.8			
100----	26	15,978	-48.5			
80-----	22	17,441	-48.9			
60-----	20	19,319	-48.9			
50-----	19	20,516	-49.2			
40-----	18	21,977	-49.2			
30-----	17	23,873	-48.8			
25-----	15	25,075	-48.2			
20-----	9	26,549	-47.1			
15-----						
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ATHENS, GA. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	246	4.7	79	336	1.7
1,000--	31	153				
950----	31	577	7.7	57	279	3.3
900----	31	1,019	5.8	55	284	7.3
850----	31	1,485	3.7	54	268	11.8
800----	31	1,977	2.7	40	257	15.7
750----	31	2,496	.3	38	257	18.8
700----	31	3,048	- 2.3		262	23.1
650----	31	3,631	- 5.6		265	24.2
600----	31	4,256	- 9.5		261	24.8
550----	31	4,923	-13.8		263	29.1
500----	31	5,641	-18.4		268	32.2
450----	31	6,419	-23.8		270	39.0
400----	31	7,271	-29.8		270	45.0
350----	31	8,210	-36.4		266	48.3
300----	31	9,261	-44.3		267	43.3
250----	31	10,463	-51.5		266	67.6
200----	29	11,901	-55.7			
175----	28	12,753	-55.7			
150----	25	13,732	-57.0			
125----	25	14,879	-60.0			
100----	22	16,264	-62.5			
80-----	22	17,641	-62.5			
60-----	22	19,423	-60.9			
50-----	22	20,561	-59.4			
40-----	21	21,963	-58.5			
30-----	17	23,775	-56.7			
25-----	11	24,943	-56.0			
20-----	5	26,371	-54.1			
15-----						

BARROW, ALASKA (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	-34.2	54	237	1.1
1,000--	31	147	-28.2	59	240	1.5
950----	31	520	-23.3	65	335	.5
900----	31	916	-22.2	66	360	1.5
850----	31	1,336	-22.6	64	21	2.5
800----	31	1,780	-23.7	59	13	2.7
750----	31	2,245	-25.4	55	359	2.9
700----	31	2,749	-27.8	50	349	3.4
650----	31	3,272	-30.7	49	349	4.0
600----	31	3,843	-33.9	47	332	3.6
550----	31	4,442	-37.6		325	4.2
500----	31	5,101	-41.8		313	4.0
450----	31	5,803	-46.3		294	5.0
400----	31	6,583	-50.8		274	6.6
350----	31	7,446	-54.3		271	7.9
300----	31	8,428	-57.0		275	7.7
250----	31	9,584	-56.0		253	10.2
200----	31	11,013	-53.4		247	14.1
175----	31	11,873	-52.8		244	16.9
150----	31	12,869	-52.2		237	17.6
125----	30	14,050	-51.5		239	19.4
100----	30	15,503	-50.0		230	22.3
80-----	30	16,967	-48.1		224	17.8
60-----	30	18,874	-45.5		218	11.2
50-----	28	20,096	-43.8		216	16.9
40-----	27	21,610	-42.2		195	7.5
30-----	23	23,557	-42.5		228	7.5
25-----	17	24,802	-42.5			
20-----	8	26,310	-45.5			
15-----						

BARTER IS., ALASKA (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	-32.9		256	5.6
1,000--	31	144	-28.8	40	275	7.3
950----	31	517	-24.9	54	280	6.9
900----	31	910	-23.8	60	284	2.3
850----	31	1,328	-23.5	62	54	.7
800----	31	1,771	-23.6	62	69	.9
750----	31	2,243	-24.6	61	201	.7
700----	31	2,744	-26.5	58	211	2.7
650----	31	3,275	-29.1	55	229	4.2
600----	31	3,846	-32.2	51	235	6.9
550----	31	4,452	-35.7	46	237	8.7
500----	31	5,115	-39.7		238	11.6
450----	31	5,823	-44.3		238	14.1
400----	31	6,611	-49.1		239	17.4
350----	31	7,479	-53.7		244	19.2
300----	31	8,463	-56.1		245	20.4
250----	29	9,632	-54.2		248	20.9
200----	29	11,074	-51.2		246	23.3
175----	29	11,945	-50.2		244	25.2
150----	29	12,954	-49.3		244	28.3
125----	28	14,156	-48.5		243	31.4
100----	27	15,624	-47.6		242	34.5
80-----	27	17,104	-46.1		241	36.5
60-----	26	19,029	-44.0		238	36.9
50-----	22	20,249	-43.3		235	37.6
40-----	22	21,755	-42.4		232	37.1
30-----	21	23,704	-42.8		236	32.0
25-----	18	24,935	-43.6		231	31.0
20-----	10	26,454	-44.6			
15-----						

BETHEL ALASKA (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	-20.9	76	332	6.6
1,000--	31	108	-18.8	70	332	7.3
950----	31	499	-14.0	65	355	8.1
900----	31	906	-14.2	59	344	9.5
850----	31	1,339	-15.5	54	331	11.4
800----	31	1,795	-17.6	52	336	11.8
750----	31	2,278	-20.1	50	327	12.8
700----	31	2,784	-23.1	50	323	13.7
650----	31	3,323	-26.4	47	312	14.3
600----	31	3,898	-30.1	46	318	12.6
550----	31	4,511	-33.8		306	12.8
500----	31	5,176	-37.4		293	15.9
450----	31	5,897	-41.7		277	17.8
400----	31	6,689	-46.4		256	20.4
350----	31	7,567	-50.5		265	24.2
300----	31	8,564	-53.7		238	24.4
250----	31	9,735	-53.5		230	24.6
200----	30	11,184	-50.5		242	22.5
175----	30	12,057	-49.7		223	24.2
150----	30	13,067	-49.0			
125----	29	14,270	-48.5			
100----	28	15,742	-47.7			
80-----	27	17,230	-46.5			
60-----	25	19,157	-46.1			
50-----	25	20,371	-45.7			
40-----	24	21,854	-45.6			
30-----	21	23,756	-45.8			
25-----	10	24,932	-46.2			
20-----						
15-----						

BISMARCK, N. DAK. (955 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	505	- 3.1	86	302	2.7
1,000--	31	134				
950----	31	541	- 3.5	82	40	.9
900----	31	973	- .8	62	305	7.9
850----	31	1,429	- 2.7	58	318	11.6
800----	31	1,907	- 5.5	55	315	15.3
750----	31	2,405	- 8.3	53	313	18.0
700----	31	2,943	-11.2	48	309	20.7
650----	31	3,501	-14.6	47	308	21.1
600----	31	4,110	-18.4	44	305	22.7
550----	31	4,747	-22.3	42	295	24.6
500----	31	5,448	-27.4	46	286	28.9
450----	31	6,191	-33.3	45	280	27.7
400----	31	7,016	-39.2	44	274	30.3
350----	31	7,919	-45.3		269	33.0
300----	31	8,933	-51.8		261	36.1
250----	31	10,104	-55.5		261	34.0
200----	31	11,529	-53.7		272	29.3
175----	31	12,392	-51.5		280	25.0
150----	31	13,396	-50.6		275	23.8
125----	31	14,583	-51.2		284	22.5
100----	31	16,034	-51.3		284	19.4
80-----	31	17,481	-52.3		296	13.9
60-----	31	19,339	-52.8		337	3.8
50-----	31	20,515	-52.8		30	5.4
40-----	31	21,953	-53.3		59	9.3
30-----	29	23,804	-53.5		82	12.2
25-----	25	24,974	-53.1		85	16.7
20-----	18	26,394	-52.7			
15-----	12	28,271	-50.9			

BOISE, IDAHO (920 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	868	1.0	74	153	3.3
1,000--	31	187				
950----	31	604				
900----	31	1,041	3.3	58	207	.9
850----	31	1,504	1.4	53	284	5.2
800----	31	1,990	- 1.9	57	288	10.8
750----	31	2,499	- 4.9	59	290	15.7
700----	31	3,040	- 8.2	55	289	18.0
650----	31	3,607	-11.4	47	292	21.1
600----	31	4,223	-15.2	44	293	21.9
550----	31	4,872	-19.2	44	292	25.0
500----	31	5,579	-23.9	43	292	29.1
450----	31	6,331	-29.3	39	295	30.8
400----	30	7,176	-35.9	38	297	24.6
350----	30	8,091	-42.5			
300----	30	9,116	-50.0			
250----	30	10,289	-56.9			
200----	30	11,695	-57.7			
175----	30	12,543	-55.2			
150----	30	13,530	-54.1			
125----	29	14,701	-54.9			
100----	29	16,126	-56.0			
80-----	29	17,547	-55.8			
60-----	29	19,377	-56.1			
50-----	29	20,537	-55.8			
40-----	29	21,958	-55.4			
30-----	29	23,795	-55.1			
25-----	24	24,968	-55.2			
20-----	20	26,385	-55.0			
15-----	14	28,227	-54.0			
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BROWNSVILLE, TEX. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	15.4	87	58	0.5
1,000--	31	135	16.9	76	115	3.3
950----	31	572	14.9	71	147	11.0
900----	31	1,029	13.4	63	159	7.9
850----	31	1,509	11.9	58	183	8.7
800----	31	2,015	9.9	49	208	7.9
750----	31	2,550	8.4	40	246	11.0
700----	31	3,118	5.3	39	256	15.1
650----	31	3,715	1.4	36	262	23.3
600----	31	4,358	- 3.5	38	260	28.3
550----	31	5,032	- 8.4	40	257	33.6
500----	31	5,773	-13.4	39	256	39.4
450----	31	6,562	-18.3	39	256	47.7
400----	31	7,440	-23.6	37		
350----	31	8,404	-29.6	33		
300----	31	9,487	-37.4			
250----	31	10,720	-46.8			
200----	31	12,169	-56.0			
175----	31	13,010	-60.1			
150----	31	13,964	-63.7			
125----	31	15,073	-67.5			
100----	31	16,405	-70.9			
80-----	30	17,722	-72.0			
60-----	30	19,432	-67.0			
50-----	30	20,546	-62.8			
40-----	29	21,928	-60.2			
30-----	28	23,734	-57.7			
25-----	27	24,889	-56.2			
20-----	25	26,312	-54.5			
15-----	20	28,173	-51.3			
10-----	11	30,846	-46.6			

BUFFALO, N. Y. (993 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	182	- 2.8	77	216	2.5
1,000--	31	124	- 6.0		238	2.5
950----	31	535	- 2.6	67	255	5.8
900----	31	960	- 4.2	66	272	9.3
850----	31	1,409	- 6.0	63	271	12.6
800----	31	1,883	- 7.5	59	274	16.9
750----	31	2,387	- 9.4	55	274	21.1
700----	31	2,916	-11.5	54	275	25.0
650----	31	3,481	-14.3	51	272	26.8
600----	31	4,085	-17.5	49	273	30.1
550----	31	4,729	-21.6	50	274	34.5
500----	31	5,428	-26.3	49	275	38.0
450----	31	6,179	-31.3	47	278	41.3
400----	31	7,007	-37.1	45	278	45.4
350----	31	7,919	-43.0		279	47.7
300----	31	8,944	-49.2		278	54.0
250----	31	10,130	-52.6		275	54.2
200----	31	11,574	-51.4		271	51.8
175----	31	12,445	-49.7		270	46.4
150----	31	13,454	-49.7		269	40.4
125----	31	14,646	-50.3		269	34.7
100----	31	16,098	-51.8		270	28.9
80-----	31	17,543	-52.8		269	19.6
60-----	30	19,402	-53.0		278	10.6
50-----	30	20,579	-52.9		291	5.0
40-----	27	22,013	-52.8		65	3.6
30-----	23	23,874	-52.2		81	8.9
25-----	20	25,062	-51.6		78	11.8
20-----	16	26,527	-51.1		73	17.2
15-----	7	28,441	-49.3			
10-----						

BURRWOOD, LA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	26	3	13.5	89	45	3.1
1,000--	26	146	15.2	75	61	4.2
950----	26	581	13.3	69	78	2.7
900----	26	1,034	10.6	60	208	3.1
850----	26	1,510	9.5	51	260	6.8
800----	26	2,012	7.8	44	271	11.4
750----	25	2,542	5.4		265	16.3
700----	25	3,103	2.3		265	20.0
650----	25	3,698	- 1.3		263	26.4
600----	25	4,331	- 5.4		261	34.7
550----	25	5,004	-10.0		262	37.3
500----	25	5,737	-14.8		258	44.6
450----	25	6,520	-20.3		256	52.8
400----	25	7,389	-26.5		252	59.0
350----	25	8,341	-33.1			
300----	25	9,408	-40.8			
250----	25	10,627	-49.2			
200----	25	12,068	-55.5			
175----	25	12,915	-58.0			
150----	25	13,880	-61.1			
125----	25	15,004	-64.5			
100----	24	16,357	-67.9			
80-----	24	17,690	-68.9			
60-----	24	19,427	-64.5			
50-----	23	20,547	-62.0			
40-----	22	21,928	-60.3			
30-----	20	23,731	-57.9			
25-----	18	24,880	-56.8			
20-----	17	26,300	-54.5			
15-----	14	28,159	-50.0			
10-----						

CAPE HATTERAS, N. C. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	9.3	78	308	2.9
1,000--	31	139	10.2	67	295	4.6
950----	31	559	7.8	63	270	5.4
900----	31	1,008	5.6	59	262	8.9
850----	31	1,473	3.7	52	258	15.7
800----	31	1,964	2.1	48	253	20.7
750----	31	2,480	- .3	43	256	24.2
700----	31	3,033	- 2.8	41	259	27.9
650----	31	3,609	- 5.9	40	260	30.5
600----	31	4,239	- 9.8	42	258	35.5
550----	31	4,899	-13.8	38	257	41.3
500----	31	5,623	-18.4		258	46.0
450----	31	6,394	-23.4		260	54.4
400----	31	7,252	-29.7		257	60.2
350----	31	8,191	-36.5		257	68.7
300----	31	9,243	-43.7		257	78.6
250----	31	10,447	-51.6		259	87.4
200----	31	11,882	-55.0		263	85.8
175----	31	12,735	-55.3		262	79.4
150----	31	13,717	-56.0		260	72.6
125----	30	14,870	-58.2		260	66.2
100----	30	16,266	-61.0		257	56.7
80-----	29	17,653	-60.5		258	39.8
60-----	26	19,446	-59.0		262	18.4
50-----	26	20,593	-58.1		262	9.1
40-----	25	22,002	-56.9		337	1.3
30-----	25	23,832	-55.0		84	6.2
25-----	21	25,004	-53.8		82	5.2
20-----	13	26,442	-52.4			
15-----						
10-----						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

Standard pressure surface (mb.)	CARIBOU, ME. (988 MB.)						CHARLESTON, S. C. (1017 MB.)						COLD BAY, ALASKA (1008 MB.)						COLUMBIA, MO. (986 MB.)						DAYTON, OHIO (980 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	191	-10.9	68	284	5.6	31	13	8.7	88	226	1.9	31	27	- 8.2	81	360	10.4	31	238	2.4	76	180	1.3	31	297	- 0.2	71	279	1.5
1,000--	31	93					31	151	10.8	75	234	3.4	31	89	- 8.9	73	357	12.0	31	126					31	132				
950----	31	487	- 9.0	61	300	11.0	31	575	9.8	62	243	6.6	31	484	- 9.3	67	5	14.1	31	541	3.6	65	225	6.0	31	542	.6	66	263	5.2
900----	31	907	-10.2	59	310	14.3	31	1,028	8.1	57	252	10.8	31	904	-11.1	58	10	16.3	31	981	2.9	58	265	12.0	31	978	- .5	61	263	14.1
850----	31	1,346	-11.4	56	307	17.6	31	1,499	6.4	55	254	15.5	31	1,343	-12.1	45	9	16.1	31	1,442	.8	54	279	14.1	31	1,433	- 2.5	57	266	18.2
800----	31	1,810	-12.4	50	298	20.2	31	1,995	4.7	49	258	21.3	31	1,805	-13.6		355	11.8	31	1,925	- 1.5	53	283	15.7	31	1,913	- 4.1	51	266	19.6
750----	31	2,302	-13.9	46	293	21.9	31	2,518	2.2	45	258	23.8	31	2,292	-15.9		347	10.6	31	2,434	- 4.1	54	283	18.0	31	2,418	- 6.2	48	269	21.1
700----	31	2,824	-15.7	44	291	25.0	31	3,075	- .9	41	262	25.6	31	2,812	-18.4		340	8.9	31	2,981	- 7.4	50	282	19.6	31	2,958	- 8.9	46	269	24.6
650----	31	3,380	-18.2	41	285	27.7	31	3,661	- 4.3	37	262	30.1	31	3,357	-21.2		315	9.5	31	3,548	-10.7	46	279	22.7	31	3,525	-12.1	43	267	28.5
600----	31	3,975	-21.1		284	31.4	31	4,291	- 8.4		260	37.3	31	3,949	-24.5		288	9.1	31	4,166	-14.5	46	276	27.5	31	4,138	-15.4	43	265	32.4
550----	31	4,611	-24.4		282	37.3	31	4,959	-12.5		262	41.1	31	4,573	-28.2		274	12.0	31	4,815	-19.0	45	280	30.6	31	4,784	-19.7	41	263	34.5
500----	31	5,303	-28.5		269	37.1	31	5,684	-17.1		258	43.3	31	5,257	-32.5		264	14.3	31	5,524	-23.7	42	274	31.6	31	5,491	-24.3	40	264	38.4
450----	31	6,048	-33.4		268	42.1	31	6,461	-22.2		258	52.6	31	5,984	-37.2		259	18.6	31	6,278	-29.3	41	269	33.4	31	6,242	-29.8	39	266	42.7
400----	31	6,870	-38.9		268	46.8	31	7,326	-28.1	40	254	63.9	31	6,798	-42.6		250	21.7	31	7,117	-35.3	38	270	36.9	31	7,081	-36.0		265	47.9
350----	31	7,776	-44.3		264	50.3	31	8,272	-34.6		256	68.7	31	7,688	-48.7		245	25.2	31	8,036	-41.4		270	38.8	31	7,996	-41.9		264	54.5
300----	31	8,798	-49.1		260	53.4	31	9,332	-42.3		255	79.0	31	8,687	-54.4		233	22.1	31	9,068	-47.7		272	44.8	31	9,026	-47.9		263	61.2
250----	31	9,988	-50.6		265	58.2	31	10,542	-50.5		257	94.4	31	9,851	-55.1		242	29.3	31	10,256	-53.4		268	46.8	31	10,213	-53.3		261	63.1
200----	31	11,449	-48.1		263	51.1	31	11,978	-55.5		258	98.3	31	11,290	-50.9		244	29.1	31	11,688	-53.8		266	49.9	31	11,644	-53.3		261	63.1
175----	31	12,331	-47.7		261	43.3	31	12,828	-56.3		260	86.8	31	12,163	-49.4		244	30.3	31	12,549	-52.3		268	50.5	31	12,507	-51.8		263	56.9
150----	30	13,353	-46.9		262	43.5	31	13,803	-58.1		260	75.7	31	13,175	-48.8		243	31.4	31	13,547	-52.1		269	46.6	31	13,507	-51.7		263	53.4
125----	27	14,561	-47.2		259	34.1	31	14,945	-61.0		260	67.2	31	14,374	-48.4		239	27.0	31	14,725	-53.4		269	39.0	31	14,686	-53.2		265	41.7
100----	27	16,032	-48.7		256	26.8	31	16,322	-64.2		256	51.6	31	15,844	-48.0		234	28.7	31	16,157	-54.8		271	30.6	30	16,117	-54.3		262	33.0
80-----	26	17,497	-49.5		257	16.5	31	17,686	-64.0		254	30.8	31	17,317	-47.7		237	28.9	31	17,581	-56.0		267	20.9	30	17,543	-55.2		266	25.0
60-----	26	19,383	-49.8		262	10.1	30	19,460	-61.1		261	14.7	30	19,222	-47.6		230	24.4	31	19,411	-55.9		279	11.4	30	19,377	-55.2		265	10.8
50-----	26	20,577	-49.6		264	4.4	30	20,596	-59.7		265	9.9	30	20,427	-47.8		224	20.7	30	20,573	-55.7		307	5.4	30	20,542	-54.6		285	6.0
40-----	25	22,041	-49.1		102	3.1	29	21,995	-58.2		90	1.5	30	21,899	-48.5		212	18.4	29	21,998	-54.8		39	2.9	29	21,970	-54.3		29	4.0
30-----	24	23,933	-49.0		84	14.5	27	23,817	-55.8		71	11.2	30	23,792	-48.7		207	17.0	28	23,843	-53.6		70	8.9	29	23,819	-52.9		68	10.4
25-----	24	25,130	-49.5		88	20.5	26	24,979	-54.7		67	13.2	24	24,993	-49.4		189	15.7	26	25,020	-52.5		78	12.4	28	24,997	-52.2		72	14.5
20-----	20	26,594	-49.7		88	21.7	24	26,414	-53.0		66	12.8	8	26,487	-49.8				19	26,465	-51.5		82	13.0	26	26,444	-51.4		76	17.2
15-----	17	28,506	-49.1		80	27.3	22	28,277	-50.4		63	7.3							13	28,331	-49.6		84	13.2	22	28,322	-49.7		79	17.4
10-----	8	31,170	-47.7				8	30,957	-46.3																9	30,985	-47.8			

Standard pressure surface (mb.)	DENVER, COLO. (836 MB.)						DODGE CITY, KANS. (922 MB.)						EL PASO, TEX. (881 MB.)						ELY, NEV. (810 MB.)						FAIRBANKS, ALASKA (996 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,611	- 2.9	72	271	0.9	30	792	0.5	72	299	4.0	31	1,197	6.0	39	285	3.6	31	1,908	- 3.7	74	203	4.0	31	135	-25.3	66	16	2.5
1,000--	31	163					30	132					31	141					31	208					31	105	-27.8		22	3.4
950----	31	579					30	554					31	573					31	622					31	486	-18.0	52	45	2.5
900----	31	1,015					30	987	4.3	55	295	5.4	31	1,023					31	1,064					31	889	-18.7	56	52	2.3
850----	31	1,474					30	1,454	4.7	43	306	7.1	31	1,496	9.1	28	283	4.4	31	1,523					31	1,314	-19.5	59	42	1.9
800----	31	1,959	.3	53	326	8.5	30	1,946	2.4	40	298	12.4	31	1,997	6.6	27	275	9.3	31	2,007	- .7	58	234	2.3	31	1,765	-19.5	60	61	1.1
750----	31	2,474	- 2.1	49	324	12.4	30	2,467	- .3	39	299	16.7	31	2,523	3.5	28	277	15.5	31	2,523	- 1.6	46	315	7.5	31	2,247	-20.6	59	171	1.1
700----	31	3,020	- 5.7	50	317	15.1	30	3,014	- 3.8	41	294	16.9	31	3,080	.1	27	280	17.2	31	3,067	- 5.3	45	317	14.1	31	2,752	-22.9	57	207	3.3
650----	31	3,595	- 9.4	49	314	19.2	30	3,594	- 7.9	41	290	18.8	31	3,667	- 3.9	28	272	18.4	31	3,645	- 8.3	44	311	19.0	31	3,291	-25.9	55	210	5.8
600----	31	4,210	-13.8	52	317	22.1	30	4,213	-11.7	38	292	20.9	31	4,297	- 8.3		275	19.8	31	4,263	-11.8	38	313	25.6	31	3,869	-29.3	55	220	8.1
550----	31	4,863	-18.3	50	315	25.2	30	4,868	-16.5	40	280	22.5	31	4,965	-12.7		277	24.8	30	4,923	-16.1	36	301	26.6	31	4,482	-33.2	52	227	10.6
500----	31	5,571	-23.0	45	306	24.8	30	5,584	-21.7	39	275	23.5	31	5,688	-18.0		277	28.9	30	5,636	-20.9	33	292	29.3	31	5,151	-37.4		226	13.4
450----	31	6,327	-28.8	44	299	26.2	30	6,345	-27.6	35	272	25.8	31	6,461	-23.8		278	32.8	30	6,401	-26.5		287	27.5	31	5,866	-42.2		226	15.7
400----	31	7,166	-35.1	42	297	25.4	30	7,187	-34.4		274	34.7	31	7,319	-30.1		277	37.6	30	7,246	-32.8		303	17.8	31	6,660	-47.5		226	19.0
350----	31	8,085	-42.0		297	25.8	30	8,107	-41.5		264	34.1	31	8,256	-36.7		283	37.4	30	8,172	-40.2		308	17.4	31	7,534	-51.8		223	20.7
300----	31	9,112	-49.1		301	31.2	30	9,134	-49.5		265	37.3	31	9,308	-43.8		281	41.9	30	9,205	-48.5				31	8,527	-54.4		232	21.3
250----	31	10,293	-54.8		300	37.8	30	10,311	-55.6		267	37.8	31	10,514	-51.0		279	49.3	30	10,384	-56.1				31	9,697	-53.4		243	23.8
200----	31	11,716	-54.9		292	41.1	30	11,735	-54.3		259	40.4	31	11,951	-55.2				29	11,786	-58.8				30	11,142	-49.6		250	26.8
175----	31	12,573	-53.0		291	41.7	30	12,593	-53.1				31	12,802	-56.2				29	12,629	-56.3				30	12,019	-48.5		249	30.3
150----	31	13,569	-52.5		286	42.3	30	13,586	-53.6				31	13,780	-57.8				29	13,612	-55.8				30	13,035	-47.8		245	29.3
125----	31	14,746	-53.5		288	32.4	30	14,754	-55.5				31	14,923	-61.0				29	14,768	-57.2				30	14,240	-47.3		246	29.9
100----	30	16,174	-55.9		286	23.8	30	16,173	-56.7				31	16,298	-64.4				29	16,177	-58.6				30	15,718	-46.7		238	30.5
80-----	29	17,595	-56.3		286	14.5	29	17,581	-57.7				31	17,661	-64.5				29	17,573	-59.5				30	17,203	-45.6		237	32.4
60-----	28	19,423	-56.5		298	6.8	29	19,396	-57.6				29	19,426	-63.1				29	19,378	-58.3				30	19,129	-43.8		237	27.0
50-----	27	20,581	-56.3		3	3.1	28	20,549	-57.1				29	20,555	-60.6				29	20,526	-58.1				29	20,350	-43.7		233	27.2
40-----	26	22,001	-56.1		62	6.4	28	21,961	-57.0				28	21,948	-59.4				29	21,934	-57.5				28	21,849	-43.6		225	24.2
30-----	23	23,830	-55.4		77	10.8	28	23,786	-55.8				27	23,752	-58.1				28	23,753	-56.8				27	23,781	-43.8		223	18.6
25-----	22	24,992	-55.3		82	14.9	26	24,949	-54.9				26	24,904	-57.5				25	24,911	-56.4				24	24,992	-43.5		210	15.7
20-----	15	26,419	-54.7		84	17.6	19	26,381	-53.9				25	26,318	-56.3				20	26,337	-55.5				20	26,502	-42.9			
15-----	11	28,263	-53.2										15	28,161	-53.9				16	28,162	-55.2				16	28,448	-43.4			
10-----													7	30,768	-50.9				7	30,755	-54.1									

Standard pressure surface (mb.)	FLINT, MICH. (986 MB.)						FORT WORTH, TEX. (995 MB.)						GLASGOW, MONT. (933 MB.)						GRAND JUNCTION, COLO. (852 MB.)						GREAT FALLS, MONT. (885 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	234	- 3.9	81	217	0.7	31	180	8.0	69	251	2.3	31	696	- 3.5	87	4	1.1	31	1,474	0.9	53	95	2.9	31	1,123	0.6	62	225	9.9
1,000--	31	120					31	140	5.6		324	2.5	31	138					31	167					31	134				
950----	31	527	- 2.8	73	282	1.9	31	563	8.7	57	229	8.5	31	547					31	585					31	551				
900----	31	955	- 3.5	64	275	6.9	31	1,012	8.1	50	254	11.8	31	979	.7	68	289	5.6	31	1,027					31	990				
850----	31	1,406	- 4.8	61	281	10.6	31	1,483	6.6	45	271	13.9	31	1,437	- .9	56	302	10.2	31	1,495	.1	54	108	5.0	31	1,451	.9	47	249	20.9
800----	31	1,881	- 6.7	61	280	14.5	31	1,979	4.9	35	280	16.5	31	1,918	- 4.2	56	302	11.0	31	1,985	1.4	41	229	1.5	31	1,935	- 2.5	49	269	18.2
750----	31	2,383	- 8.8	59	280	17.6	31	2,499	1.9	29	283	17.4	31	2,421	- 7.8	58	302	13.7	31	2,497	- 2.1	44	286	5.8	31	2,440	- 6.3	52	275	18.2
700----	31	2,916	-11.0	52	278	20.4	31	3,056	- 1.4	28	283	21.5	31	2,957	-11.1	56	305	17.2	31	3,046	- 6.2	50	298	10.6	31	2,980	-10.2	56	281	18.8
650----	31	3,481	-14.0	49	275	22.5	31	3,638	- 5.1	31	277	25.8	31	3,517	-14.7	55	297	17.6	31	3,617	-10.1	53	301	14.1	31	3,544	-13.9	56	283	21.9
600----	31	4,086	-17.2	41	274	24.6	31	4,267	- 9.4	29	273	26.6	31	4,124	-18.8	51	294	20.5	31	4,234	-14.4	53	306	18.4	31	4,150	-17.7	53	282	25.2
550----	31	4,730	-21.3	39	273	27.9	31	4,929	-14.0		270	29.7	31	4,763	-23.1	50	299	21.3	31	4,884	-18.7	49	306	21.3	31	4,793	-21.8	48	288	26.8
500----	31	5,430	-26.0	42	276	30.8	31	5,651	-19.1		270	36.1	31	5,458	-27.9	50	306	23.5	31	5,593	-23.4	44	303	23.8	31	5,492	-26.0	45	286	29.5
450----	31	6,180	-31.0	43	273	35.9	31	6,418	-25.1		269	39.4	31	6,195	-33.0	46	302	26.6	31	6,347	-28.8	39	298	24.8	31	6,239	-31.5	42	289	31.2
400----	31	7,011	-37.0	45	270	40.0	31	7,272	-31.5		265	46.2	31	7,025	-39.1		297	29.1	31	7,188	-35.1		308	23.5	31	7,069	-37.7		294	33.8
350----	31	7,922	-43.3		270	44.3	31	8,204	-38.4		265	56.3	31	7,927	-45.8		296	32.2	31	8,106	-41.8		308	24.2	31	7,978	-44.2		299	39.4
300----	31	8,945	-49.2		269	47.0	31	9,248	-45.5		267	64.5	31	8,940	-51.9		288	25.2	31	9,134	-49.2		313	26.2	31	8,996	-51.2		299	42.7
250----	31	10,130	-52.8		269	49.1	31	10,445	-52.2		268	77.1	31	10,108	-56.1		280	21.3	31	10,313	-55.3		317	33.6	31	10,168	-55.8		301	39.8
200----	31	11,570	-51.6		269	48.5	31	11,878	-54.3		269	84.9	30	11,533	-53.4		281	25.4	31	11,730	-55.9		312	35.7	31	11,590	-55.1		293	34.3
175----	31	12,440	-50.0		268	43.5	30	12,735	-54.7		267	79.4	30	12,398	-51.4				31	12,582	-54.7		301	42.1	31	12,447	-53.0		293	33.2
150----	31	13,449	-49.6		270	37.4	30	13,719	-56.3		269	72.2	30	13,401	-50.9				30	13,569	-53.8		297	37.6	31	13,446	-51.4		291	29.7
125----	31	14,640	-50.7		267	32.6	28	14,875	-59.4		267	59.6	29	14,587	-50.4				29	14,739	-55.7				31	14,631	-51.3		288	26.0
100----	31	16,091	-51.6		266	27.5	28	16,260	-62.9		266	44.8	29	16,041	-50.9				29	16,155	-57.5				31	16,080	-51.8		292	20.9
80-----	31	17,537	-52.3		274	17.2	25	17,630	-63.0		267	28.9	29	17,491	-51.6				29	17,562	-58.7				30	17,530	-52.6		298	14.9
60-----	28	19,388	-53.2		272	9.3	22	19,407	-60.9		270	12.8	29	19,355	-52.3				29	19,372	-57.9				28	19,383	-52.6		303	6.9
50-----	28	20,564	-52.8		284	2.3	22	20,546	-59.4		274	6.0	29	20,533	-52.5				28	20,523	-57.8				28	20,559	-53.0		345	4.6
40-----	28	22,006	-52.3		64	5.4	18	21,948	-58.3		280	2.3	29	21,975	-52.5				28	21,933	-57.9				28	21,999	-52.8		46	6.6
30-----	23	23,866	-51.8		68	9.5	16	23,768	-56.5		46	5.2	28	23,830	-53.1				27	23,750	-57.3				28	23,854	-53.1		66	12.4
25-----	22	25,049	-51.4		72	15.3	15	24,930	-55.6		40	4.2	27	25,001	-53.4				25	24,902	-56.7				25	25,025	-53.4		74	14.3
20-----	17	26,503	-50.0		78	21.1	12	26,351	-53.1				26	26,436	-53.5				13	26,317	-56.1				22	26,447	-53.6		74	19.8
15-----	7	28,410	-46.9				6	28,230	-50.4				11	28,318	-52.9										10	28,239	-53.5			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

MARCH 1959

GREEN BAY, WIS. (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	210	-6.6	86	335	3.1
1,000	30	130				
950	30	534	-3.7	68	317	3.6
900	30	960	-4.6	60	323	7.3
850	30	1,409	-6.3	57	318	8.1
800	30	1,882	-8.1	55	301	12.0
750	30	2,383	-9.9	48	301	15.9
700	30	2,912	-12.4	45	299	19.0
650	30	3,473	-15.5	36	293	20.7
600	30	4,075	-18.8	45	291	24.4
550	30	4,720	-22.7	44	287	30.3
500	30	5,413	-27.1	41	290	27.0
450	30	6,162	-32.3		288	28.7
400	30	6,985	-38.4		286	31.8
350	30	7,891	-44.5		271	34.5
300	30	8,909	-50.5		277	34.9
250	30	10,088	-53.7		271	38.2
200	30	11,522	-52.6		274	39.4
175	30	12,389	-50.9		274	34.0
150	30	13,395	-50.2		273	30.8
125	30	14,585	-50.4		273	25.6
100	30	16,038	-51.4		269	21.7
80	30	17,483	-52.3		280	14.9
60	29	19,337	-52.7		276	10.8
50	28	20,512	-52.8		350	4.6
40	26	21,949	-52.6		46	9.5
30	24	23,809	-51.9		65	13.0
25	24	24,990	-51.6		78	17.0
20	21	26,441	-51.7			
15	16	28,318	-50.3			
10	5	30,968	-48.2			

GREENSBORO, N. C. (985 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	273	2.7	79	268	1.9
1,000	31	152				
950	31	570	5.8	58	258	6.9
900	31	1,012	4.2	55	276	11.0
850	31	1,476	2.4	49	289	12.0
800	31	1,964	1.1	43	266	14.1
750	31	2,481	-1.0	38	261	18.2
700	31	3,030	-3.7	36	261	20.5
650	31	3,607	-7.2	41	258	24.2
600	31	4,231	-11.1	37	259	23.5
550	31	4,891	-15.4		259	26.2
500	31	5,608	-19.8		264	29.3
450	31	6,378	-25.0		268	30.1
400	31	7,229	-31.3		271	33.2
350	31	8,162	-38.0		275	34.9
300	31	9,208	-45.0		273	44.3
250	31	10,407	-52.4			
200	31	11,839	-54.6			
175	31	12,696	-54.2			
150	31	13,682	-55.5			
125	31	14,839	-57.4			
100	30	16,245	-59.1			
80	30	17,642	-59.6			
60	29	19,444	-58.6			
50	28	20,592	-57.6			
40	28	22,004	-57.0			
30	28	23,831	-56.0			
25	28	24,932	-55.4			
20	28	26,419	-54.4			
15	26	28,271	-52.0			
10	17	30,914	-48.0			

HILO, T. H. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	19.2	84	238	5.4
1,000	31	174	20.9	76	255	2.3
950	31	610	17.8	80	79	6.2
900	31	1,078	14.5	83	78	8.5
850	31	1,559	11.2	86	78	8.9
800	31	2,064	9.4	73	83	11.6
750	31	2,597	8.5	42	85	16.1
700	31	3,167	6.9		78	15.7
650	31	3,772	4.2		70	15.1
600	31	4,420	.7		57	11.8
550	31	5,103	-4.1		48	9.5
500	31	5,857	-9.6		21	8.9
450	31	6,657	-16.0		359	10.1
400	31	7,538	-22.4		344	13.6
350	31	8,505	-29.1		333	21.3
300	31	9,591	-36.6		314	27.5
250	31	10,833	-44.3		296	34.0
200	31	12,302	-52.7		297	42.7
175	31	13,154	-57.8		295	39.4
150	31	14,114	-63.4		286	35.9
125	31	15,218	-69.1		291	35.3
100	30	16,534	-74.2		289	22.9
80	30	17,823	-75.7		293	11.8
60	30	19,511	-69.7		34	.7
50	29	20,607	-65.6		113	3.6
40	29	21,979	-61.1		138	2.7
30	28	23,778	-58.0		81	3.4
25	25	24,931	-56.5		13	3.3
20	16	26,357	-54.9		91	2.5
15	11	28,222	-51.3			
10	7	30,892	-47.8			

INTERNAT. FALLS, MINN. (971 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	360	-8.4	74	237	1.5
1,000	31	127				
950	31	529	-5.8	70	268	2.9
900	31	951	-5.8	68	299	6.6
850	31	1,398	-7.4	65	297	9.7
800	31	1,868	-9.4	59	305	11.8
750	31	2,365	-11.2	47	306	14.3
700	31	2,893	-13.8	41	303	16.3
650	31	3,450	-16.9	41	304	21.1
600	31	4,051	-20.3	42	306	23.8
550	31	4,689	-24.2	40	303	25.6
500	31	5,381	-28.7	39	299	28.9
450	31	6,121	-33.7	38	295	32.0
400	31	6,946	-39.3		290	35.1
350	31	7,849	-45.4		288	40.6
300	31	8,864	-50.9		288	41.3
250	31	10,043	-53.4		288	39.6
200	30	11,485	-50.7		288	33.0
175	30	12,358	-49.0		288	27.9
150	30	13,372	-48.5		286	25.8
125	30	14,572	-48.7		289	23.1
100	30	16,037	-49.2		290	16.5
80	29	17,499	-49.9		307	11.0
60	27	19,374	-50.8		339	7.3
50	25	20,556	-51.0		21	6.0
40	23	22,010	-51.1		66	7.7
30	17	23,875	-50.5		77	12.2
25	13	25,068	-50.5			
20	5	26,526	-50.9			
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JACKSON, MISS. (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	101	7.7	79	159	0.7
1,000	31	146	8.3	69	108	.5
950	31	572	8.7	61	230	3.8
900	31	1,018	7.4	55	262	7.1
850	31	1,488	6.1	44	269	11.6
800	31	1,983	3.8	38	272	15.1
750	31	2,503	1.3	36	271	19.2
700	31	3,056	-1.8	36	268	22.3
650	31	3,639	-5.1	32	267	27.0
600	31	4,266	-8.9		267	29.1
550	31	4,929	-13.2		262	35.1
500	31	5,654	-17.8		258	41.7
450	31	6,430	-23.0		259	48.9
400	31	7,286	-29.3		259	49.1
350	31	8,227	-36.4		261	54.5
300	31	9,280	-43.6		261	66.0
250	31	10,485	-51.2		260	73.2
200	31	11,921	-54.4		260	86.8
175	30	12,784	-55.4		264	83.3
150	30	13,764	-57.2		267	67.4
125	29	14,908	-60.6		265	54.5
100	29	16,287	-63.6		262	45.2
80	29	17,656	-63.0		263	30.8
60	28	19,434	-60.3		264	12.4
50	28	20,574	-59.0		261	3.8
40	23	21,972	-57.9		57	1.5
30	18	23,805	-55.2		74	8.9
25	18	24,971	-53.8		79	10.8
20	17	26,412	-51.7		84	4.2
15	9	28,309	-47.4			
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JACKSONVILLE, FLA (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	12.1	89	8	1.3
1,000	31	158	13.3	75	32	.9
950	31	586	11.9	68	252	2.5
900	31	1,041	10.1	64	240	7.5
850	31	1,516	8.4	60	246	11.6
800	31	2,017	6.4	50	253	16.1
750	31	2,539	4.6	37	251	21.9
700	31	3,102	1.4	37	258	25.6
650	31	3,689	-2.0	38	264	30.5
600	31	4,327	-5.9	38	261	37.1
550	30	4,997	-10.2	41	262	41.9
500	30	5,731	-14.9	41	260	49.9
450	30	6,513	-20.0		256	56.9
400	30	7,385	-25.9	39	258	63.9
350	30	8,338	-32.7	42	259	74.0
300	30	9,407	-40.3		262	83.5
250	29	10,629	-48.9		261	95.5
200	29	12,068	-55.6		265	105.8
175	29	12,915	-57.6		265	102.9
150	27	13,880	-60.1		267	91.5
125	26	15,006	-63.4		266	76.5
100	26	16,366	-66.6		261	61.2
80	26	17,715	-66.7		259	40.6
60	25	19,467	-62.7		263	15.5
50	24	20,592	-61.8		246	2.7
40	24	21,980	-59.8		30	2.3
30	22	23,788	-57.7		80	7.5
25	22	24,942	-56.4		83	8.7
20	22	26,366	-54.4		73	6.2
15	14	28,236	-51.3			
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KING SALMON, ALASKA (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	-16.8	70	353	4.0
1,000	31	73	-16.8	64	349	7.7
950	31	463	-13.4	57	3	14.3
900	31	874	-14.0	56	359	13.9
850	31	1,308	-14.5	51	354	14.1
800	31	1,766	-16.2	47	349	13.6
750	31	2,249	-18.4	45	336	13.7
700	31	2,763	-21.1	42	326	14.7
650	31	3,302	-24.0	40	315	14.5
600	31	3,888	-27.2		311	16.3
550	31	4,505	-30.8		302	17.4
500	31	5,183	-34.6		285	18.8
450	31	5,909	-38.6		276	20.9
400	31	6,716	-43.4		272	25.2
350	31	7,605	-48.3		269	29.5
300	31	8,611	-52.2		257	30.6
250	31	9,787	-53.2		255	28.7
200	31	11,237	-49.6		252	29.9
175	31	12,113	-48.8		248	29.5
150	31	13,127	-48.5		249	28.9
125	31	14,330	-47.6		248	28.3
100	31	15,806	-47.0		247	28.5
80	31	17,287	-46.5		241	28.7
60	29	19,199	-46.0		240	25.8
50	28	20,416	-46.0		239	22.9
40	27	21,897	-46.3		235	18.0
30	17	23,802	-46.6		232	14.1
25	8	25,009	-46.1			
20						
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KOTZEBUE, ALASKA (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	-26.3	66	70	3.8
1,000	31	123	-21.8	61	68	4.4
950	31	505	-18.7	63	80	3.8
900	31	906	-19.0	63	80	1.5
850	31	1,331	-19.7	62	4	1.7
800	31	1,781	-20.9	58	337	2.3
750	31	2,254	-22.9	54	310	2.9
700	31	2,759	-25.4	52	297	5.4
650	31	3,290	-28.7	52	293	5.2
600	31	3,863	-32.3	50	292	6.6
550	31	4,465	-36.4	47	294	6.2
500	31	5,127	-40.6		287	8.1
450	31	5,834	-45.0		276	9.7
400	31	6,619	-49.9		268	10.8
350	31	7,484	-53.9		267	13.2
300	31	8,468	-55.8		256	16.3
250	31	9,631	-54.6		260	16.1
200	31	11,069	-51.8		250	20.4
175	31	11,935	-51.5		246	23.1
150	31	12,938	-50.8		247	23.3
125	31	14,127	-50.1		244	24.8
100	31	15,589	-48.7		245	28.7
80	31	17,059	-47.4		241	32.8
60	30	18,958	-45.5		227	31.4
50	30	20,177	-44.0		233	31.6
40	30	21,679	-42.6		231	28.1
30	28	23,634	-42.8		234	31.8
25	22	24,849	-42.3		240	28.9
20	11	26,331	-43.8			
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LAKE CHARLES, LA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	11.4	75	29	1.5
1,000	31	144	12.6	65	50	1.5
950	31	575	11.2	56	150	.1
900	31	1,025	9.9	49	288	5.6
850	31	1,499	8.2	45	293	9.1
800	31	1,998	6.0	40	280	12.6
750	31	2,521	3.3	35	269	17.4
700	31	3,082	.9		264	19.6
650	31	3,670	-2.7		263	24.6
600	31	4,305	-6.4		262	29.5
550	31	4,971	-11.1		262	33.4
500	31	5,706	-16.3		259	38.4
450	30	6,480	-22.1		259	40.8
400	30	7,346	-28.3		255	53.4
350	30	8,292	-34.5		255	66.4
300	30	9,353	-41.9		259	74.6
250	30	10,567	-49.8			
200	30	12,009	-54.6			
175	30	12,860	-56.8			
150	30	13,832	-59.4			
125	29	14,967	-62.7			
100	29	16,330	-66.0			
80	28	17,684	-66.3			
60	28	19,438	-63.2			
50	28	20,568	-60.1			
40	28	21,966	-58.8			
30	27	23,782	-56.6			
25	26	24,941	-55.1			
20	24	26,372	-53.8			
15	17	28,233	-51.7			
10	6	30,873	-48.4			

LANDER, WYO. (827 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,696	-3.3	66	243	3.3
1,000	31	167				
950	31	576				
900	31	1,015				
850	31	1,477				
800	31	1,960	-1.1	52	303	1.7
750	31	2,468	-4.0	51	317	5.6
700	31	3,013	-7.5	52	311	12.2
650	31	3,576	-11.6	54	308	16.7
600	31	4,195	-15.0	51	309	20.9
550	31	4,840	-19.4	50	306	22.1
500	31	5,550	-24.1	46	303	24.6
450	31	6,303	-29.9	42	298	25.6
400	31	7,140	-36.3	43	290	24.6
350	31	8,054	-42.8		297	24.6
300	31	9,078	-49.8		304	22.5
250	31	10,253	-55.6		301	28.7
200	31	11,671	-55.9		300	30.1
175	31	12,526	-53.3		292	28.7
150	31	13,521	-52.2		289	26.4
125	31	14,698	-53.5		280	26.4
100	31	16,132	-54.0		284	22.7
80	28	17,565	-55.0		287	17.6
60	28	19,404	-55.3		318	4.8
50	27	20,562	-55.6		75	3.3
40	27	21,986	-55.3		68	5.2
30	26	23,825	-55.1		77	9.5
25	26	24,991	-55.0		66	12.4
20	22	26,411	-54.8		65	15.9
15	11	28,245	-55.1			
10	5	30,861	-52.0			

LAS VEGAS, NEV. (941 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	660	9.5	28	285	2.5
1,000	31	147				
950	31	576				
900	31	1,029	12.4	22	358	6.4
850	31	1,506	9.8	23	347	7.7
800	31	2,006	6.5	24	339	9.3
750	31	2,527	3.2	25	331	10.8
700	31	3,088	-.1	25	324	13.7
650	30	3,671	-3.9		317	16.1
600	30	4,304	-8.2		312	20.5
550	30	4,966	-12.8		315	23.8
500	30	5,695	-18.3		309	26.8
450	30	6,465	-24.2		309	31.0
400	30	7,321	-31.1		308	34.1
350	30	8,253	-38.7		303	35.5
300	30	9,293	-47.2		304	38.2
250	30	10,478	-55.2		296	44.6
200	29	11,888	-57.9		286	53.0
175	29	12,733	-56.5		286	56.5
150	29	13,712	-56.7		283	47.9
125	29	14,863	-59.0		284	42.3
100	27	16,256	-61.1		286	31.4
80	25	17,641	-61.7		284	20.7
60	25	19,430	-59.7		302	6.8
50	24	20,570	-58.9		21	1.9
40	23	21,975	-58.1		72	6.9
30	21	23,787	-57.3		85	11.6
25	17	24,952	-56.7		83	15.1
20	14	26,366	-55.3		86	15.9
15	10	28,230	-53.7			
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LITTLE ROCK, ARK. (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	79	6.0	78	234	2.1
1,000	31	140	7.1	67	244	3.3
950	31	565	7.6	57	255	8.3
900	31	1,008	5.7	53	262	11.0
850	31	1,475	4.2	48	266	13.7
800	31	1,967	2.0	43	279	13.6
750	31	2,488	.9	41	278	17.8
700	31	3,034	-3.5	38	274	20.2
650	31	3,613	-7.1	39	276	21.5
600	31	4,237	-11.1	37	274	19.4
550	31	4,897	-15.4	32	271	20.2
500	31	5,613	-20.7		269	21.3
450	31	6,381	-26.3		275	25.6
400	31	7,227	-32.5		265	27.3
350	31	8,156	-39.3		260	33.8
300	31	9,196	-46.4			
250	31	10,390	-52.6			
200	31	11,822	-54.3			
175	31	12,681	-53.5			
150	30	13,671	-55.3			
125	28	14,824	-57.6			
100	27	16,219	-59.8			
80	25	17,607	-60.4			
60	22	19,402	-59.1			
50	22	20,548	-57.9			
40	22	21,955	-57.3			
30	20	23,782	-55.8			
25	20	24,944	-54.8			
20	19	26,375	-53.5			
15	14	28,235	-52.4			
10	9	30,869	-49.7			

McGRATH, ALASKA (1000 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	103	-25.3	60	328	1.3
1,000	31	104	-25.9		354	2.7
950	31	487	-18.4	59	20	6.0
900	31	888	-18.4	59	22	6.9
850	31	1,316	-18.0	58	11	7.3
800	31	1,768	-19.2	55	2	7.9
750	31	2,245	-21.0	52	353	8.1
700	31	2,754	-23.7	48	344	7.3
650	31	3,285	-27.0	45	325	6.8
600	31	3,865	-30.4	43	315	6.9
550	31	4,475	-33.9		281	6.6
500	31	5,141	-37.8		261	7.1
450	31	5,859	-42.2		261	8.9
400	31	6,650	-47.0		244	12.6
350	31	7,527	-50.8		241	17.0
300	31	8,525	-53.0		243	21.1
250	31	9,701	-52.9		252	22.5
200	31	11,151	-49.7		241	26.2
175	31	12,027	-49.0		238	25.8
150	31	13,040	-48.5		236	28.3
125	31	14,241	-48.4		237	29.7
100	31	15,712	-47.9		233	33.2
80	31	17,191	-46.3		234	34.1
60	30	19,122	-45.3		229	31.2
50	30	20,341	-45.0		232	31.8
40	30	21,834	-44.9		223	29.5
30	28	23,753	-44.8		227	25.0
25	13	24,964	-45.0			
20						
15						
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MEDFORD, OREG. (976 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	401	2.9	88	285	0.5
1,000	31	198				
950	31	620	5.2	75	276	2.5
900	31	1,059	4.3	69	226	2.9
850	31	1,523	2.1	66	229	5.6
800	31	2,011	-.1	57	265	9.9
750	31	2,530	-2.2	49	276	16.3
700	31	3,072	-4.9	47	280	20.4
650	31	3,647	-7.9	49	288	24.4
600	31	4,269	-11.9	49	286	26.6
550	31	4,925	-16.2	46	299	22.9
500	31	5,641	-21.1	46	302	27.0
450	31	6,403	-26.5	45	290	29.1
400	31	7,252	-33.0	44		
350	31	8,178	-40.3			
300	31	9,211	-48.4			
250	31	10,389	-56.9			
200	31	11,787	-59.5			
175	31	12,628	-57.0			
150	31	13,606	-56.3			
125	31	14,764	-56.6			
100	31	16,178	-57.3			
80	30	17,590	-57.9			
60	30	19,407	-57.5			
50	30	20,561	-56.9			
40	30	21,978	-56.0			
30	30	23,809	-55.7			
25	29	24,967	-55.6			
20	27	26,385	-55.7			
15	21	28,226	-54.9			
10	10	30,818	-53.5			

MIAMI, FLA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	18.6	84	77	1.3
1,000	31	147	19.2	76	105	4.2
950	31	586	17.4	75	140	3.3
900	31	1,049	15.1	73	225	4.8
850	31	1,532	13.0	66	244	8.7
800	31	2,041	10.8	61	239	12.2
750	31	2,577	8.6	50	243	16.3
700	31	3,147	6.0	43	249	18.6
650	31	3,745	2.4	39	255	22.5
600	31	4,394	-1.4	39	255	27.2
550	31	5,077	-5.6	38	260	32.8
500	31	5,825	-9.9	35	256	37.6
450	31	6,625	-15.2		260	43.7
400	31	7,512	-21.3	36	261	48.5
350	31	8,483	-28.3	35	265	56.7
300	31	9,569	-36.9		268	67.8
250	31	10,806	-46.5			
200	31	12,254	-56.4			
175	31	13,094	-60.4			
150	31	14,047	-63.7			
125	30	15,152	-68.1			
100	29	16,477	-72.0			
80	29	17,786	-73.0			
60	29	19,494	-66.8			
50	28	20,603	-63.6			
40	26	21,984	-60.4			
30	23	23,797	-57.2			
25	23	24,954	-55.3			
20	21	26,388	-52.5			
15	11	28,235	-49.3			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

MARCH 1959

MIDLAND, TEX. (916 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	871	5.2	63	234	1.7
1,000	31	143				
950	31	573				
900	31	1,014	7.9	49	231	3.8
850	31	1,487	8.8	32	268	11.8
800	31	1,987	6.5	29	283	15.7
750	31	2,512	3.5	27	284	15.7
700	31	3,070	-.2	29	277	18.0
650	31	3,657	-4.1	28	281	23.3
600	31	4,285	-8.4		282	26.0
550	31	4,953	-13.1		274	25.2
500	31	5,674	-18.3		278	25.6
450	31	6,445	-24.3		275	31.6
400	31	7,301	-30.5		279	36.5
350	31	8,237	-37.1		276	40.8
300	31	9,288	-44.2		280	39.0
250	31	10,491	-51.2			
200	31	11,928	-55.0			
175	31	12,780	-55.8			
150	30	13,761	-57.5			
125	30	14,906	-60.3			
100	30	16,286	-64.0			
80	30	17,651	-64.1			
60	29	19,416	-62.2			
50	28	20,547	-60.5			
40	28	21,941	-59.0			
30	25	23,746	-57.9			
25	23	24,897	-57.0			
20	23	26,315	-55.1			
15	17	28,156	-52.3			
10	6	30,810	-48.1			

MONTGOMERY, ALA. (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	8.5	77	351	0.9
1,000	31	152	9.3	69	35	1.3
950	31	576	8.9	59	268	2.5
900	31	1,025	7.2	61	263	8.7
850	31	1,494	5.5	55	266	12.8
800	31	1,989	3.9	42	270	15.7
750	31	2,510	1.8	36	267	18.4
700	31	3,066	-1.2	36	267	22.7
650	31	3,652	-4.3		266	29.7
600	31	4,279	-8.1		263	35.5
550	31	4,945	-12.3		262	44.6
500	31	5,674	-17.1		259	51.4
450	31	6,451	-22.4		258	56.9
400	31	7,313	-28.5		257	63.5
350	31	8,256	-35.4		257	68.7
300	31	9,313	-43.1		259	77.7
250	30	10,520	-51.0		259	89.3
200	28	11,958	-55.2		261	96.7
175	27	12,819	-56.4		261	90.5
150	27	13,793	-58.1		261	84.5
125	26	14,941	-61.4		262	71.8
100	25	16,315	-64.5		260	62.5
80	25	17,677	-64.8		260	40.8
60	24	19,448	-61.9		260	17.0
50	24	20,583	-59.9		257	8.7
40	23	21,983	-58.3		265	2.1
30	20	23,808	-56.1		76	1.3
25	20	24,971	-54.6		76	4.0
20	18	26,394	-52.9		134	.3
15	10	28,262	-50.2			
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NANTUCKET, MASS. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	14	0.8	79	313	4.8
1,000	31	118	1.2	70	316	4.4
950	31	529	-.1	62	308	7.1
900	31	962	-1.8	57	285	11.0
850	31	1,416	-3.3	52	282	17.8
800	31	1,894	-4.7	52	275	23.1
750	31	2,401	-6.7	52	272	24.6
700	31	2,938	-9.1	54	272	28.5
650	31	3,505	-11.8	51	269	33.0
600	31	4,119	-14.6	45	271	37.4
550	31	4,770	-18.6	44	263	39.0
500	31	5,478	-23.3	41	262	38.4
450	31	6,235	-28.6	38	262	42.3
400	31	7,077	-34.3			
350	31	8,000	-40.5			
300	31	9,035	-47.2			
250	31	10,226	-52.6			
200	31	11,663	-53.0			
175	31	12,527	-51.9			
150	31	13,528	-51.7			
125	31	14,708	-52.9			
100	31	16,143	-54.1			
80	31	17,570	-54.9			
60	31	19,407	-55.0			
50	31	20,572	-54.9			
40	31	21,998	-54.9			
30	29	23,836	-54.9			
25	26	25,001	-54.8			
20	25	26,428	-54.5			
15	22	28,285	-52.4			
10	8	30,887	-48.5			

NASHVILLE, TENN (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	177	4.3	79	228	2.3
1,000	31	142	-.2		38	1.5
950	31	562	5.4	59	230	7.5
900	31	1,005	3.5	56	263	10.8
850	31	1,468	1.7	53	289	11.6
800	31	1,955	-.6	51	289	12.6
750	31	2,466	-3.1	48	284	16.1
700	31	3,013	-5.3	42	278	19.2
650	31	3,588	-8.0	37	272	22.7
600	31	4,210	-11.8	35	280	21.5
550	30	4,862	-16.4	35	280	20.7
500	30	5,578	-21.2		277	25.0
450	30	6,342	-26.6		267	29.5
400	30	7,188	-32.6		259	26.6
350	30	8,117	-39.0			
300	30	9,158	-46.2			
250	30	10,351	-53.2			
200	30	11,782	-53.9			
175	30	12,641	-52.8			
150	30	13,634	-54.1			
125	26	14,793	-55.9			
100	26	16,205	-58.1			
80	22	17,605	-58.3			
60	20	19,419	-58.4			
50	18	20,571	-57.2			
40	16	21,983	-56.5			
30	15	23,810	-55.3			
25	14	24,974	-54.6			
20	11	26,413	-53.6			
15	7	28,267	-51.8			
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N. Y. INT. AP. IDLEWILD (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	1.0	65	316	5.4
1,000	31	133	.5	61	312	7.3
950	31	544	-1.0	61	316	7.5
900	31	973	-2.0	57	290	13.0
850	31	1,427	-3.5	54	278	17.4
800	31	1,905	-5.3	50	275	22.5
750	31	2,411	-7.1	50	272	27.5
700	31	2,946	-9.3	50	269	32.6
650	31	3,515	-12.2	46	269	39.4
600	31	4,124	-15.5	45	269	43.9
550	31	4,773	-19.4	41	268	46.8
500	31	5,478	-24.2	39	270	52.2
450	31	6,235	-29.4	38	268	58.0
400	31	7,069	-35.1		268	64.1
350	31	7,989	-41.1		268	65.8
300	31	9,023	-47.1		266	72.8
250	31	10,216	-52.2		264	75.9
200	31	11,652	-53.4		265	74.2
175	31	12,514	-52.0		265	66.0
150	31	13,512	-52.1		266	57.5
125	31	14,690	-53.1		267	48.5
100	31	16,122	-55.0		266	40.4
80	31	17,546	-55.2		267	26.8
60	31	19,379	-55.6		273	12.0
50	30	20,540	-55.1		287	4.6
40	30	21,966	-54.8		56	2.3
30	25	23,809	-54.0		92	10.4
25	24	24,982	-53.6		87	13.4
20	22	26,417	-52.9		86	12.6
15	16	28,287	-50.8		87	[illegible]
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NOME, ALASKA (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	-21.7	75	68	3.1
1,000	31	118	-17.9	69	81	2.1
950	31	500	-16.4	[illegible]	337	1.3
900	31	910	-16.7	67	319	4.0
850	31	1,339	-17.4	65	327	6.8
800	31	1,792	-18.9	60	313	10.2
750	31	2,265	-21.5	57	318	11.8
700	31	2,776	-24.5	54	318	13.9
650	31	3,306	-27.8	51	316	13.0
600	31	3,885	-31.5	49	315	14.3
550	31	4,488	-35.5	47	304	14.5
500	31	5,154	-39.7		291	13.2
450	31	5,863	-44.2		279	16.9
400	31	6,651	-48.9		277	16.3
350	31	7,519	-53.2		284	20.7
300	31	8,506	-55.7		277	18.8
250	31	9,669	-54.5		271	20.2
200	31	11,109	-51.7		261	22.1
175	31	11,977	-51.0		244	18.4
150	31	12,981	-50.7		236	21.3
125	31	14,170	-49.9		231	22.3
100	31	15,634	-48.7		235	27.2
80	31	17,106	-47.3		235	29.5
60	31	19,018	-45.5		234	28.5
50	31	20,239	-44.0		245	27.5
40	31	21,741	-43.2		244	24.8
30	30	23,679	-43.1		244	18.8
25	29	24,909	-43.9		249	16.5
20	28	26,409	-44.2		270	10.8
15	22	28,348	-44.1			
10	5	31,084	-44.9			

NORFOLK, VA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	9	6.3	73	278	1.3
1,000	31	140	6.6	61	283	4.0
950	31	563	6.0	56	270	11.8
900	31	1,003	3.9	52	270	15.3
850	31	1,466	1.9	48	268	17.4
800	31	1,954	.1	43	262	20.5
750	31	2,467	-2.4	42	263	25.4
700	31	3,014	-5.0	36	262	30.1
650	31	3,592	-7.9	35	263	37.3
600	31	4,212	-11.6		263	40.8
550	31	4,871	-15.9		262	44.3
500	31	5,585	-20.5	35	260	48.3
450	31	6,352	-25.3		261	56.5
400	31	7,204	-31.3		260	64.5
350	31	8,136	-38.5		260	74.2
300	31	9,180	-45.4		259	75.9
250	31	10,378	-52.1		258	84.9
200	30	11,807	-55.3		259	84.5
175	30	12,661	-54.5		261	81.0
150	30	13,647	-55.4		261	70.9
125	29	14,803	-56.6		261	57.1
100	28	16,207	-58.6		264	48.3
80	28	17,607	-59.1		259	28.9
60	26	19,412	-58.0		265	15.7
50	26	20,564	-57.0		271	5.2
40	24	21,982	-56.7		354	1.5
30	23	23,815	-55.4		89	10.1
25	23	24,981	-54.7		86	11.4
20	23	26,413	-53.2		75	13.4
15	18	28,269	-51.3		72	12.2
10	9	30,964	-46.5			

NORTH PLATTE, NEBR. (915 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	848	-2.0	84	341	5.0
1,000	30	140				
950	30	549				
900	30	982	.4	73	330	7.7
850	30	1,443	1.5	57	323	11.6
800	30	1,929	-.9	55	324	14.1
750	30	2,435	-3.6	53	313	14.7
700	30	2,984	-6.8	51	308	15.9
650	30	3,552	-10.3	53	303	15.9
600	30	4,172	-14.5	53	293	20.4
550	30	4,820	-18.7	49	293	18.4
500	30	5,531	-23.7	45	289	21.1
450	30	6,283	-29.4	40	284	20.0
400	30	7,123	-36.0		281	25.4
350	30	8,037	-43.0		258	24.4
300	30	9,060	-50.2		252	31.0
250	30	10,235	-55.5		257	29.5
200	30	11,655	-54.9		264	32.8
175	30	12,514	-52.3		268	36.5
150	30	13,514	-52.0		271	35.5
125	30	14,692	-53.2		268	29.1
100	30	16,127	-54.1		273	24.2
80	30	17,557	-55.0		275	17.6
60	30	19,392	-55.5		310	7.3
50	30	20,554	-55.7		53	1.7
40	30	21,976	-55.6		42	3.1
30	29	23,811	-55.0		78	11.6
25	29	24,977	-54.8		80	15.1
20	27	26,405	-54.3		86	16.7
15	9	28,241	-52.2			
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OAKLAND, CALIF (1020 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	9.7	81	325	0.3
1,000	31	171	11.6	69	317	2.3
950	31	599	11.1	53	329	6.8
900	31	1,051	10.0	38	327	9.7
850	31	1,524	8.7	26	313	9.7
800	31	2,024	6.4		316	10.2
750	31	2,546	3.3		313	13.7
700	31	3,107	-.1		316	16.5
650	31	3,691	-3.8		314	20.0
600	31	4,324	-8.0	29	310	23.5
550	31	4,989	-12.9		303	25.2
500	31	5,715	-18.2		300	28.1
450	31	6,487	-24.2		301	30.5
400	31	7,341	-31.1		301	33.6
350	31	8,274	-38.4		300	38.8
300	31	9,316	-46.8		302	42.1
250	31	10,501	-56.1		304	47.0
200	30	11,897	-60.3		292	51.8
175	30	12,733	-58.2		291	54.4
150	30	13,706	-57.7		288	50.5
125	30	14,853	-59.6		284	40.9
100	30	16,243	-61.2		288	33.8
80	30	17,626	-61.3		292	22.3
60	30	19,413	-60.3		312	9.7
50	30	20,550	-59.6		342	4.8
40	30	21,950	-58.1		55	6.2
30	19	23,762	-57.2		81	11.4
25	26	24,917	-56.8		78	12.6
20	25	26,333	-56.2		71	15.3
15	15	28,162	-55.1		64	17.0
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OKLAHOMA CITY, OKLA. (968 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	392	4.7	76	197	3.6
1,000	31	127				
950	31	548	6.9	58	210	5.6
900	31	992	6.6	49	261	8.9
850	31	1,460	5.5	40	312	12.4
800	31	1,954	3.4	35	306	13.2
750	31	2,473	.6	33	295	17.6
700	31	3,025	-2.9	33	291	24.6
650	31	3,599	-7.0	34	292	28.1
600	31	4,226	-11.1	33	279	30.3
550	31	4,881	-15.5	31	277	30.1
500	31	5,601	-20.7		277	29.7
450	31	6,363	-26.6		265	31.4
400	31	7,210	-33.4		260	29.7
350	31	8,134	-40.5		253	32.0
300	31	9,167	-48.0			
250	31	10,353	-53.9			
200	31	11,781	-53.8			
175	31	12,641	-53.3			
150	31	13,632	-54.3			
125	30	14,795	-57.2			
100	29	16,200	-59.5			
80	28	17,594	-59.8			
60	27	19,389	-59.5			
50	27	20,534	-58.3			
40	25	21,940	-57.5			
30	19	23,767	-56.5			
25	14	24,922	-56.1			
20	10	26,344	-54.7			
15	7	28,190	-53.4			
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OMAHA, NEBR. (966 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	403	-0.4	80	42	1.7
1,000	31	123				
950	31	538	1.1	70	330	.1
900	31	970	.7	61	318	3.6
850	31	1,429	-.6	57	312	7.3
800	31	1,912	-2.5	54	308	10.1
750	31	2,422	-4.9	51	307	12.8
700	31	2,963	-8.0	52	298	13.9
650	31	3,531	-11.6	52	298	14.9
600	31	4,145	-15.3	48	295	18.0
550	31	4,795	-19.8	47	298	20.7
500	31	5,498	-24.9	44	294	20.7
450	31	6,253	-30.4	42	293	23.7
400	31	7,085	-36.7		288	23.5
350	31	7,998	-43.0		288	26.8
300	31	9,021	-49.9		284	28.1
250	30	10,191	-54.9		272	32.6
200	30	11,617	-53.9		275	35.7
175	30	12,478	-52.3		279	34.9
150	30	13,478	-51.4		276	33.0
125	30	14,660	-52.3		277	29.3
100	29	16,097	-53.7		280	26.2
80	29	17,528	-54.8		282	16.5
60	29	19,365	-55.0		289	10.1
50	28	20,530	-54.9		306	4.6
40	27	21,954	-55.2		34	3.3
30	24	23,795	-54.9		65	6.4
25	23	24,960	-54.3		68	9.9
20	20	26,391	-53.4		77	12.6
15	18	28,248	-51.6		80	14.7
10	5	30,888	-48.3			

PEORIA, ILL. (990 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	201	-0.7	82	328	1.5
1,000	31	122				
950	31	531	.9	65	270	3.4
900	31	968	-.2	56	280	9.1
850	31	1,424	-2.0	57	282	12.2
800	31	1,905	-3.9	56	282	13.9
750	31	2,407	-6.3	53	282	16.5
700	31	2,949	-9.0	49	281	18.8
650	31	3,515	-11.7	50	281	23.3
600	31	4,129	-15.1	42	285	28.3
550	31	4,772	-19.5	41	285	29.3
500	30	5,480	-24.8	41	284	31.4
450	30	6,223	-30.4	42	283	33.2
400	30	7,064	-36.7	45	279	36.7
350	30	7,977	-42.9		275	38.6
300	30	9,002	-48.6		269	41.9
250	30	10,189	-53.1		269	44.8
200	30	11,622	-53.2		267	47.2
175	30	12,485	-51.8		268	45.8
150	30	13,486	-51.4		269	42.5
125	30	14,668	-52.6		270	37.4
100	29	16,107	-54.3		272	31.0
80	28	17,537	-54.9		273	22.9
60	26	19,374	-55.0		281	11.8
50	23	20,537	-55.5		293	5.4
40	20	21,960	-54.8		24	3.3
30	17	23,789	-53.9		63	7.3
25	16	24,961	-53.2		[illegible]	12.6
20	10	26,413	-52.4			
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PITTSBURGH, PA. (973 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	353	-0.5	76	269	1.3
1,000	30	134				
950	30	546	.7	66	254	5.0
900	30	980	-.3	65	264	13.4
850	30	1,436	-2.6	65	266	20.2
800	30	1,916	-4.3	62	265	25.6
750	30	2,421	-6.6	60	264	26.4
700	30	2,960	-9.3	58	264	28.3
650	30	3,528	-12.2	51	262	31.2
600	30	4,139	-15.8	48	263	34.9
550	30	4,782	-19.9	45	266	37.8
500	30	5,491	-24.5	40	264	42.5
450	30	6,243	-29.8	40	267	47.0
400	30	7,081	-35.9	40	265	51.4
350	30	7,997	-42.6		267	53.2
300	30	9,024	-49.0		267	58.2
250	30	10,208	-53.3		265	60.8
200	28	11,641	-51.8		267	60.0
175	28	12,507	-51.6		264	60.8
150	28	13,508	-51.8		262	54.5
125	27	14,687	-53.0		266	46.6
100	26	16,126	-54.4		264	32.0
80	26	17,554	-55.4		255	21.9
60	26	19,388	-55.3		266	12.2
50	24	20,552	-55.1		312	2.9
40	24	21,978	-54.6		82	10.1
30	22	23,820	-54.0		82	13.6
25	21	24,987	-54.0		77	23.8
20	19	26,428	-53.5		80	25.4
15	10	28,272	-51.1		79	25.0
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PORTLAND, ME. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	20	-3.5	76	292	3.6
1,000	31	114	-2.6	60	325	4.0
950	31	517	-3.7	52	297	6.9
900	31	945	-6.3	54	299	9.3
850	31	1,391	-7.7	53	296	13.4
800	31	1,862	-8.3	49	289	20.0
750	31	2,359	-9.7	48	280	24.0
700	31	2,893	-11.9	52	272	28.1
650	31	3,452	-14.6	51	270	33.2
600	31	4,061	-17.8	51	267	37.3
550	31	4,704	-21.6	51	265	42.5
500	31	5,405	-26.0	48	264	43.5
450	31	6,153	-31.0	45	263	50.1
400	31	6,987	-36.4		262	56.5
350	31	7,902	-42.1		261	63.7
300	31	8,933	-48.0		264	63.9
250	31	10,125	-51.6		262	68.1
200	31	11,575	-50.5		265	59.6
175	31	12,449	-49.2		264	52.4
150	31	13,462	-49.1		260	48.1
125	31	14,654	-50.7		259	38.2
100	31	16,103	-51.7		262	33.6
80	31	17,551	-52.2		266	22.9
60	30	19,412	-52.9		258	12.6
50	29	20,591	-52.4		257	8.5
40	29	22,035	-52.4		42	.3
30	27	23,904	-51.9		89	8.9
25	19	25,091	-51.5		97	10.2
20	13	26,551	-51.2		84	14.1
15	7	28,450	-49.7			
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RAPID CITY, S. DAK. (903 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	966	-1.4	69	313	5.6
1,000	31	139				
950	31	556				
900	31	993	-2.0	66	316	5.4
850	31	1,449	.0	53	315	15.7
800	31	1,933	-2.6	52	315	17.4
750	31	2,437	-5.8	53	317	20.0
700	31	2,979	-9.1	51	312	19.6
650	31	3,544	-12.8	51	313	20.9
600	31	4,155	-16.7	51	303	21.9
550	31	4,798	-21.0	50	297	22.7
500	31	5,500	-25.8	49	293	24.8
450	31	6,250	-31.5	47	291	27.3
400	31	7,079	-37.6	47	288	31.4
350	30	7,994	-44.0		286	35.3
300	30	9,013	-50.9		291	37.8
250	30	10,185	-55.8		286	35.5
200	30	11,602	-55.2		289	35.3
175	30	12,460	-52.9		283	31.4
150	30	13,457	-52.1		284	29.1
125	30	14,637	-52.4		287	27.5
100	29	16,080	-53.2		285	20.5
80	27	17,513	-54.1		294	16.7
60	25	19,353	-54.2		309	6.6
50	25	20,522	-54.6		35	3.4
40	22	21,956	-54.7		58	7.9
30	19	23,808	-54.3		72	15.1
25	18	24,978	-54.1		71	16.9
20	12	26,408	-54.2			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

ST. CLOUD, MINN. (977 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	316	- 4.7	80	322	1.7
1,000--	31	129				
950----	31	537	- 3.3	67	337	2.9
900----	31	962	- 3.9	61	316	6.4
850----	31	1,412	- 5.3	57	314	8.3
800----	31	1,886	- 7.2	50	298	11.6
750----	31	2,390	- 9.0	42	305	16.1
700----	31	2,919	-11.4	41	305	18.2
650----	31	3,483	-14.6	41	297	20.4
600----	31	4,086	-18.3	44	291	23.3
550----	31	4,729	-22.3	39	291	25.8
500----	31	5,425	-26.8	37	284	28.3
450----	31	6,173	-32.2	36	281	30.1
400----	31	6,999	-38.2		269	31.0
350----	31	7,904	-45.1		268	30.3
300----	31	8,919	-51.4		260	35.3
250----	31	10,092	-55.2		262	32.4
200----	31	11,521	-53.2		269	33.2
175----	31	12,386	-51.1		279	29.1
150----	31	13,391	-50.5		279	30.5
125----	31	14,580	-50.8		281	25.4
100----	31	16,031	-51.6		277	20.7
80-----	31	17,477	-52.5		289	12.8
60-----	31	19,335	-52.8		305	7.5
50-----	31	20,512	-52.8		27	3.3
40-----	30	21,951	-53.1		61	6.2
30-----	28	23,804	-52.7		76	12.0
25-----	27	24,983	-52.6		78	16.5
20-----	24	26,425	-52.4		80	21.1
15-----						

ST. PAUL IS., ALASKA (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	- 7.5	76	28	7.1
1,000--	31	136	- 7.4	70	31	7.5
950----	31	533	-10.1	69	24	10.4
900----	31	949	-11.5	57	7	9.7
850----	31	1,386	-13.2	50	356	8.9
800----	31	1,846	-15.6	43	355	8.3
750----	31	2,331	-18.3	38	349	8.3
700----	31	2,843	-21.1	32	5	9.1
650----	31	3,387	-24.2		319	10.4
600----	31	3,967	-27.5		314	12.0
550----	31	4,585	-31.3		299	14.9
500----	31	5,258	-35.5		279	15.9
450----	31	5,979	-40.1		272	20.2
400----	31	6,781	-45.2		266	25.4
350----	31	7,662	-51.2		260	26.6
300----	31	8,656	-55.4		265	25.6
250----	31	9,814	-56.4		254	24.8
200----	31	11,244	-52.2		258	27.0
175----	29	12,117	-50.5		243	26.8
150----	29	13,127	-49.7		247	31.4
125----	28	14,710	-49.1		250	36.1
100----	28	15,793	-48.4		244	35.3
80-----	27	17,265	-47.5		245	36.9
60-----	27	19,170	-46.7		231	29.9
50-----	27	20,381	-46.2		225	34.1
40-----	25	21,851	-46.3		222	32.6
30-----	18	23,761	-46.6			
25-----	12	24,989	-46.4			
20-----						
15-----						

SALEM, OREG. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	4.7	90	193	3.8
1,000--	31	186	5.6	81	206	4.8
950----	31	603	4.2	76	224	8.9
900----	31	1,044	1.6	74	232	11.2
850----	31	1,503	- .7	70	243	13.9
800----	31	1,985	- 3.1	66	249	17.4
750----	31	2,493	- 5.4	62	261	19.4
700----	31	3,034	- 7.6	51	269	21.5
650----	31	3,604	-10.7	48	276	25.2
600----	31	4,220	-14.2	48	283	31.4
550----	31	4,869	-18.3	48	284	36.9
500----	31	5,581	-23.1	46	284	39.8
450----	31	6,334	-28.8	48	286	43.7
400----	31	7,178	-35.0	45	286	47.0
350----	31	8,096	-42.0		288	53.2
300----	31	9,122	-49.7		288	53.2
250----	31	10,297	-56.3		292	58.0
200----	30	11,709	-56.7		290	49.5
175----	30	12,560	-54.8		287	43.3
150----	30	13,547	-54.8		285	38.2
125----	30	14,710	-55.1		288	34.9
100----	28	16,138	-54.5		288	26.0
80-----	28	17,565	-55.7		292	15.1
60-----	28	19,399	-55.2		308	5.6
50-----	28	20,564	-54.9		69	2.7
40-----	28	21,994	-54.4		78	8.5
30-----	25	23,847	-54.3		84	15.1
25-----	24	25,018	-54.5		85	18.8
20-----	16	26,441	-55.0		84	23.3
15-----						

SALT LAKE CITY, UTAH (874 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,288	1.5	66	167	1.3
1,000--	31	185				
950----	31	603				
900----	31	1,048				
850----	31	1,511	2.9	51	230	1.7
800----	31	2,000	.1	50	285	5.4
750----	31	2,514	- 3.7	53	295	8.9
700----	31	3,056	- 7.4	54	302	14.1
650----	31	3,625	-11.2	53	305	17.8
600----	31	4,241	-14.9	50	305	20.7
550----	31	4,893	-19.0	49	310	25.6
500----	31	5,598	-23.1	46	311	31.0
450----	31	6,363	-28.7	41	311	35.9
400----	31	7,197	-34.6		310	37.3
350----	31	8,117	-41.3		305	37.4
300----	31	9,147	-48.9		303	37.8
250----	31	10,326	-55.3		298	43.3
200----	31	11,741	-56.4		291	41.5
175----	31	12,592	-54.6		290	40.9
150----	31	13,581	-54.2		292	38.0
125----	30	14,749	-55.0		293	33.4
100----	29	16,168	-56.4		296	25.0
80-----	29	17,583	-57.2		290	15.5
60-----	29	19,406	-56.7		313	4.6
50-----	29	20,563	-56.4		360	1.5
40-----	27	21,982	-56.0		75	4.8
30-----	22	23,811	-55.3		95	7.7
25-----	21	24,973	-55.1		95	9.5
20-----	20	26,406	-54.8		94	12.0
15-----	12	28,249	-54.7			

SAN ANTONIO, TEX. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	243	10.2	73	336	1.9
1,000--	31	145				
950----	31	576	11.1	60	126	1.1
900----	31	1,025	10.1	52	196	4.2
850----	31	1,501	8.8	45	239	6.0
800----	31	2,001	7.4	33	256	9.5
750----	31	2,528	5.0	26	277	12.6
700----	31	3,090	1.7	28	278	16.3
650----	31	3,680	- 1.8		272	18.8
600----	31	4,316	- 6.1		265	24.4
550----	31	4,987	-10.9		261	27.2
500----	31	5,718	-16.0		258	33.2
450----	31	6,499	-21.6		258	37.4
400----	31	7,361	-27.9		260	42.7
350----	31	8,307	-34.7		260	52.0
300----	31	9,368	-42.0			
250----	31	10,583	-49.6			
200----	31	12,024	-55.7			
175----	28	12,870	-57.1			
150----	27	13,837	-59.7			
125----	25	14,966	-63.0			
100----	20	16,315	-65.9			
80-----	17	17,664	-65.8			
60-----	14	19,427	-63.8			
50-----	13	20,557	-60.2			
40-----	13	21,953	-59.2			
30-----	12	23,770	-56.8			
25-----	12	24,928	-56.0			
20-----	[illegible]	26,352	-54.8			
15-----	7	28,187	-52.7			

SAN DIEGO, CALIF. (1002 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	124	11.3	82	90	0.7
1,000--	31	143	12.0	77	68	1.5
950----	31	573	14.5	52	12	1.9
900----	31	1,032	13.1	38	350	3.6
850----	31	1,511	11.2	28	323	6.4
800----	31	2,014	8.3	24	321	8.3
750----	31	2,539	5.5		322	10.1
700----	31	3,105	2.4		316	12.2
650----	31	3,691	- 1.4		317	13.6
600----	31	4,334	- 5.9		312	15.7
550----	31	4,997	-10.9		310	17.8
500----	31	5,735	-16.5		313	21.1
450----	31	6,505	-22.9		312	21.5
400----	31	7,371	-30.0		305	26.4
350----	31	8,310	-36.5		300	33.2
300----	31	9,361	-44.5		291	45.0
250----	31	10,561	-52.6		285	61.0
200----	31	11,982	-57.9		281	70.3
175----	31	12,823	-58.7		283	64.3
150----	31	13,791	-59.0		281	57.3
125----	30	14,926	-61.6		281	47.0
100----	30	16,299	-64.8		281	37.1
80-----	30	17,657	-65.5		284	24.6
60-----	30	19,419	-62.4		299	10.1
50-----	30	20,550	-60.2		34	4.4
40-----	29	21,943	-59.4		69	5.6
30-----	27	23,750	-57.8		82	7.5
25-----	26	24,901	-56.9		84	9.1
20-----	24	26,321	-55.6		84	9.7
15-----	11	28,163	-53.7			
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SAN JUAN, P. R. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	22.4	81	118	2.7
1,000--	31	149	22.5	77	104	10.2
950----	31	596	19.8	77	94	15.3
900----	31	1,059	16.7	77	96	14.7
850----	31	1,545	13.5	75	95	13.2
800----	31	2,054	11.3	65	97	12.2
750----	31	2,597	10.4	33	100	10.8
700----	31	3,166	9.2		102	9.5
650----	31	3,779	6.7		100	10.1
600----	31	4,430	3.5		86	7.9
550----	31	5,125	- .6		87	5.4
500----	31	5,886	- 5.8		91	2.1
450----	31	6,695	-11.6		356	2.9
400----	31	7,595	-18.6		334	7.1
350----	31	8,576	-26.2		314	11.6
300----	31	9,671	-34.9		312	17.8
250----	31	10,917	-44.6		305	24.8
200----	31	12,376	-55.2		295	31.2
175----	31	13,218	-60.7		291	28.9
150----	31	14,164	-66.8		283	29.3
125----	31	15,252	-71.7		278	21.9
100----	30	16,552	-76.6		292	13.4
80-----	30	17,829	-77.8		313	4.8
60-----	30	19,507	-69.6		47	5.8
50-----	30	20,612	-63.4		55	6.8
40-----	28	21,996	-59.2		50	9.3
30-----	28	23,814	-55.5		66	7.5
25-----	27	24,982	-53.4		121	6.0
20-----	24	26,431	-50.5		188	4.6
15-----	20	28,337	-45.3		246	13.0
10-----						

SANTA MARIA, CALIF. (1009 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	74	9.0	81	332	1.5
1,000--	31	152	11.6	69	358	3.6
950----	31	589	13.6	46	[illegible]	10.2
900----	31	1,038	12.5	38	25	11.4
850----	31	1,516	10.4	30	360	12.6
800----	31	2,018	8.0		343	12.2
750----	31	2,544	5.4		334	12.8
700----	31	3,108	2.0		326	14.1
650----	31	3,697	- 1.8		320	16.5
600----	31	4,334	- 6.4		320	17.2
550----	31	5,001	-11.4		314	17.6
500----	31	5,732	-16.9		304	18.6
450----	31	6,503	-23.0		303	20.2
400----	31	7,367	-30.0		301	21.9
350----	31	8,303	-37.5		302	23.1
300----	31	9,349	-45.9		300	26.0
250----	31	10,539	-54.7		282	41.9
200----	31	11,948	-59.3		281	58.4
175----	31	12,785	-58.9		278	60.6
150----	31	13,753	-59.0		281	55.5
125----	31	14,893	-61.0		279	46.0
100----	31	16,271	-63.7		281	33.6
80-----	31	17,637	-64.0		299	20.7
60-----	31	19,403	-62.3		309	4.2
50-----	31	20,532	-60.7		348	4.0
40-----	31	21,924	-59.3		71	11.0
30-----	30	23,727	-58.3		80	12.4
25-----	30	24,875	-57.4		81	19.4
20-----	27	26,292	-56.3		81	23.5
15-----	23	28,126	-55.1		84	24.2
10-----	6	30,720	-53.6			

SANTA MONICA, CALIF. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	38	13.2	75	34	5.0
1,000--	31	145	14.2	66	35	5.2
950----	31	584	14.7	44	22	6.8
900----	31	1,035	13.4	33	350	5.6
850----	31	1,514	11.2	25	313	4.4
800----	31	2,017	8.5	21	325	7.1
750----	31	2,546	5.3		324	9.3
700----	31	3,107	1.8		316	11.4
650----	31	3,695	- 2.0		312	15.5
600----	31	4,332	- 6.3		312	17.8
550----	30	5,000	-11.3		308	21.1
500----	30	5,733	-17.0		308	21.9
450----	30	6,503	-23.1		308	24.4
400----	30	7,368	-29.9		309	25.6
350----	30	8,304	-37.5		307	30.1
300----	30	9,352	-45.2		297	38.4
250----	30	10,547	-53.6		287	53.0
200----	30	11,962	-58.1		283	65.6
175----	30	12,803	-58.3		282	60.6
150----	30	13,774	-58.3		281	53.6
125----	29	14,912	-61.0		283	42.9
100----	28	16,289	-63.8		286	34.9
80-----	27	17,656	-64.7		288	23.7
60-----	25	19,423	-62.7		311	9.3
50-----	25	20,551	-60.7		352	4.2
40-----	23	21,950	-59.4		50	6.0
30-----	21	23,754	-58.1		65	10.1
25-----	19	24,908	-56.8		78	10.2
20-----	14	26,321	-56.0		69	11.4
15-----	11	28,150	-54.5		80	11.8
10-----	6	30,775	-51.8			

SAULT STE. MARIE, MICH. (988 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	221	- 8.5	89	51	2.7
1,000--	31	129	-14.0			
950----	31	527	- 6.6	71	86	.9
900----	31	950	- 7.6	70	296	5.2
850----	31	1,394	- 9.1	66	302	8.5
800----	31	1,862	-10.4	60	297	11.0
750----	31	2,355	-12.3	54	292	14.9
700----	31	2,881	-14.6	51	294	18.4
650----	31	3,437	-17.1	50	289	20.7
600----	31	4,036	-20.7	52	285	23.7
550----	31	4,673	-24.5	47	283	26.2
500----	31	5,363	-29.0	45	282	28.1
450----	31	6,104	-33.9		280	32.6
400----	31	6,926	-39.5		277	35.5
350----	31	7,828	-45.2		277	39.0
300----	31	8,846	-50.1		274	41.7
250----	31	10,028	-52.9		272	41.7
200----	30	11,471	-49.7		275	39.8
175----	30	12,347	-48.7		274	35.9
150----	30	13,362	-48.5		275	30.6
125----	28	14,560	-49.3		276	25.2
100----	28	16,020	-50.1		276	22.7
80-----	28	17,476	-50.9		282	16.7
60-----	27	19,342	-51.8		295	8.5
50-----	27	20,524	-51.6		345	5.8
40-----	27	21,971	-51.7		59	6.6
30-----	27	23,835	-51.8		80	12.6
25-----	26	25,018	-51.4		80	16.5
20-----	20	26,478	-50.8		78	17.8
15-----	19	28,351	-49.7		80	25.0
10-----	10	31,013	-45.7			

SEATTLE, WASH. (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	125	4.4	86	182	6.6
1,000--	31	166	4.2	83	186	8.1
950----	31	582	2.7	79	210	12.4
900----	31	1,019	.3	78	224	13.4
850----	31	1,475	- 2.4	75	235	14.3
800----	31	1,954	- 5.0	70	247	15.1
750----	31	2,458	- 7.8	64	258	17.0
700----	31	2,994	-10.7	59	268	21.1
650----	31	3,555	-13.7	54	270	25.0
600----	31	4,165	-17.3	51	273	29.5
550----	31	4,806	-21.3	52	277	33.4
500----	31	5,510	-25.8	50	277	38.0
450----	31	6,259	-30.9	48	278	45.0
400----	31	7,093	-36.6	46	280	49.5
350----	31	8,006	-42.8		283	55.5
300----	31	9,031	-49.7		281	58.6
250----	31	10,210	-54.5		284	54.4
200----	31	11,635	-55.1		286	42.9
175----	31	12,491	-53.9		281	37.3
150----	31	13,483	-53.3		279	39.2
125----	31	14,658	-52.8		282	33.6
100----	30	16,100	-52.7		283	20.9
80-----	30	17,539	-53.5		279	14.5
60-----	30	19,391	-53.5		288	7.7
50-----	28	20,560	-53.3		317	3.3
40-----	24	22,000	-53.3		63	3.6
30-----	20	23,861	-53.2		77	8.5
25-----	18	25,032	-53.1		74	13.9
20-----	13	26,497	-52.7		79	16.3
15-----	7	28,355	-52.8			
10-----						

SHREVEPORT, LA. (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	76	7.6	75	213	0.7
1,000--	31	140	8.5	61	160	1.7
950----	31	567	9.0	52	231	5.4
900----	31	1,012	7.7	46	262	8.9
850----	31	1,482	6.1	38	278	11.8
800----	31	1,977	4.1	34	285	15.3
750----	31	2,500	1.4	35	279	17.8
700----	31	3,053	- 1.5	30	273	20.7
650----	31	3,633	- 4.9	29	272	24.6
600----	31	4,264	- 9.2		267	30.1
550----	31	4,928	-13.9		266	34.7
500----	31	5,650	-18.9		266	39.4
450----	31	6,422	-24.5		266	46.6
400----	31	7,275	-30.8		262	54.5
350----	31	8,210	-37.4		261	64.5
300----	31	9,259	-44.4		259	72.0
250----	31	10,461	-51.5		261	82.3
200----	31	11,898	-54.6		265	87.8
175----	31	12,751	-55.5		262	84.3
150----	31	13,732	-56.9		264	76.5
125----	31	14,879	-59.7		264	64.3
100----	31	16,263	-62.9		266	49.5
80-----	30	17,627	-63.6		263	30.5
60-----	30	19,401	-61.6		265	13.6
50-----	30	20,539	-59.5		253	4.8
40-----	29	21,942	-58.3		358	.7
30-----	29	23,761	-56.5		67	5.6
25-----	29	24,921	-55.4		74	6.9
20-----	27	26,348	-53.7		57	6.9
15-----	23	28,202	-51.0		67	4.2
10-----	14	30,880	-45.8			

SPOKANE, WASH. (933 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	722	1.0	81	190	6.0
1,000--	31	158				
950----	31	575				
900----	31	1,010	1.3	68	216	13.0
850----	31	1,470	- .5	60	237	15.7
800----	31	1,952	- 3.9	60	245	16.5
750----	31	2,455	- 7.1	58	256	18.2
700----	31	2,993	-10.4	54	262	19.6
650----	31	3,555	-13.7	50	264	22.1
600----	31	4,164	-17.7	52	264	24.8
550----	31	4,806	-21.5	53	270	27.7
500----	31	5,507	-25.9	50	276	33.4
450----	31	6,253	-31.1	48	280	36.5
400----	31	7,087	-37.3	51	282	39.6
350----	31	7,997	-43.9		286	43.9
300----	31	9,018	-50.3		288	47.2
250----	31	10,194	-55.1		292	46.8
200----	31	11,618	-54.2		290	40.2
175----	31	12,479	-52.4		287	34.9
150----	30	13,479	-51.8		285	29.7
125----	29	14,659	-52.4		283	25.6
100----	29	16,105	-52.4		284	19.4
80-----	29	17,546	-52.6		283	12.2
60-----	29	19,401	-53.0		304	4.2
50-----	28	20,574	-52.9		65	3.8
40-----	27	22,013	-52.8		81	7.1
30-----	24	23,877	-52.7		81	16.3
25-----	24	25,053	-52.7		86	19.2
20-----	22	26,497	-52.3		87	22.3
15-----	5	28,346	-53.3			
10-----						

SWAN ISLAND, W. I. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	25.4	82	101	9.1
1,000--	31	125	24.5	83	103	10.8
950----	31	571	21.0	84	115	13.9
900----	31	1,041	18.1	77	119	13.6
850----	31	1,529	15.3	70	117	12.4
800----	31	2,042	12.5	60	112	9.5
750----	31	2,581	10.9	41	109	7.3
700----	31	3,157	9.7		86	5.2
650----	31	3,761	6.6		107	4.0
600----	31	4,422	3.1		127	2.9
550----	31	5,119	- .4		149	2.7
500----	31	5,879	- 5.2		199	2.9
450----	31	6,690	-11.0		228	5.0
400----	31	7,592	-18.1		249	8.9
350----	31	8,575	-25.6		260	12.6
300----	31	9,672	-34.6		266	19.2
250----	31	10,919	-44.6		264	30.1
200----	28	12,374	-56.0		264	37.8
175----	28	13,212	-61.8		267	42.5
150----	28	14,154	-67.4		264	38.6
125----	23	15,242	-72.9		266	29.7
100----	21	16,535	-78.1		259	14.7
80-----	21	17,804	-79.1		253	6.6
60-----	21	19,469	-70.5		104	3.1
50-----	21	20,568	-64.8		81	4.4
40-----	21	21,945	-60.8		65	8.1
30-----	20	23,756	-56.6		71	8.9
25-----	18	24,917	-54.7		72	7.7
20-----	16	26,347	-52.1		126	4.4
15-----	11	28,236	-46.6		270	7.3
10-----	5	30,931	-43.8			

TAMPA, FLA. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	14.8	88	51	1.9
1,000--	31	150	15.2	77	73	4.2
950----	31	590	14.1	74	135	3.4
900----	31	1,041	12.4	67	221	3.4
850----	31	1,519	10.4	61	236	9.3
800----	31	2,023	8.5	57	233	12.6
750----	31	2,561	6.2	51	247	17.8
700----	31	3,118	3.3	46	250	19.0
650----	31	3,715	.0	42	257	25.2
600----	31	4,354	- 4.0	47	254	30.5
550----	31	5,033	- 8.6	48	254	35.9
500----	31	5,770	-13.0	46	257	42.9
450----	31	6,563	-18.2	43	258	47.4
400----	31	7,438	-24.4	44	259	51.6
350----	31	8,397	-31.3	49	262	54.2
300----	31	9,473	-39.4	50	263	61.9
250----	31	10,698	-48.3			
200----	31	12,137	-57.3			
175----	31	12,976	-60.2			
150----	30	13,929	-63.3			
125----	26	15,042	-66.9			
100----	25	16,374	-70.4			
80-----	23	17,693	-70.7			
60-----	23	19,416	-65.6			
50-----	22	20,531	-64.2			
40-----	21	21,908	-61.2			
30-----	17	23,723	-58.9			
25-----	17	24,852	-56.8			
20-----	14	26,273	-54.7			
15-----	12	28,121	-51.2			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

Standard pressure surface (mb.)	TATOOSH IS., WASH. (1015 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	TOPEKA, KANS. (983 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	31	6.4	82	210	5.8	31	269	2.5	75	92	1.5
1,000--	31	152	5.5	77	214	6.6	31	124				
950----	31	565	2.6	79	218	10.4	31	544	3.5	66	198	3.8
900----	31	1,004	- .5	79	226	13.9	31	979	3.2	57	247	9.3
850----	31	1,459	- 3.2	74	244	15.3	31	1,441	1.5	51	270	12.0
800----	31	1,937	- 5.6	73	240	16.7	31	1,928	- .6	46	286	14.7
750----	31	2,434	- 8.2	67	247	19.0	31	2,438	- 3.5	43	297	15.9
700----	31	2,974	-10.8	66	255	22.5	31	2,984	- 6.8	45	293	16.3
650----	31	3,533	-14.0	61	259	23.8	31	3,553	-10.3	44	289	20.2
600----	31	4,144	-17.6	60	264	26.4	31	4,171	-14.2	42	289	23.1
550----	31	4,783	-21.5	56	266	30.5	31	4,819	-18.8	41	284	26.0
500----	31	5,487	-26.2	52	275	38.2	31	5,529	-23.9	41	282	27.2
450----	31	6,231	-31.6	49	270	38.0	31	6,281	-29.1	38	280	29.1
400----	31	7,065	-37.4		271	47.2	31	7,123	-35.5		280	32.0
350----	31	7,975	-43.3		263	47.4	31	8,040	-41.9		280	35.3
300----	30	9,003	-49.7		270	54.0	31	9,068	-48.9		272	39.2
250----	30	10,182	-54.7		265	54.9	31	10,249	-54.4		270	40.9
200----	30	11,608	-54.6		271	43.1	31	11,677	-53.9		271	44.3
175----	30	12,467	-52.6		270	37.4	31	12,538	-52.6		273	43.1
150----	30	13,465	-51.5		267	36.9	31	13,536	-52.2		273	43.5
125----	30	14,646	-52.8		272	29.3	31	14,713	-53.4		274	34.7
100----	30	16,085	-52.9		272	21.9	31	16,143	-55.1		274	27.3
80-----	30	17,524	-52.8		272	15.3	31	17,565	-56.4		272	19.4
60-----	30	19,378	-53.2		264	8.1	29	19,387	-56.9		285	10.4
50-----	30	20,552	-52.8		243	3.4	29	20,543	-56.7		309	6.8
40-----	29	21,987	-52.7		136	1.7	28	21,961	-55.8		20	4.0
30-----	26	23,849	-52.7		99	5.4	27	23,799	-54.8		77	8.5
25-----	22	25,027	-52.4		106	9.1	26	24,969	-54.0		70	11.6
20-----	11	26,465	-53.2		97	7.1	23	26,402	-52.6		73	13.4
15-----							11	28,283	-51.1			
10-----							5	30,929	-48.8			

Standard pressure surface (mb.)	WASHINGTON, D. C. (1006 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	WINNEMUCCA, NEV. (873 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	YAKUTAT, ALASKA (1001 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	88	2.5	68	334	1.3	31	1,310	- 2.3	65	129	1.7	31	12	- 2.7	82	98	5.8
1,000--	31	137	2.4	62	318	1.3	31	208					31	17	- 3.2	78	86	5.6
950----	31	551	3.2	59	280	7.9	31	621					31	421	- 2.1	71	115	10.2
900----	31	991	1.5	57	274	15.1	31	1,062					31	853	- 4.8	72	139	9.3
850----	31	1,450	- .2	50	278	19.2	31	1,521	4.0	47	163	2.1	31	1,300	- 8.0	73	161	10.6
800----	31	1,934	- 2.3	48	279	22.9	31	2,012	1.2	45	269	6.6	31	1,768	-11.4	73	172	11.6
750----	31	2,442	- 4.4	51	275	25.4	31	2,524	- 2.2	47	284	12.2	31	2,258	-14.8	72	[illegible]	12.4
700----	31	2,987	- 7.2	50	271	27.2	31	3,073	- 5.4	46	283	16.9	31	2,779	-18.4	67	206	14.1
650----	31	3,556	-10.4	45	266	32.4	31	3,645	- 8.7	44	290	20.4	31	3,324	-21.9	61	206	16.7
600----	31	4,174	-14.1	43	265	36.9	31	4,267	-12.5	45	296	24.6	31	3,913	-25.8	56	212	18.8
550----	31	4,826	-18.4	40	264	42.9	31	4,919	-16.1	34	299	29.5	31	4,534	-29.8	52	222	23.3
500----	31	5,536	-23.1	38	265	47.9	31	5,639	-21.0	35	302	34.1	31	5,213	-34.1	49	225	18.6
450----	31	6,296	-28.2	36	267	50.7	31	6,401	-26.7	37	303	38.0	31	5,939	-38.9		230	19.4
400----	31	7,136	-34.0		266	55.1	31	7,249	-33.1	37	301	38.4	31	6,744	-44.1		210	14.1
350----	31	8,059	-40.2		263	64.1	31	8,173	-40.5		301	37.8	31	7,632	-48.5		237	16.3
300----	31	9,096	-46.8		262	67.4	31	9,205	-48.7		304	46.6	31	8,638	-51.6		185	9.9
250----	31	10,288	-52.8		262	70.3	31	10,381	-57.0		302	47.6	31	9,822	-50.6		239	15.1
200----	31	11,719	-54.4		265	66.4	31	11,778	-59.0		298	45.2	31	11,286	-48.4			
175----	31	12,577	-53.2		264	61.3	31	12,622	-56.1		294	45.8	31	12,166	-48.3			
150----	31	13,570	-53.8		265	56.1	31	13,605	-55.2		292	40.0	31	13,182	-47.5			
125----	31	14,738	-55.0		265	48.1	29	14,763	-56.6		290	34.1	31	14,390	-46.9			
100----	31	16,158	-56.9		263	33.6	23	16,175	-57.9		288	28.3	31	15,869	-46.6			
80-----	31	17,570	-57.3		261	27.5	22	17,585	-57.8		295	18.2	31	17,351	-46.4			
60-----	31	19,390	-56.7		271	10.8	20	19,398	-57.6		307	5.8	31	19,261	-46.5			
50-----	31	20,546	-56.6		302	3.6	20	20,551	-56.8		346	4.6	31	20,471	-46.7			
40-----	31	21,963	-56.5		57	5.8	19	21,968	-56.0		67	7.1	30	21,958	-46.7			
30-----	31	23,794	-55.6		83	12.2	18	23,804	-55.5		77	13.0	28	23,858	-47.4			
25-----	30	24,958	-55.0		76	14.3	16	24,975	-55.3		69	16.1	27	25,059	-47.3			
20-----	29	26,388	-54.2		77	15.3	14	26,393	-55.2				25	26,540	-47.5			
15-----	23	28,246	-51.4		75	17.0							15	28,441	-47.1			
10-----	10	30,899	-46.2															

Standard pressure surface (mb.)	YUCCA FLAT, NEV. (883 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,196	1.5	47	332	3.3
1,000--	31	174				
950----	31	595				
900----	31	1,039				
850----	31	1,509	8.3	25	344	7.1
800----	31	2,007	5.5	25	339	8.3
750----	31	2,531	2.6	25	328	11.2
700----	31	3,087	- .4	24	312	14.1
650----	31	3,672	- 4.1		317	18.6
600----	31	4,301	- 8.6		315	20.9
550----	31	4,965	-13.7		315	24.8
500----	31	5,688	-18.9		312	28.5
450----	31	6,458	-24.7		310	32.2
400----	31	7,311	-31.3		309	35.3
350----	31	8,243	-38.9		313	35.5
300----	31	9,282	-47.4		311	42.5
250----	31	10,466	-55.5		303	42.9
200----	31	11,876	-58.2		292	50.5
175----	31	12,720	-56.6		290	52.4
150----	31	13,700	-56.4		288	49.3
125----	31	14,853	-58.4		289	42.7
100----	24	16,239	-60.4		287	30.1
80-----	18	17,611	-60.6		283	21.1
60-----	17	19,413	-59.8			

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes, dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun. MARCH 1959

ALBUQUERQUE, N. MEX.

Date	Sun's zenith distance								
	A. M.					P. M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Mar.									
1-----	1.07	1.18	1.28	1.40	1.50	----	----	----	0.95
2-----	1.03	1.14	1.23	1.37	1.49	1.35	1.20	1.06	.94
3-----	1.07	1.16	1.24	1.38	1.52	1.37	----	----	.94
4-----	----	H .95	H 1.03	H 1.27	----	----	----	----	----
5-----	----	----	----	----	1.49	1.38	1.24	1.12	1.05
6-----	----	----	----	1.38	1.50	----	----	----	----
7-----	.98	1.09	1.21	1.37	1.50	1.35	1.21	1.08	.99
8-----	1.06	1.15	1.27	1.40	1.52	1.39	1.24	1.11	1.01
9-----	1.09	1.15	1.26	1.41	1.53	1.38	1.18	1.07	.98
10----	----	----	----	1.37	D 1.24	D .85	D .49	D .43	D .32
11----	1.03	1.12	1.25	1.39	1.53	1.40	1.25	1.14	1.02
12----	1.09	1.20	1.31	1.34	1.53	1.40	1.24	1.13	1.02
13----	1.08	1.16	1.28	1.42	1.53	H 1.33	1.20	1.05	.95
14----	D .08	D .19	D .51	D .86	D 1.21	D 1.25	D 1.09	D .97	D .85
15----	.89	.99	1.14	1.32	----	1.33	1.19	1.04	.97
16----	.98	1.08	1.22	1.35	1.44	1.30	----	----	----
17----	.98	1.06	1.18	1.33	1.49	1.29	1.16	1.01	.91
19----	----	----	1.17	----	----	----	----	----	----
20----	H .63	H .77	H .85	H 1.11	H 1.34	----	----	----	----
21----	.91	1.01	1.09	1.26	1.39	1.26	1.05	.97	.89
22----	.95	1.02	1.13	----	----	H 1.13	H .87	H .65	.61
23----	.81	.90	1.05	1.17	1.33	----	----	----	----
26----	.92	1.03	1.15	1.31	1.49	1.32	----	1.02	.91
28----	----	----	1.09	1.25	----	1.28	1.12	.97	.91
29----	----	----	----	----	1.40	----	----	----	----
30----	.91	1.00	1.15	1.33	1.42	----	----	----	----
31----	----	----	----	----	----	1.03	D .83	D .65	D .48
Averages	0.93	1.02	1.14	1.31	1.46	1.30	1.09	0.96	0.88

* Values corresponding to true solar noon
D Dust
K Smoke
H Haze
S Slight haze - indeterminable
M Moderate haze - indeterminable
I Intense haze - indeterminable

MADISON, WIS.

Date	Sun's zenith distance								
	A. M.					P. M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	Air mass								
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Mar.									
1-----	(fog)		S 1.04	M 1.18	M 1.45	S 1.39	S 1.19	----	----
10----	K 0.66	M 0.78	M .94	M 1.16	----	----	----	I 0.87	I 0.78
17----	----	----	----	1.31	1.51	1.34	1.27	1.14	1.04
18----	----	----	----	----	S 1.57	----	----	----	----
21----	----	----	----	----	S 1.44	S 1.37	S 1.20	S 1.06	S .91
22----	----	----	S 1.23	1.39	S 1.44	S 1.23	S 1.11	S .97	S .88
27----	----	----	----	1.34	S 1.45	S 1.31	S 1.12	S .99	S .91
28----	S .96	S 1.07	S 1.18	S 1.32	S 1.44	----	----	----	----
Averages	0.81	0.93	1.10	1.28	1.47	1.33	1.18	1.01	0.90

MAUNA LOA OBS., HAWAII

Date	Air mass								
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Mar.									
1-----	1.34	1.43	1.52	1.64	1.74	1.62	1.50	1.41	1.32
2-----	1.32	1.41	1.50	1.62	1.68	1.50	1.37	1.31	1.19
4-----	----	----	----	1.61	1.72	1.59	1.49	1.39	1.31
5-----	1.36	1.43	1.52	1.63	1.75	1.61	1.50	1.40	1.32
6-----	1.31	1.39	1.48	1.60	1.73	1.59	1.48	1.38	1.31
7-----	1.30	1.38	1.48	1.60	1.73	1.59	1.47	1.37	1.29
8-----	1.29	1.37	1.46	1.58	1.72	1.58	1.47	1.38	1.30
9-----	1.31	1.39	1.48	1.60	1.72	1.59	1.47	1.37	1.29
11----	1.27	1.35	1.45	1.57	1.66	1.53	1.43	1.34	1.27
12----	1.29	1.38	1.47	1.57	----	----	----	----	----
13----	1.24	1.33	1.43	----	----	----	----	----	----
14----	----	----	----	1.51	----	----	----	----	1.23
15----	1.24	1.32	1.42	1.56	1.70	----	----	----	----
16----	1.24	1.33	1.43	1.57	1.71	1.56	1.44	1.34	1.25
17----	1.26	1.35	1.45	1.58	1.71	1.56	1.45	1.36	1.26
18----	1.25	1.33	1.42	1.54	1.69	1.55	1.43	1.32	1.24
19----	1.27	1.36	1.46	1.58	1.71	1.55	1.45	1.34	1.26
20----	1.30	1.38	1.47	1.59	1.71	1.58	1.46	1.36	1.26
21----	1.32	1.39	1.48	1.59	1.73	1.59	1.46	1.35	1.26
22----	1.34	1.41	1.50	1.61	1.74	1.59	1.47	1.36	1.28
23----	1.32	1.40	1.49	1.60	----	1.51	1.41	1.33	1.26
24----	----	----	1.48	1.59	1.71	1.56	1.45	1.34	1.25
25----	1.30	1.38	1.47	1.59	1.73	1.58	1.47	1.38	1.30
26----	----	----	----	----	1.71	1.54	1.43	1.34	1.26
27----	----	----	----	----	1.70	1.55	1.43	1.33	1.25
28----	1.26	1.35	1.45	1.58	1.72	1.57	1.46	1.37	1.29
29----	1.28	1.35	1.46	1.57	1.67	1.51	1.38	1.28	1.20
30----	1.29	1.38	1.46	1.59	----	----	----	----	----
31----	1.32	1.38	1.48	1.59	1.68	----	----	----	----
Averages	1.29	1.37	1.47	1.59	1.71	1.57	1.45	1.35	1.27

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date	5	6	7	8	9	10	11		12	13	14	15	*16	17	18		19	20	21	22	23	24	25	
Langleys	527	31	326	509	33	157	412	285	26	235	560	264	---	---	---	---	---	---	---	---	---	---	---	---
Date	26	27	28	29	30	31	1																	
Langleys	---	---	---	---	---	---	---	---																

Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date	5	6	7	8	9	10	11		12	13	14	15	*16	17	18		19	20	21	22	23	24	25	
Langleys	51	---	117	50	44	183	149	98	---	192	65	110	---	---	---	---	---	---	---	---	---	---	---	---
Date	26	27	28	29	30	31	1																	
Langleys	---	---	---	---	---	---	---	---																

Note: Langley is the unit used to denote one gram calorie per square centimeter

* Record ends March 16, 1959.

NET RADIATION

--Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	NO DATA DURING MARCH AND FEBRUARY 1959 DUE TO INSTRUMENT FAILURE																															

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N.Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Maine	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.
Mar. 5------	568	86	56	225	36	124	353	364	420	384	529	660	414	428	58	227	40	399
Mar. 6------	475	126	538	225	505	138	348	314	42	---	455	546	288	145	500	120	229	247
Mar. 7------	565	88	212	186	564	145	344	263	277	314	122	552	501	244	248	134	487	405
Mar. 8------	586	138	445	189	536	142	305	299	458	301	218	550	602	415	532	267	63	324
Mar. 9------	581	150	568	218	517	151	381	229	60	473	453	619	549	481	536	72	436	212
Mar. 10------	549	37	534	281	526	135	371	210	208	370	248	680	600	466	541	367	68	256
Mar. 11------	605	122	220	193	42	149	331	185	362	457	254	611	456	486	398	196	111	333
Average ------	581	107	367	217	389	141	348	266	261	383	326	603	487	381	402	198	205	321
Mar. 12------	599	191	602	---	311	155	270	255	40	167	312	634	172	260	388	312	284	188
Mar. 13------	602	209	625	---	572	200	385	416	297	349	(308)	678	630	287	570	355	425	269
Mar. 14------	585	78	142	148	256	169	409	338	484	398	541	609	565	484	222	348	204	278
Mar. 15------	579	14	177	217	329	---	379	401	273	469	509	680	99	355	83	167	536	478
Mar. 16------	613	43	50	347	237	170	371	284	480	461	(99)	621	428	294	175	426	498	393
Mar. 17------	612	195	288	334	471	129	332	407	502	242	100	683	392	511	418	167	262	292
Mar. 18------	567	369	279	188	529	184	423	319	527	396	352	635	506	523	405	520	492	94
Average ------	594	157	309	247	386	168	367	346	372	354	(317)	649	399	388	323	328	386	284
Mar. 19------	436	133	109	300	392	182	405	435	487	418	328	656	669	272	391	478	458	397
Mar. 20------	589	42	367	108	106	201	271	419	475	510	498	656	315	306	45	334	345	269
Mar. 21------	641	308	478	259	188	217	330	448	413	218	566	571	541	282	266	291	567	249
Mar. 22------	582	186	591	333	596	235	388	451	547	232	575	654	401	313	213	428	555	261
Mar. 23------	629	336	628	206	564	211	455	319	535	330	539	676	701	561	594	509	502	312
Mar. 24------	439	306	614	207	551	249	435	454	494	464	221	669	684	524	573	431	444	183
Mar. 25------	178	131	604	85	538	268	---	(502)	452	516	195	685	641	543	487	383	375	66
Average ------	499	206	484	214	419	223	381	(433)	486	384	417	652	565	400	367	408	464	248
Mar. 26------	649	293	558	---	184	256	402	527	477	355	270	509	543	476	480	75	208	285
Mar. 27------	335	147	398	85	614	288	377	541	63	486	88	683	170	534	325	98	150	208
Mar. 28------	661	208	393	255	572	272	435	507	503	248	120	670	280	578	616	568	503	250
Mar. 29------	545	308	91	109	42	292	404	(391)	571	465	520	651	585	566	62	307	233	116
Mar. 30------	591	410	300	309	349	299	316	162	150	261	310	513	114	511	470	104	189	333
Mar. 31------	578	78	402	103	542	279	439	394	222	316	286	660	357	563	588	342	389	61
Apr. 1------	649	58	147	137	212	290	494	518	---	489	---	618	661	551	532	411	101	114
Average ------	573	215	327	166	359	282	410	(434)	331	375	266	615	387	540	439	272	253	195

1959	Davis, Calif.	El Paso, Tex.	Ely, Nev.	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.	Las Vegas, Nev.
Mar. 5------	437	572	489	259	426	89	405	493	149	154	32	90	609	411	345	416	450	526
Mar. 6------	443	587	512	547	431	520	334	387	308	505	454	177	602	115	570	470	469	533
Mar. 7------	480	579	495	521	433	199	261	262	177	555	511	478	598	200	544	409	363	523
Mar. 8------	485	590	527	477	433	548	329	515	289	542	511	270	615	369	414	503	458	539
Mar. 9------	479	559	486	569	439	565	335	499	268	310	481	79	611	128	528	467	429	535
Mar. 10------	494	521	528	160	459	577	355	361	---	---	486	295	633	434	---	320	393	550
Mar. 11------	456	603	549	497	460	420	---	544	420	---	38	95	649	454	313	530	391	562
Average ------	468	573	512	433	440	417	337	437	268	413	359	212	617	301	452	445	408	538
Mar. 12------	458	591	545	586	468	416	309	542	231	468	335	343	643	156	575	422	313	558
Mar. 13------	470	510	480	562	470	638	461	296	237	528	519	346	564	464	575	401	204	512
Mar. 14------	532	594	567	506	468	313	444	571	358	468	184	264	650	487	169	457	426	560
Mar. 15------	519	540	---	571	469	29	466	566	405	110	320	154	670	269	550	549	517	578
Mar. 16------	433	578	559	553	468	81	335	539	409	453	193	412	664	496	216	514	426	578
Mar. 17------	335	620	401	592	423	364	363	552	219	542	392	474	534	340	383	464	500	471
Mar. 18------	504	607	547	600	498	362	464	424	433	573	511	538	667	372	247	505	341	564
Average ------	464	577	517	567	468	315	406	498	328	449	351	362	627	309	388	473	389	546
Mar. 19------	543	617	433	578	504	107	429	231	290	468	361	520	686	468	554	379	263	597
Mar. 20------	545	653	589	415	478	252	---	494	501	350	117	---	686	443	394	567	418	609
Mar. 21------	283	641	451	399	430	503	463	584	451	329	121	458	565	43	379	580	568	533
Mar. 22------	202	598	496	619	376	621	465	540	308	578	533	542	540	375	594	472	481	534
Mar. 23------	255	636	390	581	264	479	218	487	304	563	427	546	545	544	606	379	391	459
Mar. 24------	466	588	340	582	510	476	383	127	197	535	547	476	643	460	496	78	285	387
Mar. 25------	285	601	626	242	522	540	523	150	520	512	382	392	729	446	150	531	300	610
Average ------	368	619	475	488	441	425	413	373	367	476	355	485	628	397	453	427	387	533
Mar. 26------	514	652	393	623	340	613	522	601	458	267	266	70	640	462	351	575	585	568
Mar. 27------	568	528	500	626	535	359	415	485	556	289	563	154	711	61	534	385	569	495
Mar. 28------	---	648	423	117	517	539	434	575	490	614	529	577	692	645	113	503	456	546
Mar. 29------	410	668	439	520	520	95	179	421	263	303	37	71	712	581	612	419	379	590
Mar. 30------	384	669	250	613	284	167	334	292	303	450	350	418	587	344	570	434	401	457
Mar. 31------	560	652	616	441	516	490	503	398	260	465	519	462	725	512	280	506	307	616
Apr. 1------	551	637	614	334	523	346	463	611	248	509	219	268	729	507	445	490	581	617
Average ------	498	636	462	468	462	373	407	483	368	414	355	289	685	445	415	473	468	556

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

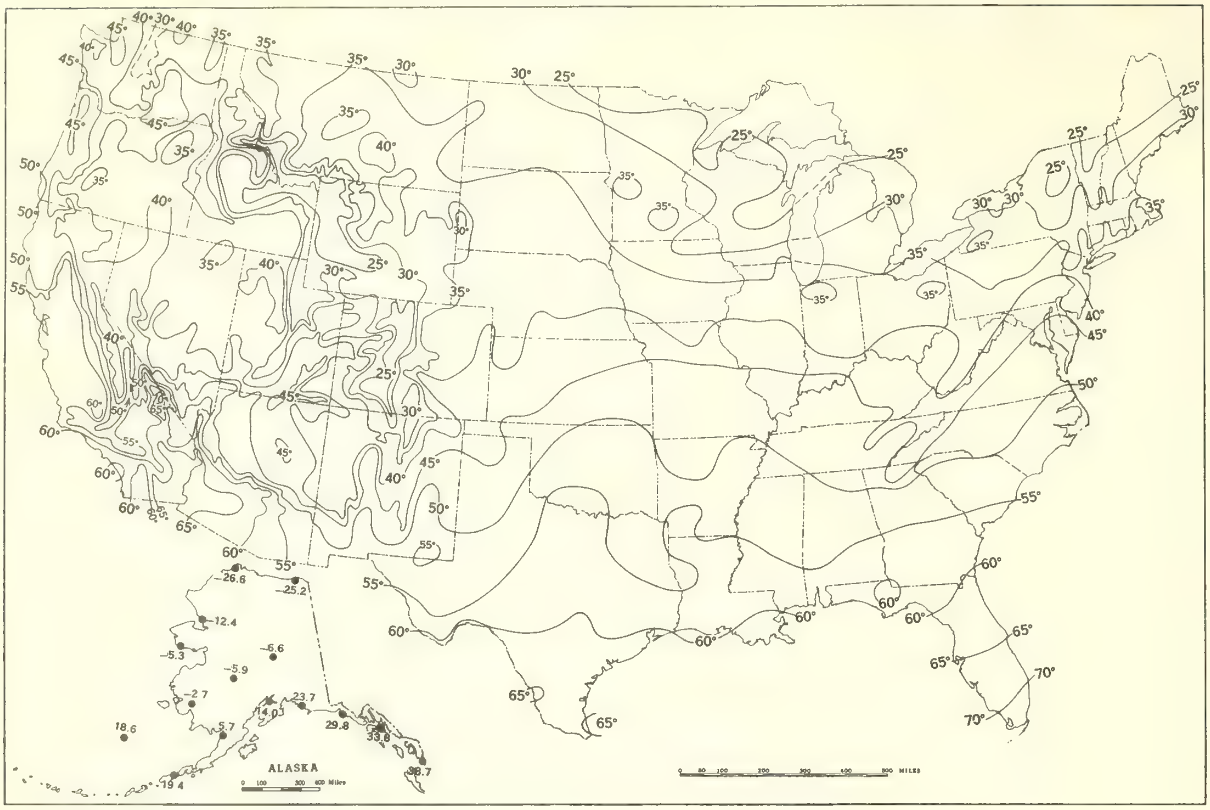
Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Manhattan, Kans.	Matanuska, Alaska	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Texas	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Page, Ariz.	Portland, Maine
Mar. 5------	112	257	244	508	498	141	116	751	386	363	540	107	450	349	188	71	535	442
Mar. 6------	142	399	553	477	454	229	103	747	303	325	563	394	37	68	519	195	525	485
Mar. 7------	531	522	537	360	338	500	263	750	419	187	545	527	352	361	496	517	527	279
Mar. 8------	556	533	363	469	488	350	101	725	379	183	568	542	471	460	437	515	559	490
Mar. 9------	90	530	540	444	445	432	337	748	270	346	562	399	287	196	388	109	549	179
Mar. 10------	334	94	348	455	471	253	315	538	428	579	453	540	176	51	126	459	550	581
Mar. 11------	43	414	85	---	508	419	202	755	436	560	569	97	476	443	410	58	573	489
Average ------	258	393	382	452	457	332	205	716	374	363	543	372	321	276	366	275	545	421
Mar. 12------	263	571	496	---	534	526	179	493	185	402	588	394	43	42	518	207	571	537
Mar. 13------	483	524	567	---	501	484	194	482	340	616	521	557	358	359	496	512	558	370
Mar. 14------	447	20	---	---	494	341	299	543	352	455	555	295	500	329	45	264	573	521
Mar. 15------	315	486	599	---	526	503	---	756	455	514	593	466	257	99	535	413	597	245
Mar. 16------	510	510	578	---	549	548	---	785	401	526	457	582	508	527	482	550	601	495
Mar. 17------	642	538	571	---	342	536	339	772	177	265	573	601	282	465	---	566	581	524
Mar. 18------	644	568	578	---	519	533	256	774	215	94	616	607	549	499	---	585	574	533
Average ------	472	459	565	---	495	496	253	658	304	410	558	500	357	332	415	443	579	461
Mar. 19------	625	281	565	---	485	414	336	783	476	45	609	545	500	489	---	452	475	484
Mar. 20------	245	151	352	---	493	106	347	779	381	387	499	136	495	482	---	201	616	451
Mar. 21------	225	635	239	---	482	594	332	793	327	372	458	77	455	377	---	95	589	312
Mar. 22------	656	632	637	---	342	579	359	795	234	546	601	634	575	600	---	584	577	560
Mar. 23------	679	520	610	---	384	497	350	711	296	572	596	624	551	550	---	568	539	548
Mar. 24------	628	525	556	---	607	352	221	796	377	249	597	---	512	494	---	541	554	533
Mar. 25------	592	80	192	---	575	510	307	805	156	576	565	588	477	469	---	543	618	275
Average ------	521	403	450	---	481	436	322	780	321	392	561	434	509	494	---	426	567	452
Mar. 26------	133	34	593	509	514	30	317	784	217	512	604	157	431	324	---	36	626	550
Mar. 27------	130	657	281	577	536	---	376	795	364	534	598	173	54	34	---	152	664	151
Mar. 28------	707	500	292	580	575	380	379	800	276	301	500	647	489	608	---	611	571	530
Mar. 29------	134	218	595	594	562	111	389	803	171	318	572	69	597	533	---	66	590	589
Mar. 30------	617	322	368	436	292	499	322	718	453	603	622	433	143	57	---	430	(433)	296
Mar. 31------	597	85	608	559	540	246	422	725	164	468	567	594	121	174	---	560	625	513
Apr. 1------	521	661	357	611	597	568	268	811	302	631	636	313	356	265	---	415	681	491
Average ------	406	354	442	552	517	306	353	776	278	481	586	341	313	285	---	324	(599)	446

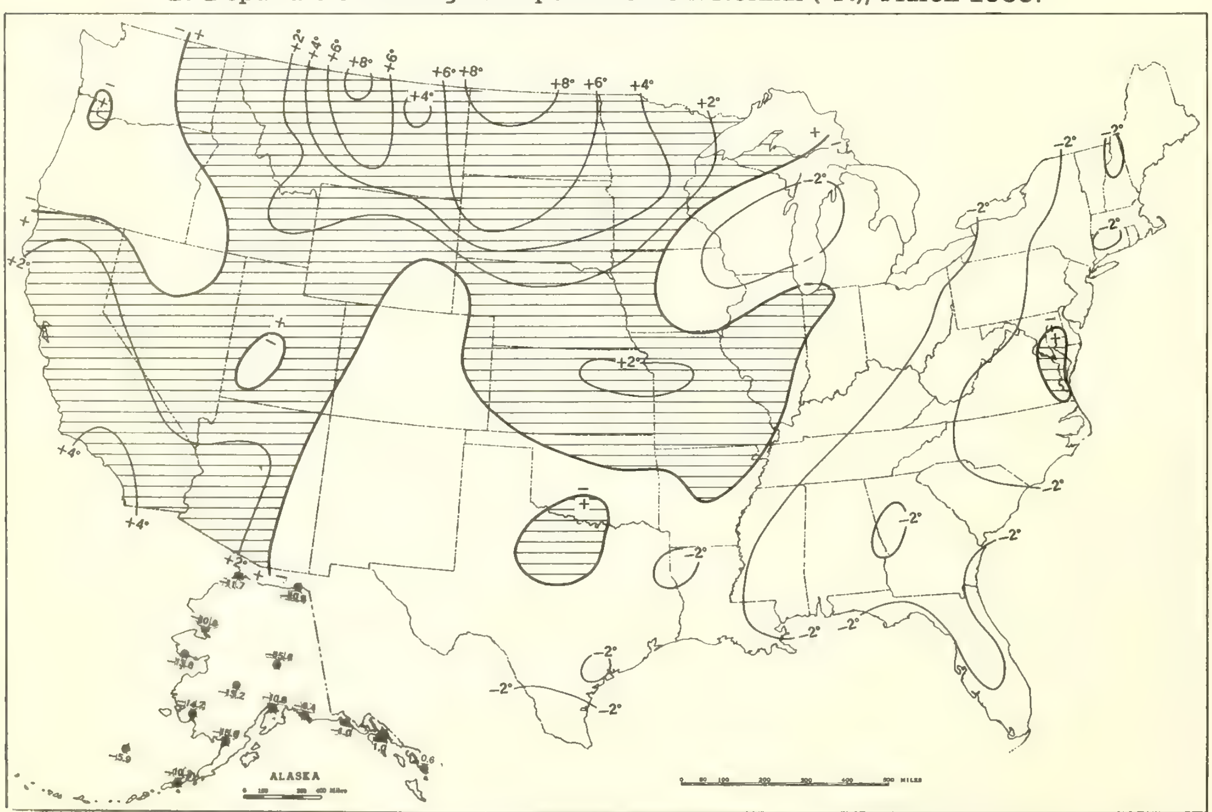
1959	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S.Ste.Marie, Mich.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Obs & Test Dev Ctr)
Mar. 5------	241	369	549	186	570	521	197	436	168	273	254	339	117	223	581	489	321
Mar. 6------	250	349	516	415	566	---	118	62	240	562	233	71	476	290	572	665	276
Mar. 7------	325	217	518	164	237	397	416	271	203	535	342	252	462	391	573	618	478
Mar. 8------	293	361	532	286	385	527	410	436	319	294	347	400	345	552	569	668	494
Mar. 9------	171	401	532	347	548	545	427	151	183	565	172	162	---	566	520	665	304
Mar. 10------	459	366	540	221	111	565	415	206	343	467	348	260	415	553	570	653	350
Mar. 11------	429	435	583	360	442	547	174	466	148	193	386	251	341	549	568	654	211
Average ------	310	357	539	283	409	517	308	290	229	413	297	248	359	446	565	630	348
Mar. 12------	343	360	584	428	459	553	329	89	343	576	384	219	498	264	---	665	243
Mar. 13------	319	155	549	456	495	553	383	342	250	548	402	403	480	632	---	667	---
Mar. 14------	325	362	500	242	578	571	231	468	253	219	409	315	449	468	---	645	344
Mar. 15------	399	437	614	472	529	575	100	200	240	570	361	320	516	464	---	542	186
Mar. 16------	372	243	598	451	471	558	301	396	370	354	291	520	509	107	---	673	422
Mar. 17------	---	495	438	492	338	537	448	450	285	352	197	338	488	63	---	547	375
Mar. 18------	304	289	564	406	416	580	464	530	172	354	497	523	487	119	---	594	555
Average ------	344	334	550	421	469	561	322	354	273	425	363	377	490	302	---	619	354
Mar. 19------	506	482	469	456	553	567	378	458	383	532	425	491	458	76	---	608	543
Mar. 20------	470	526	554	419	552	543	460	444	207	159	409	442	---	192	---	---	514
Mar. 21------	130	550	568	504	525	582	505	182	358	111	156	110	494	355	---	669	362
Mar. 22------	335	401	548	460	496	511	488	545	394	612	318	584	550	529	---	655	559
Mar. 23------	232	394	489	429	586	401	446	510	208	592	278	562	468	554	---	565	572
Mar. 24------	288	98	608	293	523	632	298	483	339	570	---	385	484	514	---	529	527
Mar. 25------	---	218	630	470	243	609	489	386	94	160	---	389	83	541	---	708	474
Average ------	327	381	552	433	497	549	438	430	283	391	317	423	362	395	---	622	507
Mar. 26------	---	563	592	299	627	539	510	507	359	595	259	147	134	592	---	702	392
Mar. 27------	418	474	515	535	638	631	533	105	157	628	351	46	105	509	---	676	152
Mar. 28------	238	(457)	605	483	460	629	544	580	243	334	370	640	47	503	---	682	618
Mar. 29------	365	458	621	493	580	634	408	556	198	611	347	471	197	67	---	685	505
Mar. 30------	---	549	251	75	391	435	---	273	---	615	228	150	549	135	---	689	83
Mar. 31------	---	375	644	233	234	628	---	244	83	597	112	350	340	---	648	---	409
Apr. 1------	---	506	643	400	661	630	---	418	160	229	347	507	350	513	662	694	518
Average ------	---	(483)	553	360	513	589	499	383	200	516	288	330	246	386	---	688	382

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature (°F.) at Surface, March 1959.

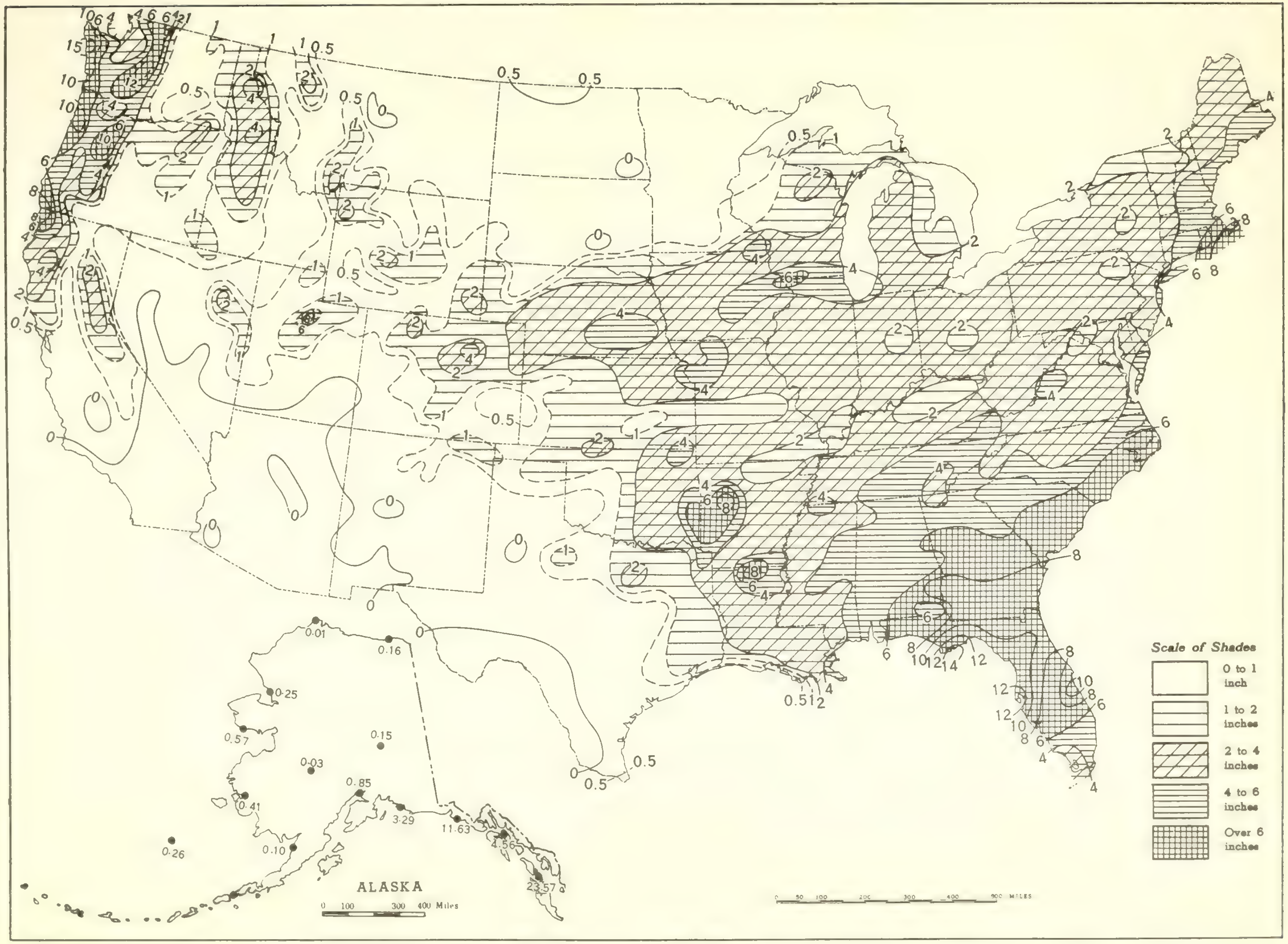


B. Departure of Average Temperature from Normal (°F.), March 1959.



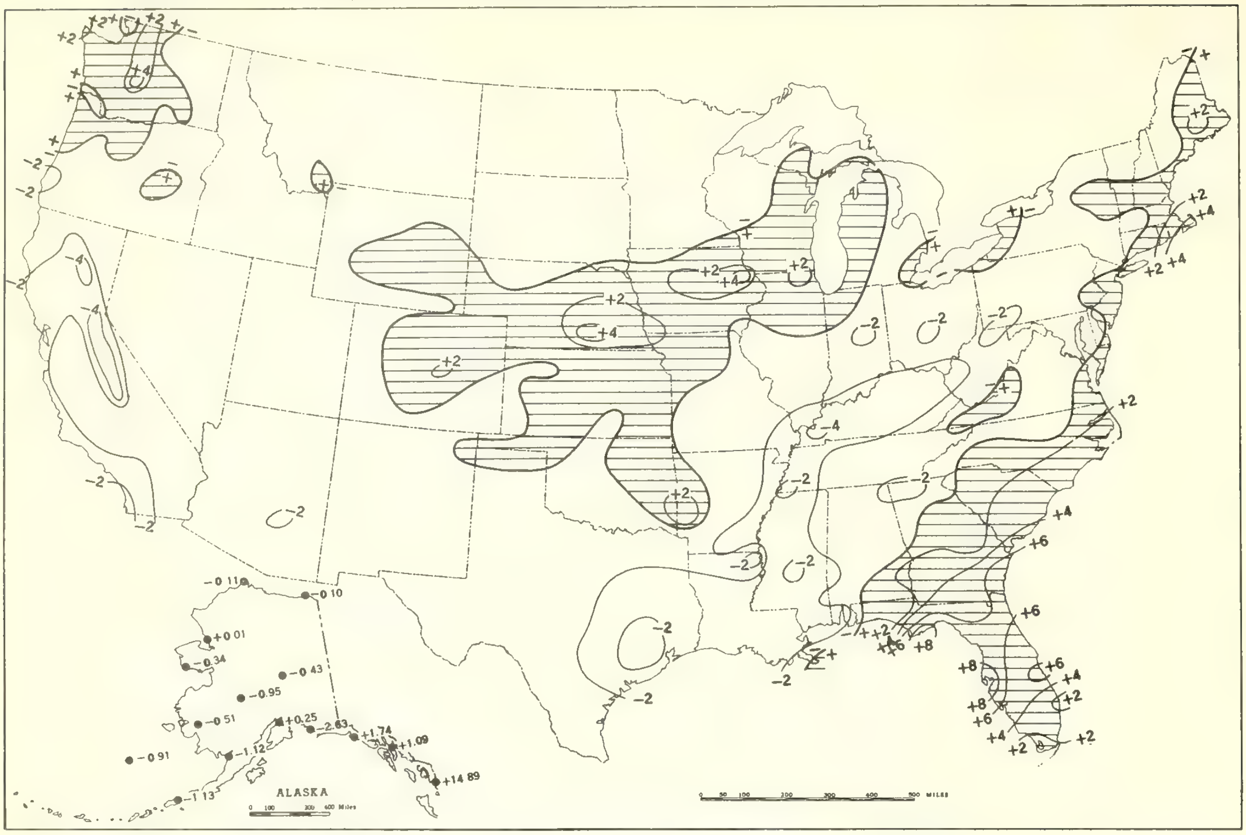
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), March 1959.

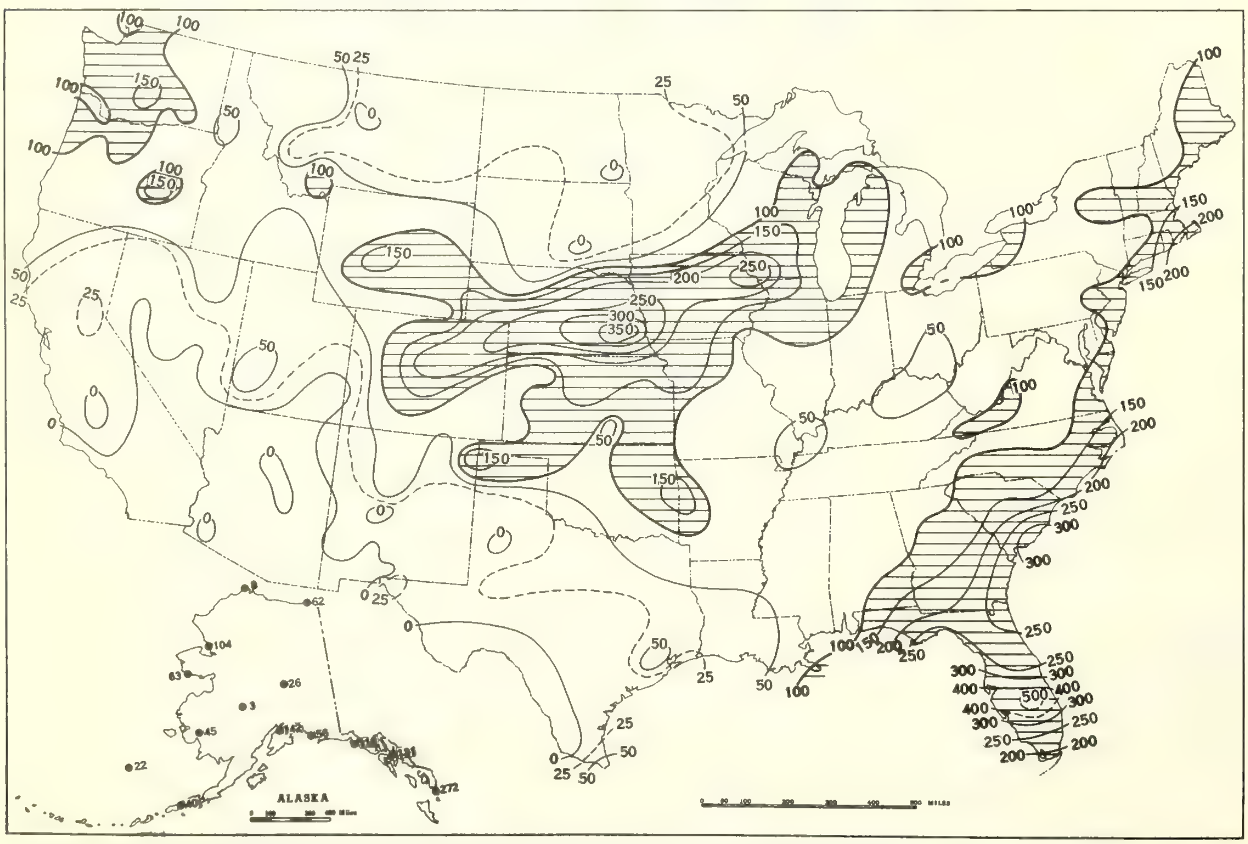


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), March 1959.

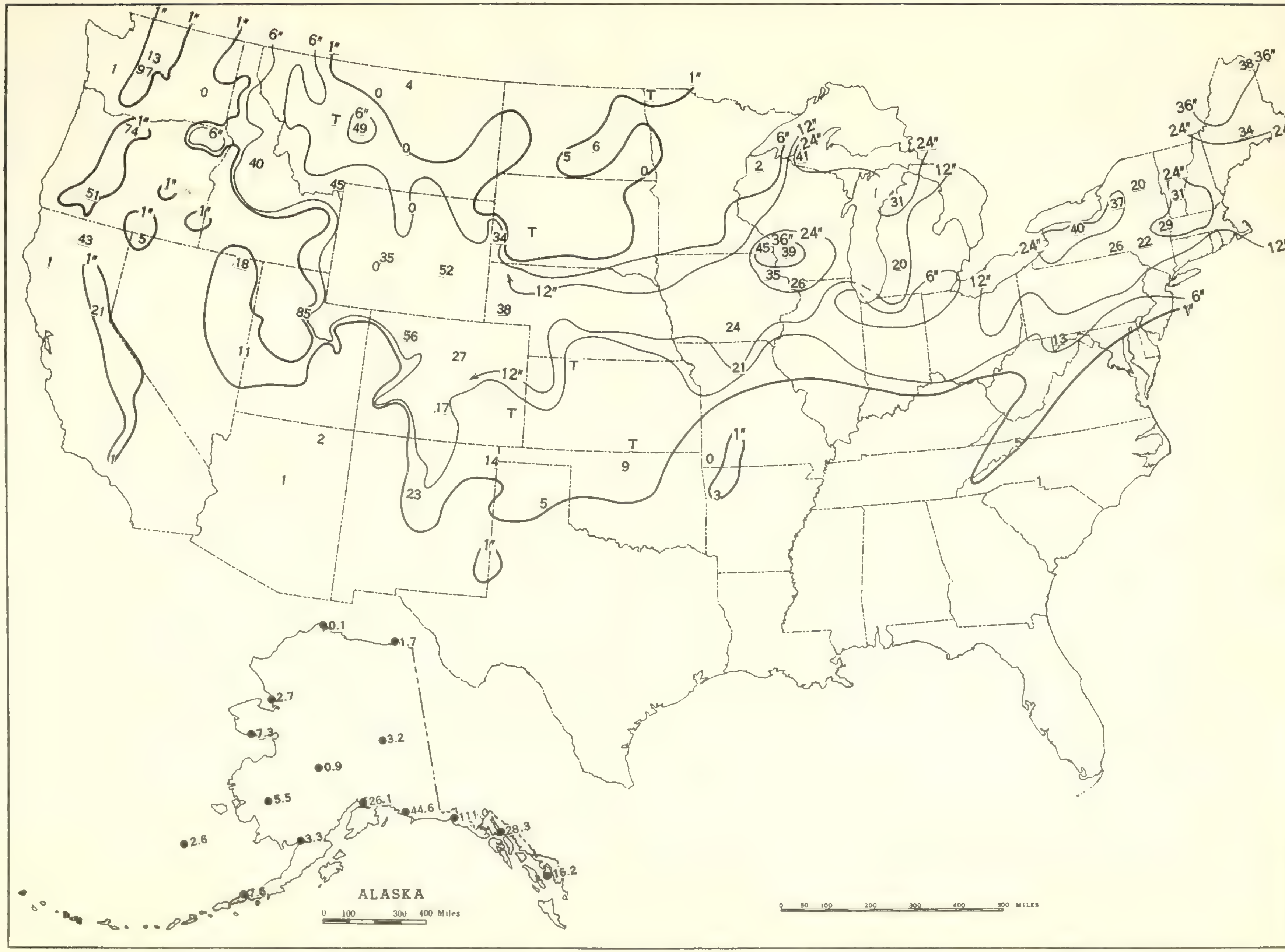


B. Percentage of Normal Precipitation, March 1959.



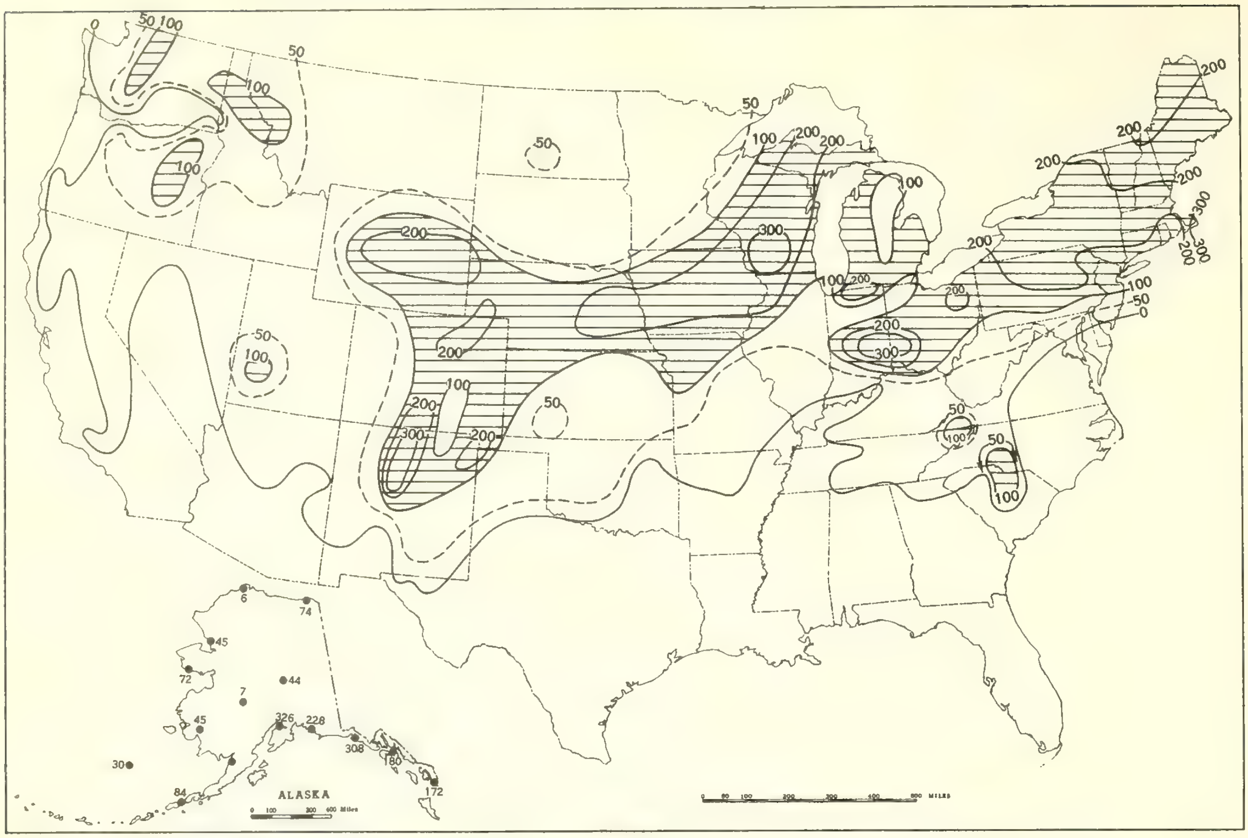
Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), March 1959.

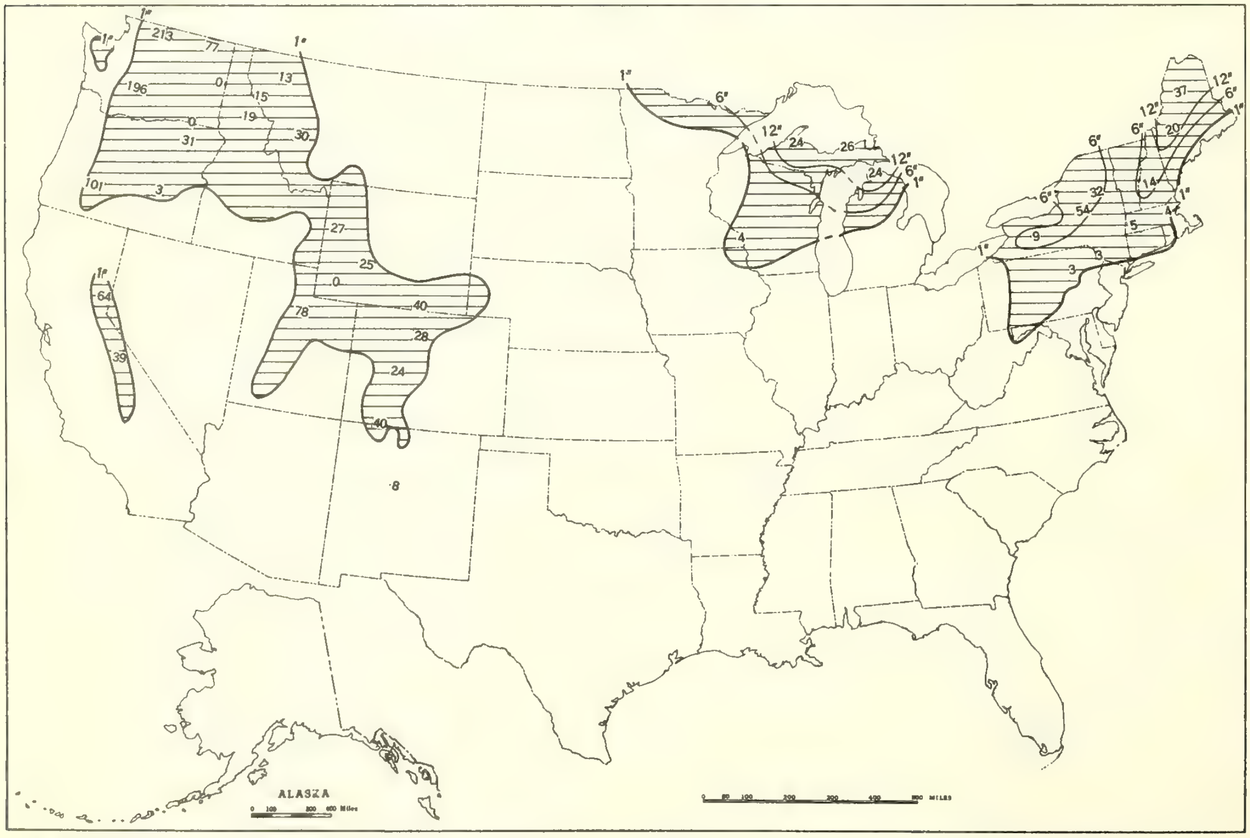


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, March 1959.

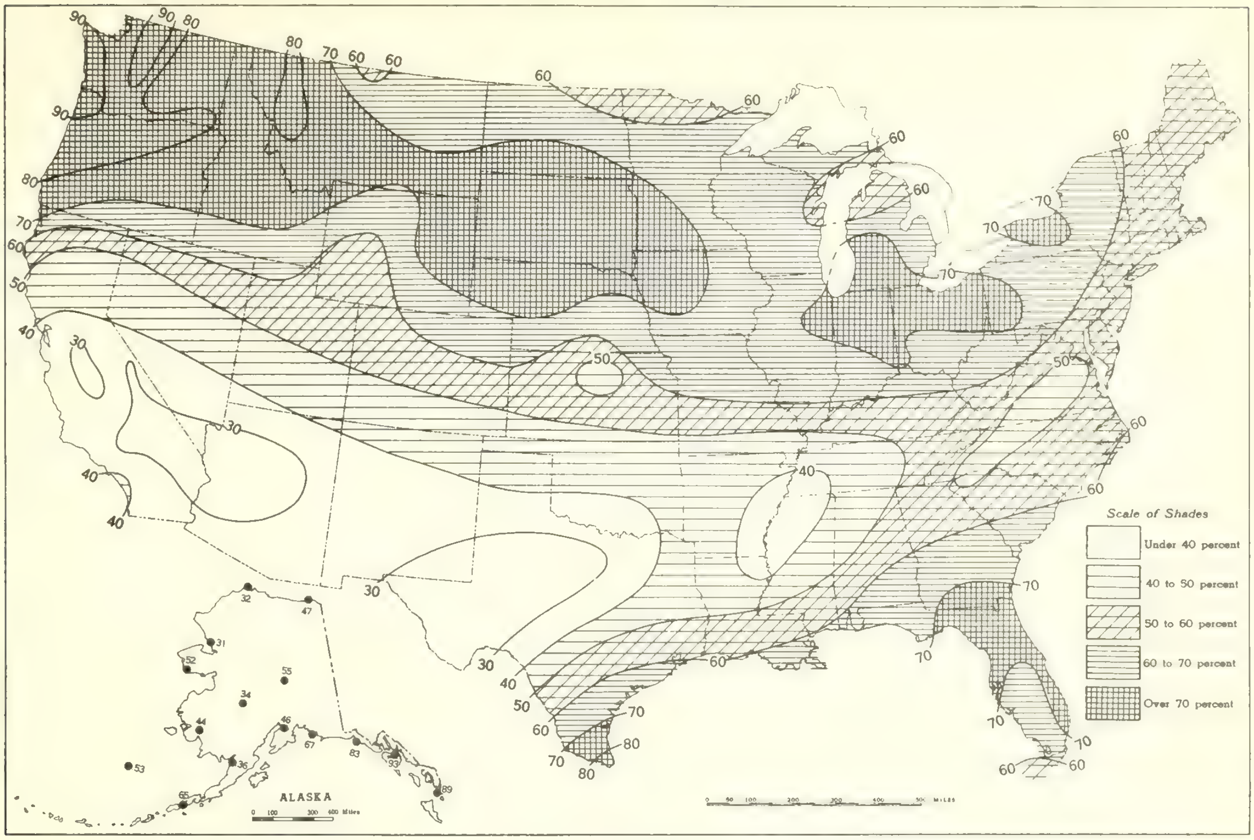


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., March 30, 1959.

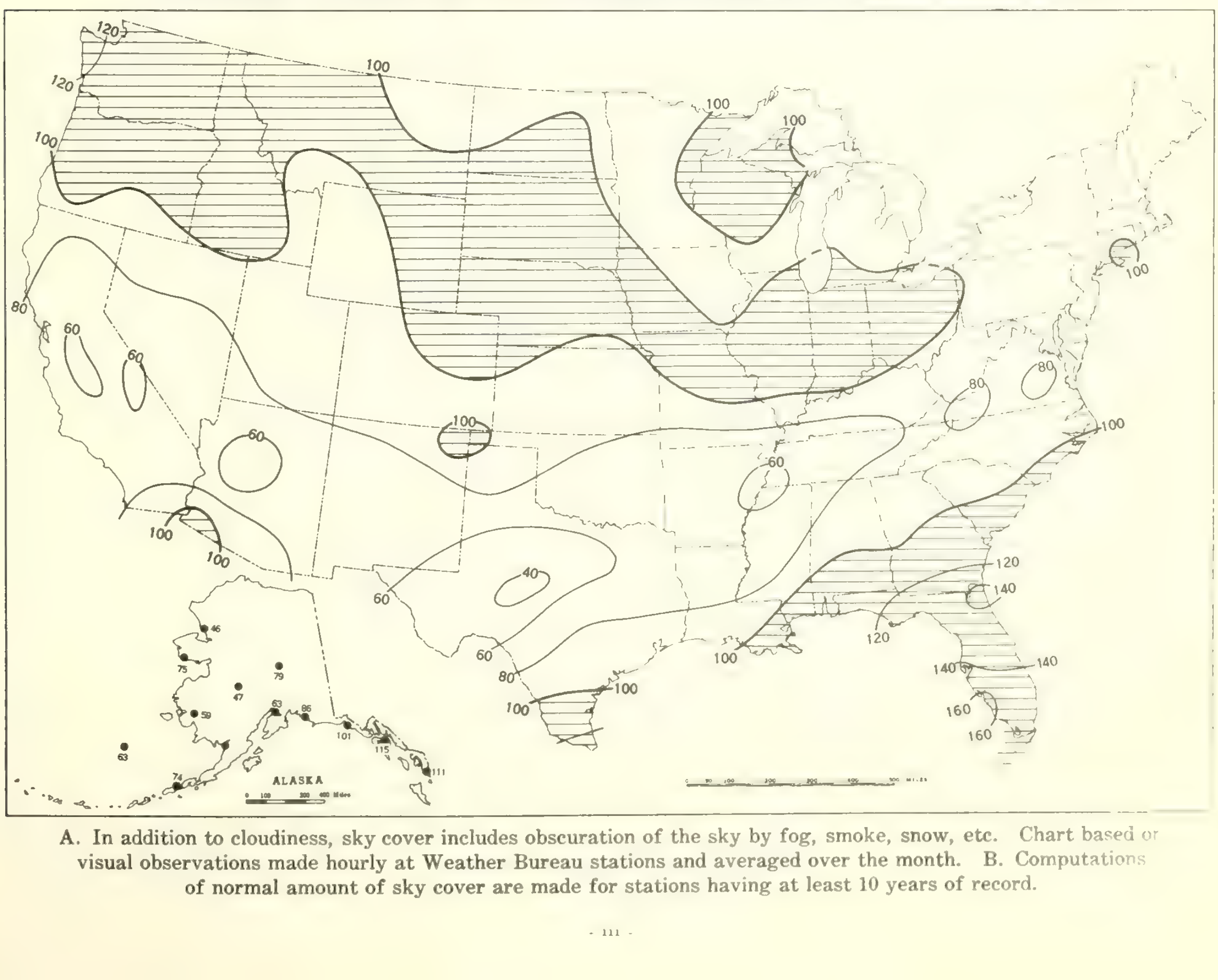


A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
B. Shows depth currently on ground at 7:00 a. m. E. S. T., of the Monday nearest the end of the month.
It is based on reports from Weather Bureau and cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, March 1959.

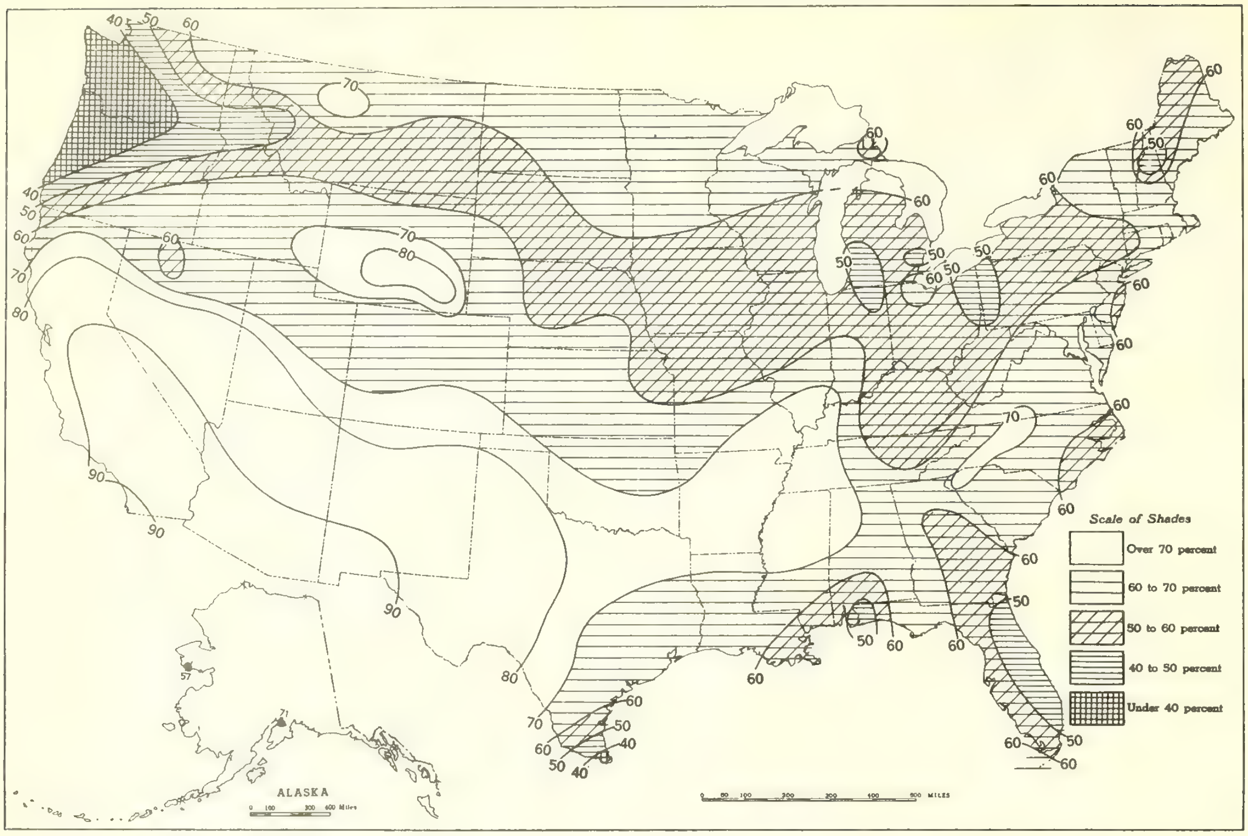


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, March 1959.

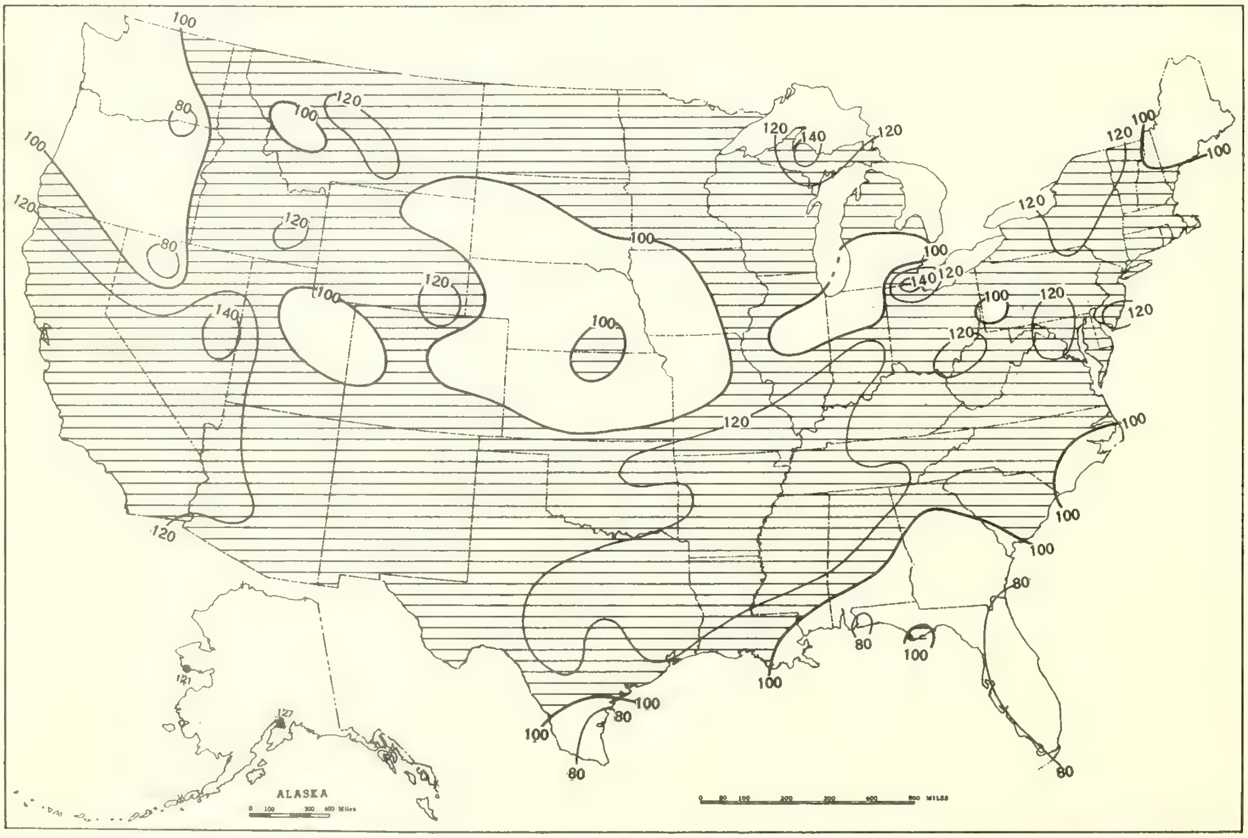


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, March 1959.

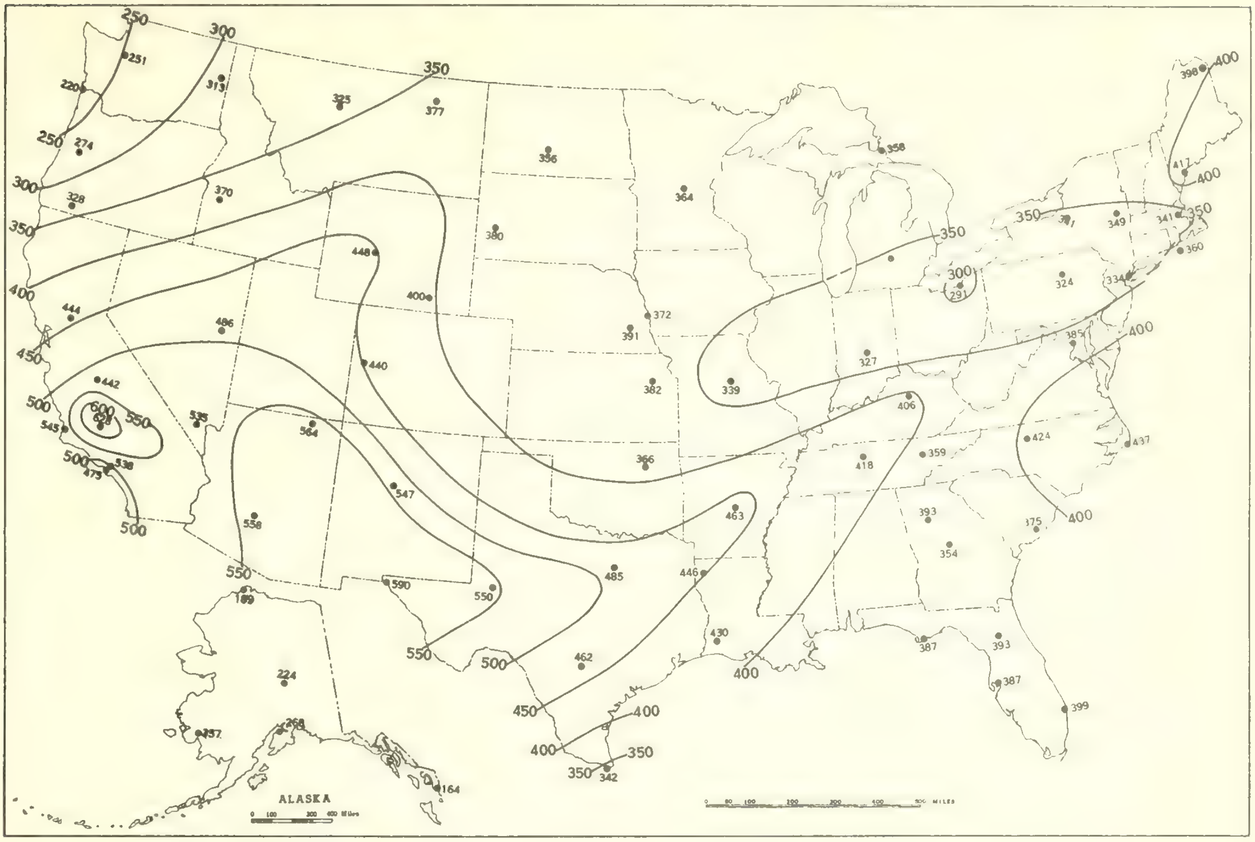


B. Percentage of Normal Sunshine, March 1959.

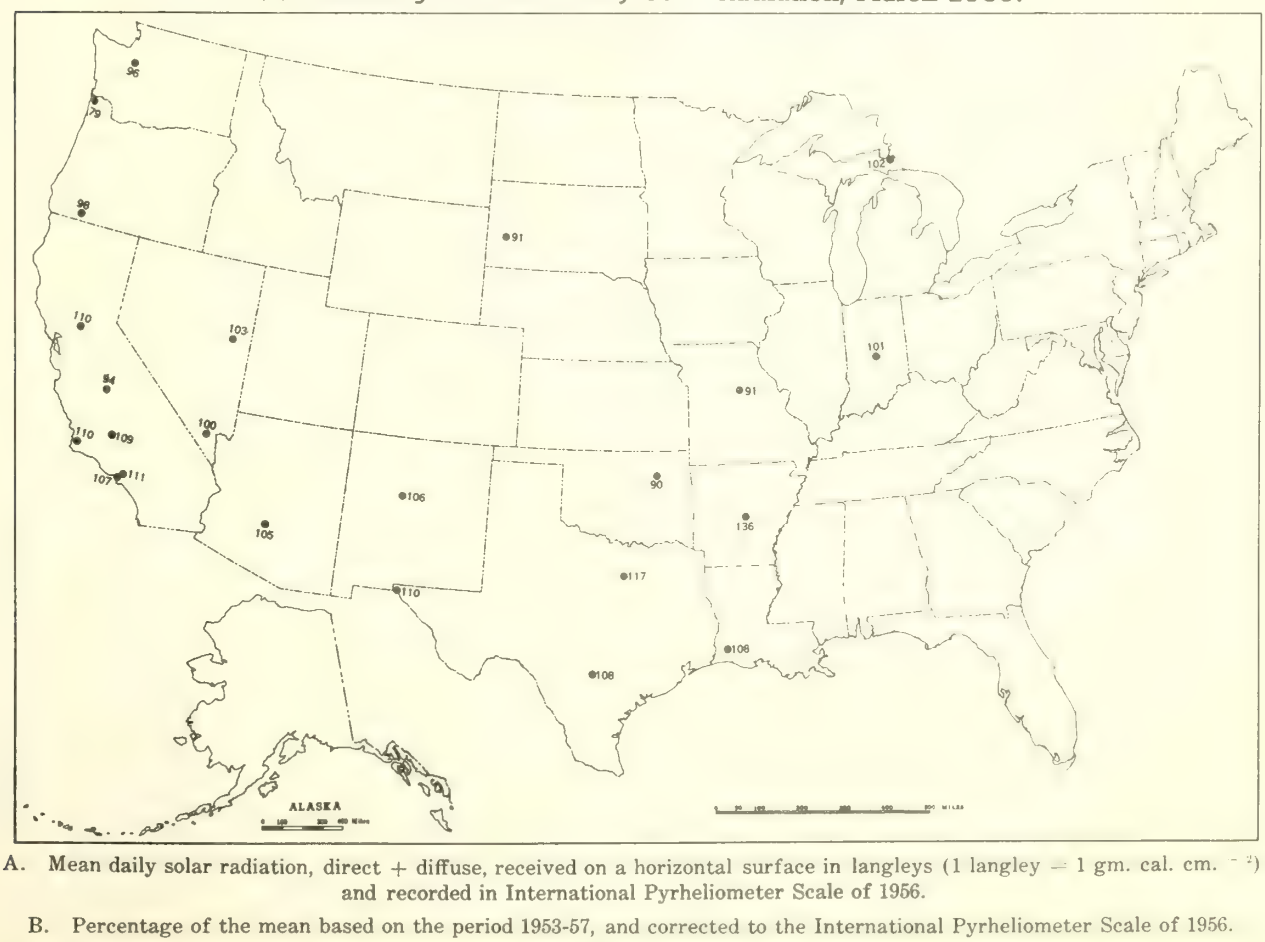


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, March 1959.



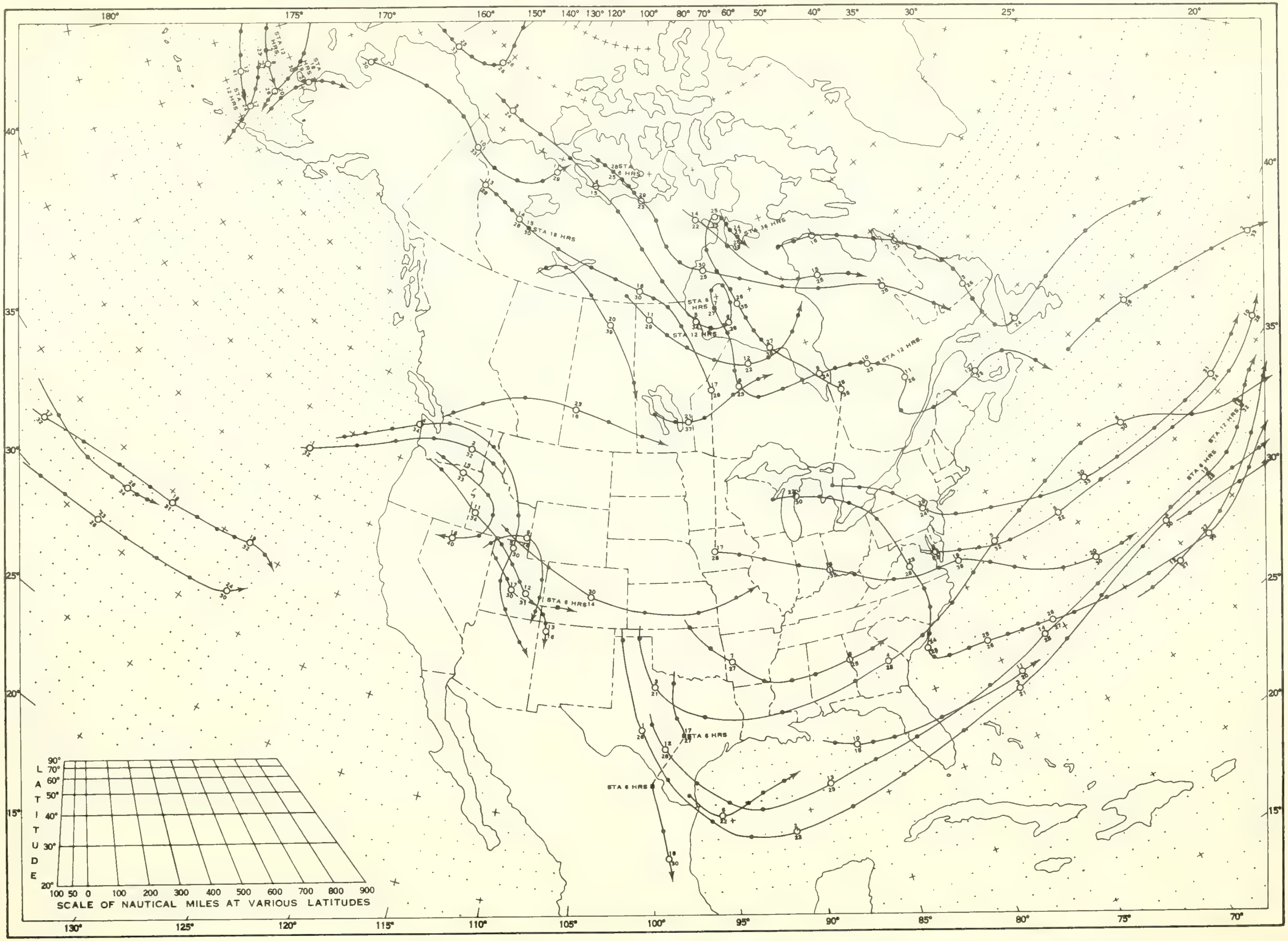
B. Percentage of Mean Daily Solar Radiation, March 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.$^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

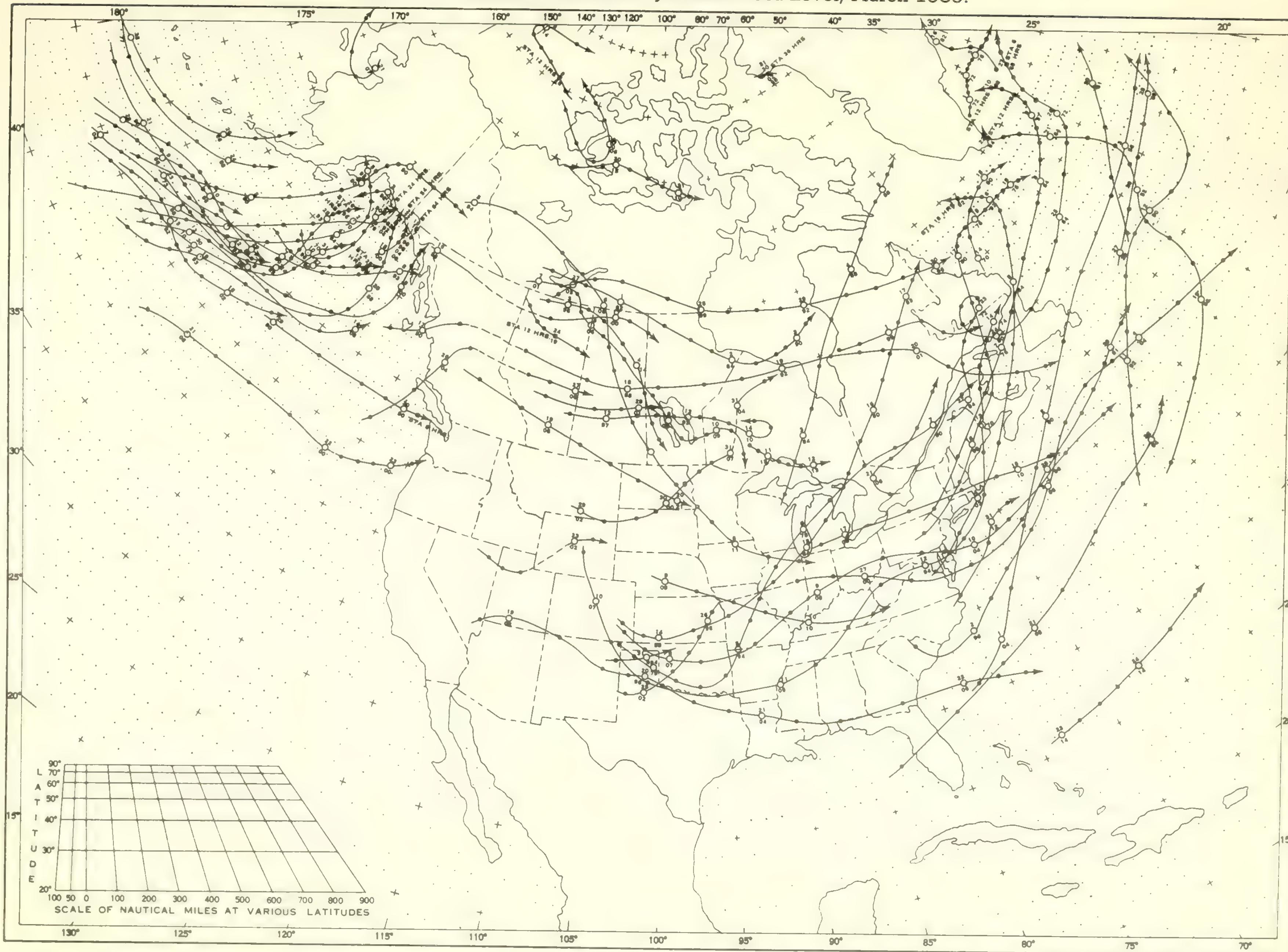
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, March 1959.



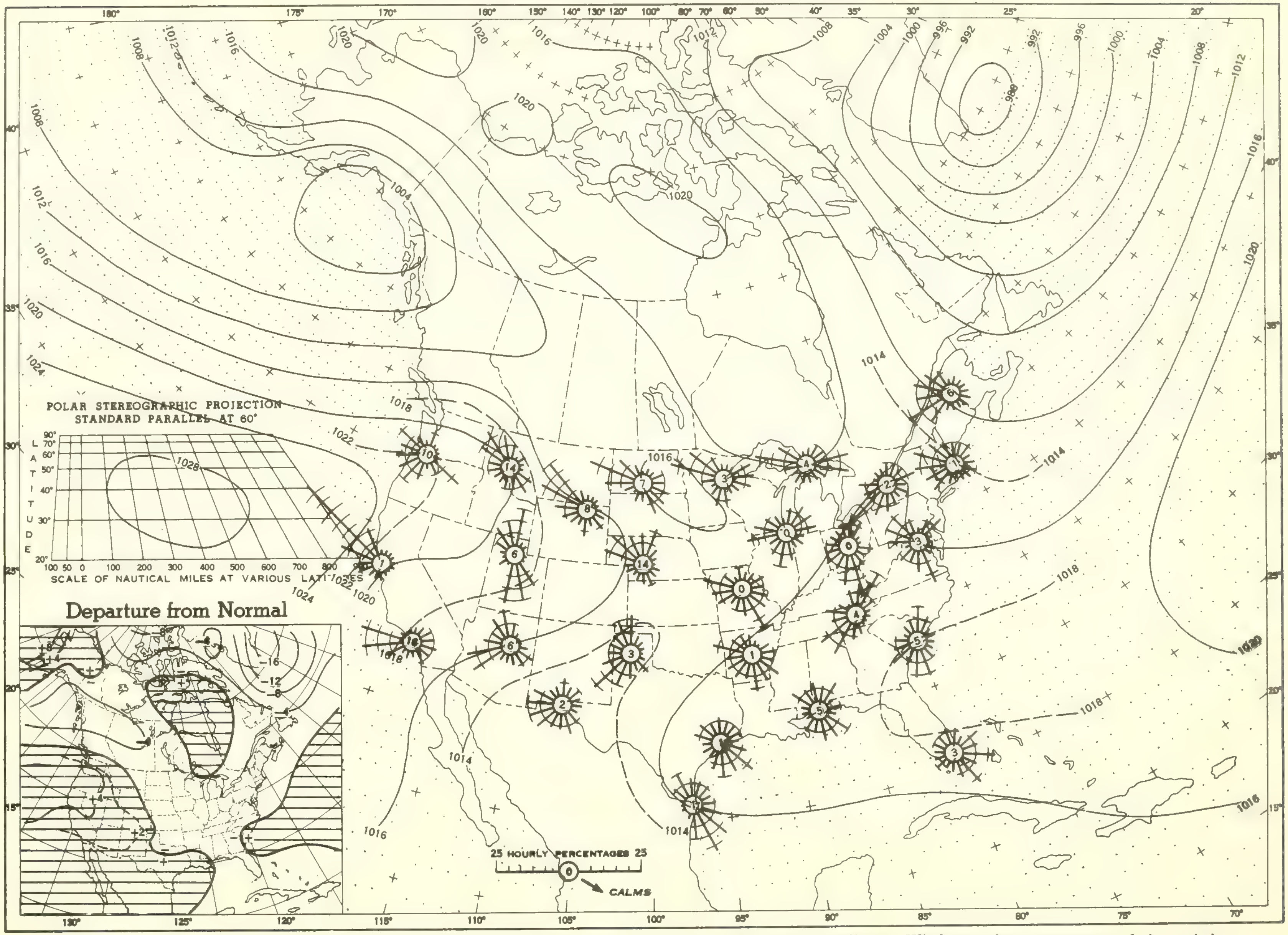
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, March 1959.



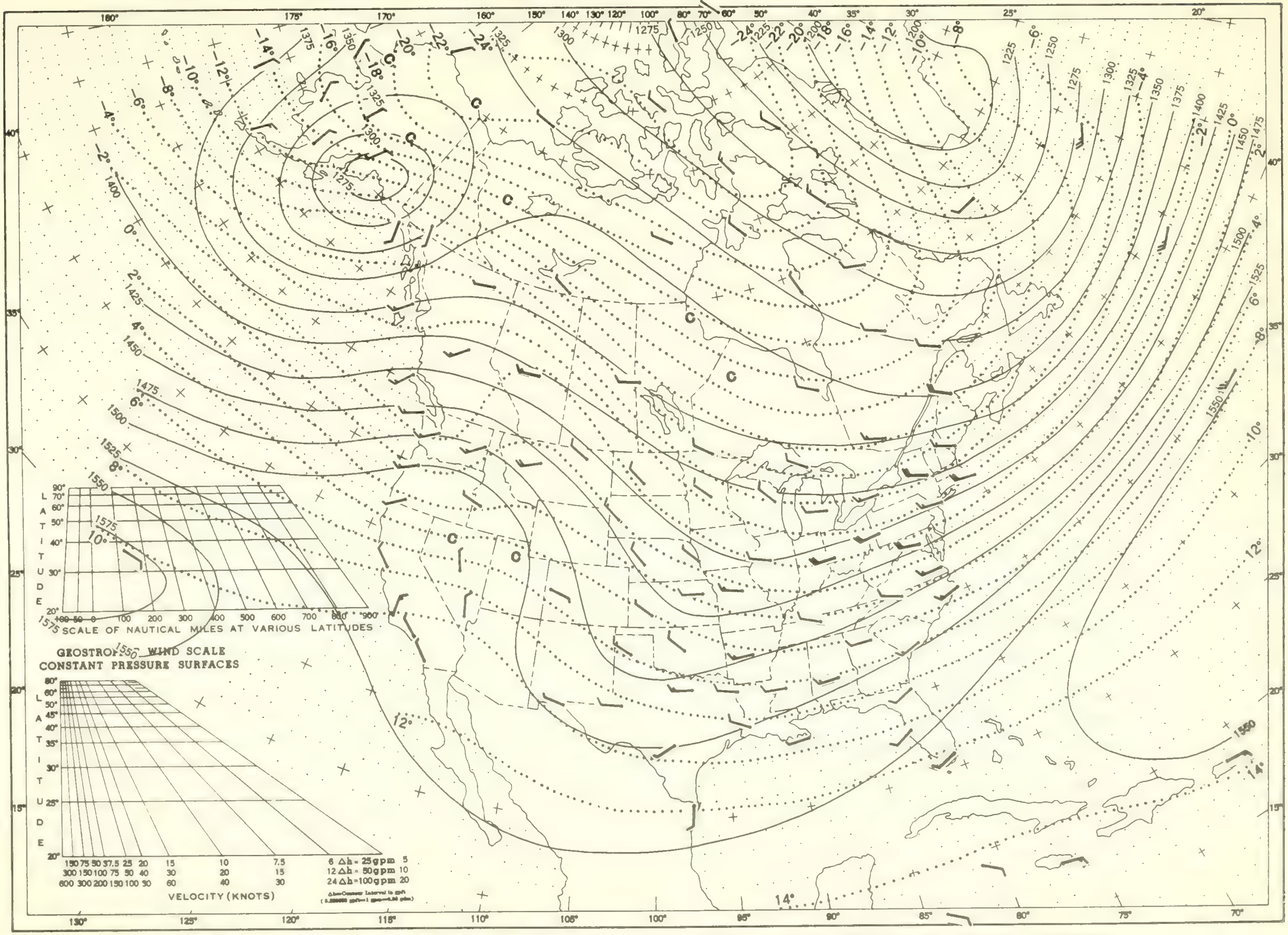
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, March 1959. Inset: Departure of Average Pressure (mb.) from Normal, March 1959.



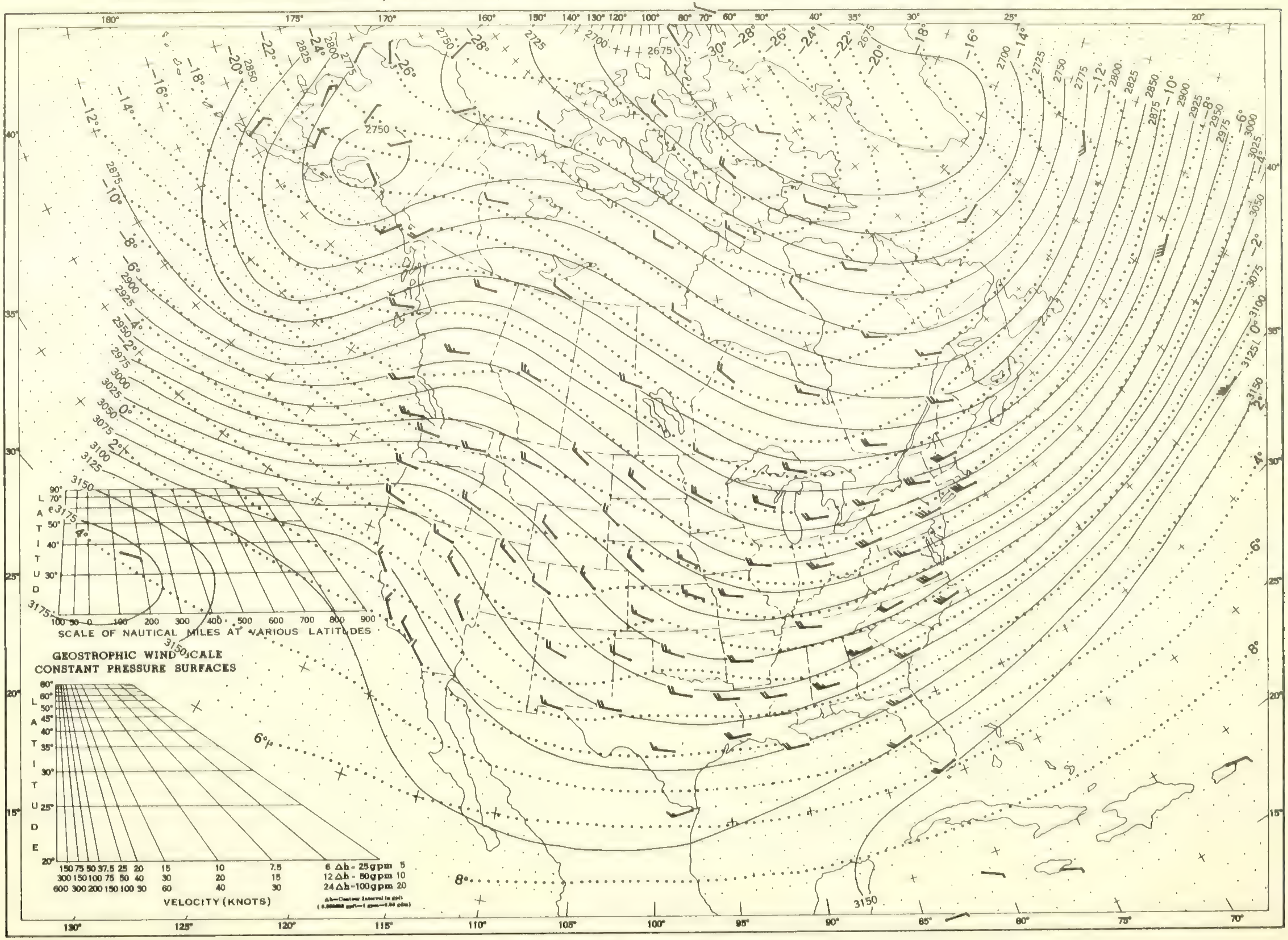
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, March 1959. Average Height and Temperature, and Resultant Winds.



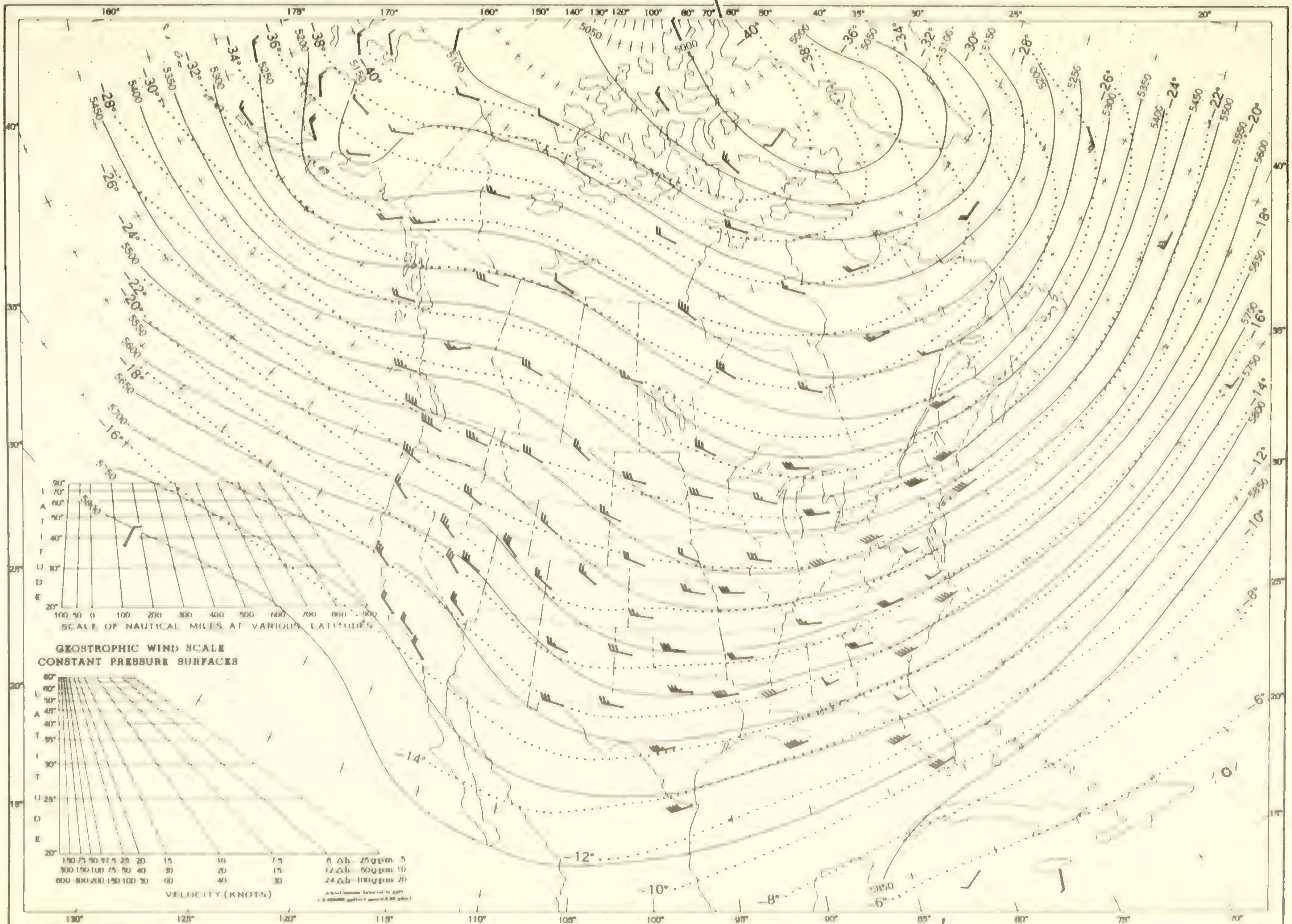
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, March 1959. Average Height and Temperature, and Resultant Winds.



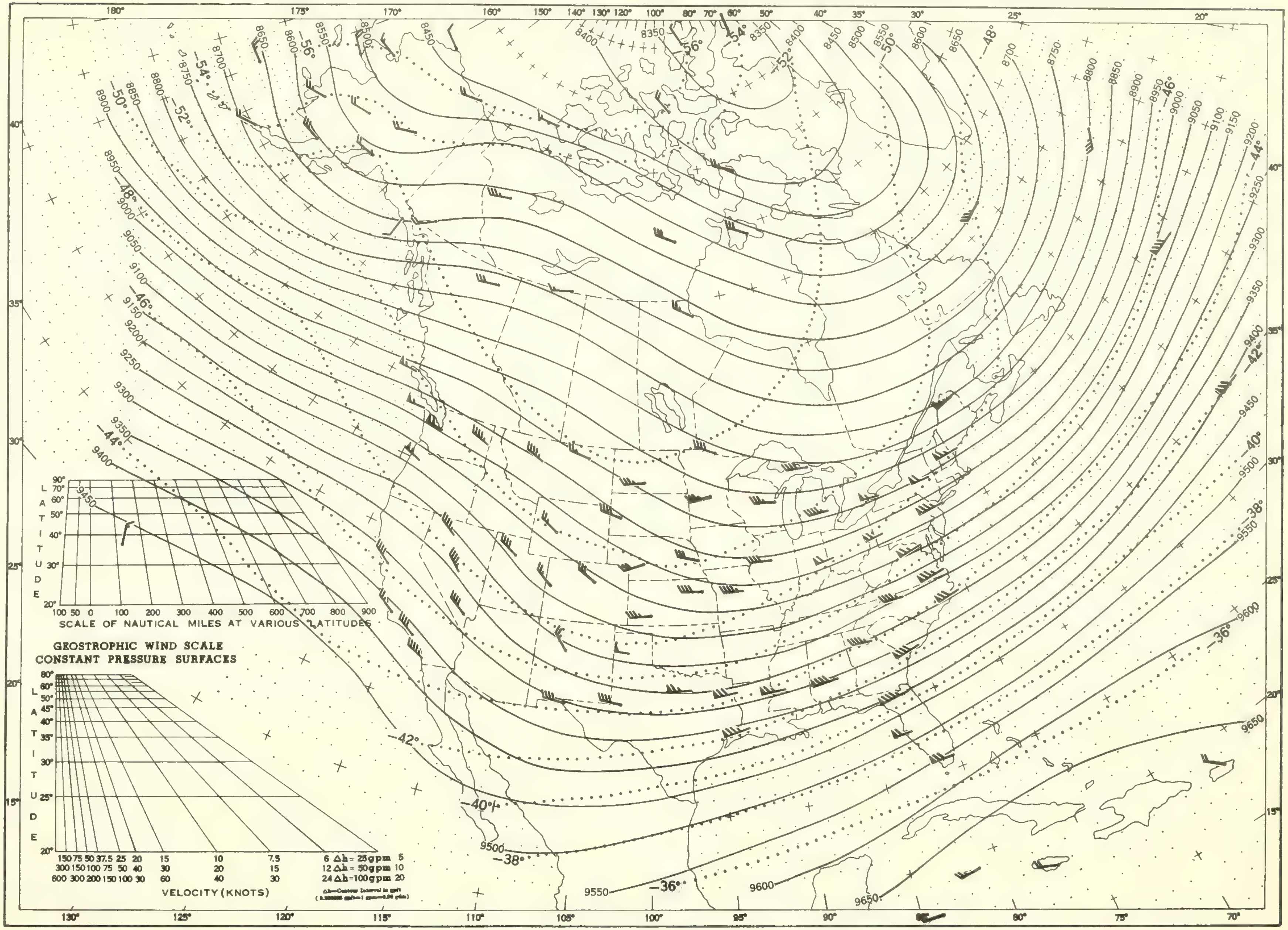
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, March 1959. Average Height and Temperature, and Resultant Winds.



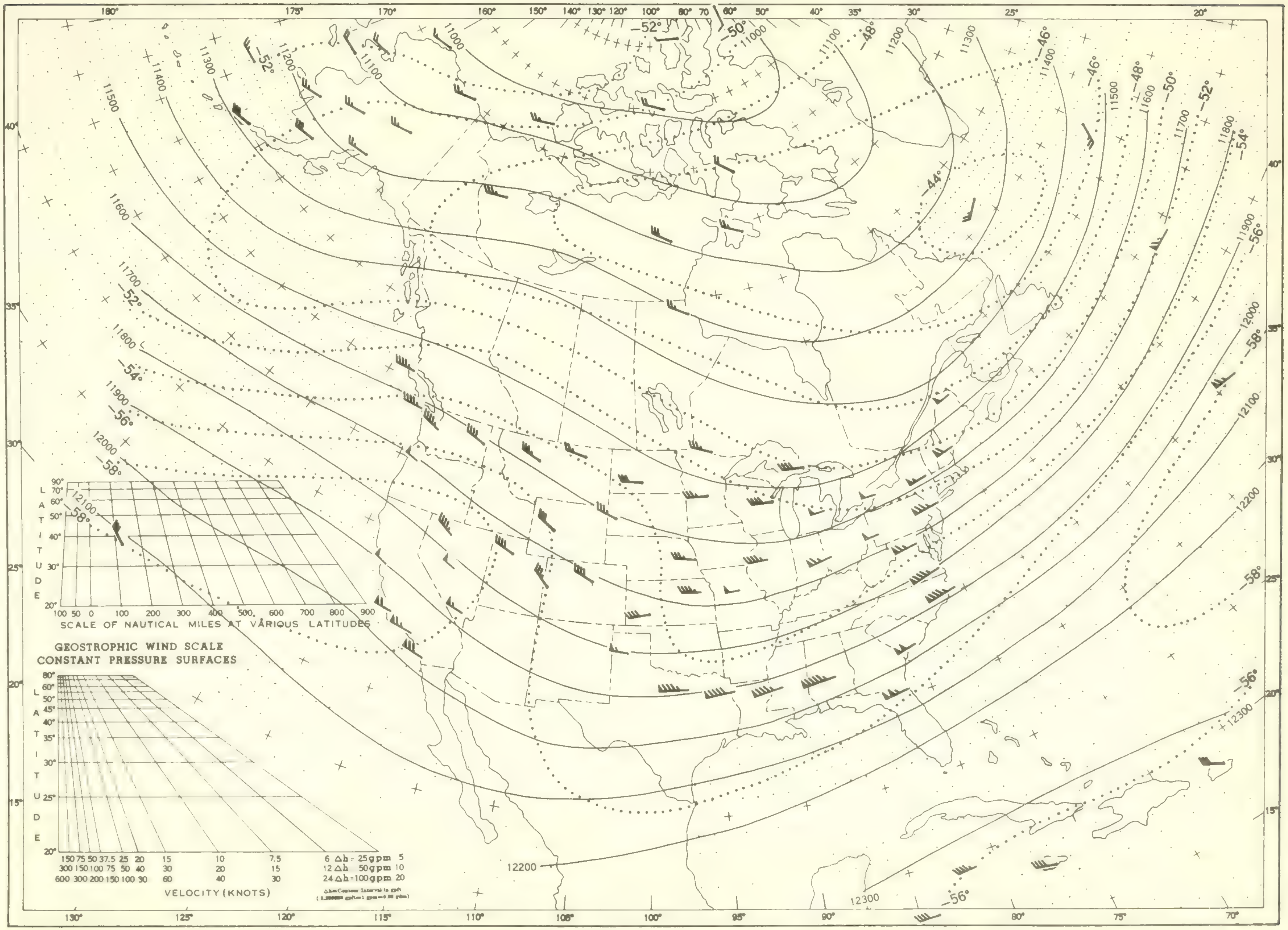
See Chart XII for explanation of map

Chart XV. 300-mb. Surface, 1200 GMT, March 1959. Average Height and Temperature, and Resultant Winds.



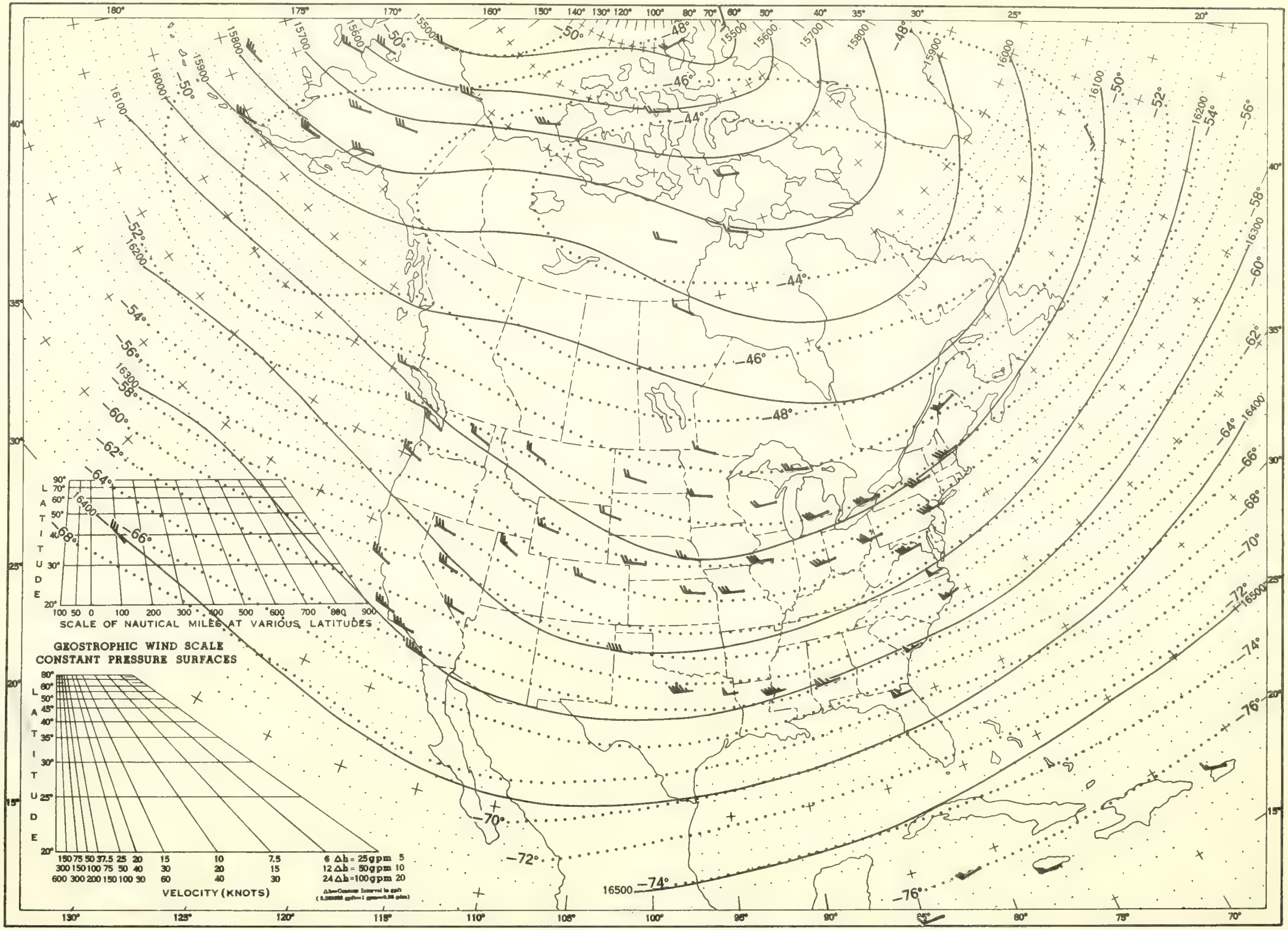
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, March 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, March 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

U. S. DEPARTMENT OF COMMERCE
LEWIS L. STRAUSS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

APRIL 1959
Volume 10 No. 4

ASHEVILLE: 1959

C O N T E N T S

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 4 APRIL 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

April was unusually warm in the Far Southwest, but elsewhere widely fluctuating temperatures averaged within a few degrees of normal for the month. Freezes occurred later than usual in many southern areas, but caused only relatively minor crop losses. Precipitation was deficient in the greater portion of the country, and soil moisture was short in parts of the northern Great Plains and upper Mississippi Valley as a result of several months of abnormally dry weather. The mountain snowpack in the Far West ranged from much below normal in southern areas to above in extreme northern areas. Severe flooding during the month was extremely local and mostly limited to north central areas.

TEMPERATURE.--This month was one of the warmest Aprils on record in the Far Southwest. Los Angeles and San Diego, Calif., had record high April averages of 65.4° and 64.7°, respectively. At the latter station temperatures have averaged above normal for each of the past 17 months, 3.3° above normal for the 17-month period, with record high averages for October and December 1958 and March 1959 in addition to the record high for this month. Yuma, Ariz., had an average for the month of 76.8° and maxima reached or exceeded 90° on 21 days with a peak of 106° on the 29th.

Temperatures were above normal over virtually the entire Nation the first week, and remained abnormally high throughout most of the remainder of the month in the Far Southwest and extreme Northeast. Elsewhere alternate warm and cool periods were the rule.

During the early part of the month temperatures reached unusually high levels for the season east of the Rocky mountains. Record high temperatures in South Dakota on the 6th were topped by 92° at Kennebec. On the 8th and 9th maxima rose to 80° as far north as southern New York and New England. Urban Baltimore recorded 92° and Washington, D. C., 90° on the 9th, records for the date.

An extensive cold air mass, covering much of the North American Continent, was the main controlling temperature factor in the United States during most of the following 2 weeks. At the beginning of the second week extreme cold with many record-low temperatures covered the central Rockies and northern Great Plains. On the 12th Cheyenne, Wyo., recorded -3°, a record low for so late in the season there. Waco, Tex., reported light frost on the 13th and 14th, Meridian, Miss., and Birmingham, Ala., reported a freeze on the 14th, and frost occurred in southern Georgia on the 15th. Fraser, Colo., recorded the lowest for the month, -24° on the 12th.

Another extensive cold air mass covered southern areas during the first half of the fourth week. In Texas, Amarillo recorded a late season freeze with a low of 29° on the 22d; also San Antonio reported 45° on the 23d, a record low for the date.

PRECIPITATION.--Precipitation was less than 50 percent of normal in parts of the northern Great Plains, the upper Mississippi Valley, southern portions of Indiana and Illinois, central and western Kansas, and large areas in the Far West. Amounts were above normal in the lower Great Lakes region, the Middle Atlantic States, and a few other widely scattered areas.

Soil moisture was extremely short in parts of the northern Great Plains and upper Mississippi Valley as a result of prolonged dry weather. Duluth, Minn., had its fourth driest April, and its driest January-April period, only 1.74 inches of moisture, since records began in 1872. Minneapolis, Minn., has recorded only 23.01 inches of precipitation, 63 percent of normal, since September 1, 1957, the least for any 20 consecutive months of record. In the Dakotas April totals generally were less than one-half inch, and several days of strong winds speeded soil moisture depletion.

In California, Arizona, Nevada, and New Mexico a total of 55 stations had no precipitation at all, and large areas had less than 25 percent of their normal precipitation. In Arizona the dry spell now has continued for 4 to 7 months or more, and the flow of the Colorado River near Grand Canyon was the lowest for April in 37 years. At Winnemucca, Nev., precipitation totaled only 0.06 inch, tying the record for the least ever recorded there in April.

Unusually heavy precipitation occurred in parts of Florida; Lakeland had its wettest April with a total of 8.48 inches, and its wettest January-April period during which a total of 6.85 inches of rainfall was recorded. It is interesting to note that at Key West at the southern tip of the Peninsula, this was the first month on record during which it recorded no rainfall whatever.

During a period of heavy rainfall in northern Illinois on the 27th and 28th, Moline measured 2.80 inches in 24 hours, a new record for April; and heavy rains the first week caused flooding in the Rockford area.

SNOW.--Snow cover was mostly gone at lower elevations at the beginning of the month, except for remnants of drifts and in some wooded sections in extreme northern areas. Some rural roads in the Buffalo, N. Y., area were still blocked at the beginning of the month by drifts which melted by the end. In the Green Bay, Wis., area drifts were still numerous on the 8th, but were gone by the 15th.

Considerable snow fell over a belt extending from the central Rockies to the lower Great Lakes during the second and third weeks and in mountainous areas of the middle Atlantic States on the 12th. Some heavy falls included 10 inches in extreme southwestern Minnesota on the 10th and up to 9 inches in the Black Hills of South Dakota and 5 to 7 inches in central Iowa on the 19th. Up to 4 inches in southwestern Oklahoma, where precipitation had been less than 25 percent of normal for the past 6 months, provided 1 to 2-1/2 inches of much needed moisture.

Local snowfalls of note included the following: Denver, Colo., measured 99.3 inches of snow for the season, the second greatest of record. Burlington, Iowa, measured 2.2 inches on the 8th, twice the normal amount for April. The seasonal snowfall

at Buffalo, N. Y., 114.5 inches, exceeded 100 inches for the fourth consecutive season. Harrisburg, Pa., reported a fall of 3.1 inches on the 12th, the most for April since 1924, and the fourth greatest amount on record there for April. Rapid City, S. Dak., measured a fall of 10.1 inches in 24 hours on the 18th-19th, the heaviest 24-hour April amount there in the past 17 years. Madison, Wis., reported a winter fall of 67.3 inches, the most since the winter of 1909-1910.

DESTRUCTIVE STORMS AND OTHER UNUSUAL PHENOMENA: Severe storms apparently were somewhat less numerous than usual. Florida tornadoes on the 2d caused property losses in the vicinities of Dade City, Mims, and Orlando, and also were responsible for one death and nine injuries in the latter area. From the 16th to 19th heavy thunderstorms, some with hail, caused damage locally from Texas and Louisiana to Nebraska and Illinois. Widespread wind damage occurred in Ohio on the 28th.

Duststorms occurred on several days in the Dakotas, and on a few occasions in parts of Iowa, Wisconsin, and Minnesota.

CONDENSED CLIMATOLOGICAL SUMMARY

APRIL 1959

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	5 Stations	89	30+	Russellville 2	25	14	Whatley	8.84	Phenix City 2NNW	1.55
Arizona	Yuma WB AP	106	29	Fort Valley	11	10	Tonto CR Fish Hatch	1.99	19 Stations	.00
Arkansas	3 Stations	91	30	Lead Hill	24	14	Devils Knob	7.32	Walnut Ridge FAA AP	1.34
California	2 Stations	108	30	White Mtn 2	8	18	Shasta Dam	4.99	16 Stations	.00
Colorado	do	91	26+	Fraser	-24	12	Wolf CR Pass 4W	4.82	Wray 3WNW	.12
Connecticut	do	81	9+	Coventry	18	14	Norwich Pub Util Pl	5.59	Stamford 5N	2.60
Delaware	Middletown 2S	88	9	Georgetown 5SW	29	7	Lewes 1SW	4.85	Wilmington N Castle WB AP	2.15
Florida	2 Stations	94	21+	2 Stations	36	14	Pensacola WB City	9.31	2 Stations	.00
Georgia	4 Stations	90	29+	Blairsville	24	15	Flat Top	13.55	Preston	.55
Idaho	2 Stations	88	12+	Obsidian 3SSE	-4	9	Burke 2ENE	4.76	3 Stations	T
Illinois	East St Louis Parks C	91	30	3 Stations	22	11	2 Stations	5.85	Elizabethtown	1.00
Indiana	2 Stations	88	30	Wheatfield	22	11	Marion 2N	10.02	Johnson Exp Farm	.66
Iowa	5 Stations	86	30	Le Mars 2N	13	13+	Cedar Rapids FAA AP	6.33	Milford 4NW	.23
Kansas	Medicine Lodge	95	30	2 Stations	14	13+	Walnut 3S	4.99	Richfield 10WSW	.17
Kentucky	Pikeville	90	8	Princeton	25	14	Freeburn	5.41	Eddyville Lock F	.91
Louisiana	Donaldsonville	93	30	2 Stations	30	14	Bunkie	9.94	Point Au Fer Reef	.49
Maine	Woodland	77	25	do	10	13	Bangor Dow Field	3.28	Jackman	1.42
Maryland	Baltimore WB City	92	9	New Germany	20	7	Crisfield	6.20	Centreville	2.04
Massachusetts	2 Stations	79	16+	Birch Hill Dam	17	14	Worcester WB AP	5.93	Haverhill	2.15
Michigan	Harbor Beach 3NW	78	25	Champion Van Riper Pk	6	12	Coldwater State School	6.08	Eagle Harbor Coast Gd	.65
Minnesota	2 Stations	85	30	Hoyt Lakes 5N	5	11	Albert Lea	2.51	Thorhult 3E	.10
Mississippi	3 Stations	90	30	4 Stations	28	14	Purvis	9.38	Quitman	2.57
Missouri	2 Stations	91	30	Berryman 6NW	19	14	Summersville	5.63	Warsaw No 2	.66
Montana	Miles City	88	30	Yellowstone Pk NE Ent	-5	9	Essex	5.23	Lakeview	.11
Nebraska	Oshkosh	90	6	Merriman	3	12	Osceola 9W	4.63	Arthur	.24
Nevada	North Las Vegas Dox	102	30	Contact	6	9	Jarbidge	1.52	16 Stations	.00
New Hampshire	3 Stations	76	25	First Conn Lake	8	13	Nashua 3N	4.17	Berlin	.76
New Jersey	Laurelton 1E	88	8	Layton 3NW	18	14+	Milton	4.03	Rahway	1.84
New Mexico	Jal	100	26	Lake Maloya	-6	12	Bateman Ranch	3.05	4 Stations	.00
New York	6 Stations	83	8	3 Stations	10	13+	Cold Brook	4.23	Ellenburg Depot	.53
North Carolina	Moncure 3SE	90	10	Celo 2S	19	5	Haywood Gap	10.48	Wilmington WB AP	2.74
North Dakota	2 Stations	87	30	Medora 3NNE	7	11	Ellendale	1.29	San Haven	.06
Ohio	Ironton	88	8	Millport 2NW	17	14	Van Wert	5.97	Hamilton Water Wks South	1.45
Oklahoma	4 Stations	100	26+	2 Stations	17	13+	Madill	7.74	Goodwell	.37
Oregon	3 Stations	85	22+	Fremont	4	16	Valsetz	9.77	2 Stations	T
Pennsylvania	Phoenixville 1E	89	9	Clarion 3SW	12	14	West Hickory	7.09	Mt Gretna 2SE	1.90
Rhode Island	4 Stations	77	17+	Greenville	23	14	Woonsocket	4.27	Kingston	2.99
South Carolina	Tilghman Forest Nursery	92	20+	Caesars Head	28	14	Caesars Head	9.10	Beaufort 7SW	1.39
South Dakota	Kennebec	92	6	Deerfield 5NW	-10	12	Rapid City	2.49	Wessington	.09
Tennessee	2 Stations	89	30+	3 Stations	24	14+	Camp Creek Bald	9.19	Dyersburg FAA AP	1.25
Texas	Paducah	105	25	Stratford	19	14+	Columbus	12.79	2 Stations	.00
Utah	St George PH	93	30	Silver Lake Brighton	1	10	Silver Lake Brighton	2.70	Enterprise	T
Vermont	Vernon	77	17	West Burke	10	13	Vernon	3.82	St Albans Bay	.39
Virginia	Balcony Falls	93	9	Big Meadows	20	13	Trout Dale	6.92	Waterford	2.92
Washington	Walla Walla 3W	81	21	Lemanasky Lake	13	5	Amanda Park	18.53	3 Stations	T
West Virginia	Williamson	90	9+	2 Stations	18	13+	Webster Springs	6.33	New Martinsville	2.78
Wisconsin	La Crosse State Col	77	15	Grantsburg FAA AP	13	12	Racine	5.24	Port Wing	.51
Wyoming	3 Stations	85	30	Foxpark	-17	12	Greybull 1S	2.66	Wamsutter 1N	.06
Puerto Rico	Cagua	94	16	Garzas Dam	49	12	Maricao Fish Hatchery	20.34	Estate Fort Mylner	1.17

\+ And also on an earlier date or dates.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

APRIL 1959

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths, sunrise to sunset	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F		#		°F.	%	In.	In.	In.			In.	In.	M p. h.		M p h			0–3	4–7	8–10	0–10	%
ALABAMA																																
Birmingham	610	991.8	1017.4	75	51	62.5	0.6	86	30+	30	14	0	1	49	68	2.81	-1.84	0.82	10	1	0.0	0	9.5	SSW	29	SW	3	9	5	16	6.3	68
Huntsville	605	993.5	1017.0	73	49	61.0	---	87	7	31	14	0	1	48	68	4.44	----	2.11	9	4	.0	0	7.7	NNW	*24	SSE	1	8	6	16	6.5	--
Mobile	211	1009.4	1017.7	74	56	65.1	-1.6	85	30	38	14	0	0	56	76	8.17	3.07	2.62	9	5	.0	0	10.8	S	*40	N	20	7	8	15	6.5	--
Montgomery	195	1009.0	1017.4	76	53	64.8	.1	87	30+	36	14	0	0	52	66	4.01	-.80	1.26	8	5	.0	0	6.3	S	22	SW	27+	9	7	14	6.1	65
ALASKA																																
Anchorage	92	1004.7	1010.1	41	27	33.7	-1.7	52	30	9	19	0	26	25	70	1.32	.92	.38	11	0	8.7	16	7.1	N	*21	S	24+	5	4	21	7.4	48
Annette	110	1010.8	1014.9	49	37	43.2	.6	64	9	33	8	0	0	34	73	11.09	2.96	3.08	14	0	T	T	10.9	S	*43	S	2	2	6	22	8.1	--
Barrow	22	1019.3	1020.0	6	-11	-2.6	-2.4	28	24	-30	7	0	30	-10	69	.31	.21	.15	9	0	3.6	16	9.8	NW	34	E	22	8	8	14	6.2	--
Barter Island	39	1016.6	1018.7	4	-11	-3.7	-4.7	17	26	-29	16	0	30	-20	40	.08	-.11	.04	5	0	.9	11	13.1	W	*35	W	18	7	10	13	6.2	--
Bethel	125	1005.1	1010.9	27	10	18.3	-8.5	44	22	-21	4	0	30	13	78	.86	.31	.32	10	0	7.0	16	15.4	NE	*38	S	24	7	5	18	6.8	-
Cold Bay	90	1007.1	1011.4	36	26	31.1	-3.1	47	23+	9	4	0	25	28	88	2.34	1.00	.49	20	0	14.7	8	17.5	W	*46	WNW	2	0	1	29	9.5	--
Cordova	40	1009.1	1010.8	43	30	36.5	.1	54	30	16	13	0	23	33	84	7.10	2.03	1.69	23	0	24.5	5	5.4	ESE	*31	ESE	7	4	3	23	8.4	--
Fairbanks	436	995.3	1013.1	38	14	26.0	-2.9	53	8	-8	18+	0	30	14	58	.12	-.17	.10	3	0	1.0	17	6.5	N	*23	[illegible]	9	7	8	15	6.5	--
Juneau	15	1012.5	1013.6	45	32	38.8	-.7	58	9	26	23+	0	14	32	78	3.42	.44	1.10	17	0	6.9	4	8.5	ESE	37	SE	2	[illegible]	6	23	8.7	35
King Salmon	44	1006.4	1008.7	39	24	31.2	-1.9	49	27+	3	5	0	26	25	77	.88	.04	.40	11	0	4.2	3	10.3	N	*35	SE	8	0	6	24	8.7	--
Kotzebue	10	1015.6	1016.1	17	-5	5.7	-8.1	35	27+	-28	15	0	30	-1	73	.28	-.08	.13	6	0	3.1	20	10.5	W	*37	ESE	22	10	9	11	5.2	--
McGrath	334	999.0	1012.1	36	12	23.8	-2.2	53	30	-11	5	0	30	13	63	.38	-.11	.11	8	0	4.7	18	6.1	N	*22	NNW	16	10	6	14	5.8	--
Nome	13	1012.9	1013.7	21	3	12.3	-8.7	36	25	-22	4+	0	30	7	73	.68	-.10	.21	10	0	10.4	31	10.1	E	*31	N	25	7	8	15	6.7	44
St. Paul Island	22	1010.2	1011.5	33	24	28.3	-1.8	41	22	7	11	0	28	26	88	.97	-.05	.25	18	0	5.7	8	----	---	--	---	--	2	6	22	8.4	--
Yakutat	28	1011.5	1012.7	43	31	37.3	-.8	57	29	25	30	0	16	32	83	9.38	1.40	2.20	21	0	19.4	30	8.1	ENE	*28	SE	2	3	2	25	8.8	
ARIZONA																																
Flagstaff	6993	------	------	62	29	45.7	3.6	75	5	18	10	0	19	--	--	1.49	.23	.80	6	3	T	T	----	---	--	---	--	10	10	10	5.2	--
Phoenix	1109	971.6	1010.2	88	59	73.5	6.4	98	29	52	10	12	0	36	27	.05	-.30	.05	1	0	.0	0	7.0	NE	*18	N	8+	12	6	12	4.8	94
Prescott	5014	845.9	1012.5	72	40	56.2	3.3	84	30	28	10+	0	3	26	--	.47	-.33	.33	4	4	.0	0	10.7	S	44	SE	6	12	7	11	4.9	84
Tucson	2584	923.1	1010.2	84	54	69.2	4.2	94	29	44	1	10	0	31	27	.01	-.31	.01	1	2	.0	0	9.8	SE	32	SW	18	10	8	12	5.5	86
Winslow	4880	850.3	1011.4	73	41	57.4	3.4	90	30	28	10	1	3	20	28	.28	-.21	.17	3	3	T	T	9.9	SW	*37	SW	15	10	11	9	5.4	--
Yuma	199	1005.1	1010.1	93	61	76.8	4.0	106	29	51	16	21	0	33	27	.01	-.09	.01	1	0	.0	0	7.6	SSE	24	SE	5	17	6	7	3.9	95
ARKANSAS																																
Fort Smith	458	999.0	1015.9	73	48	60.7	-1.9	90	30	31	14	1	1	48	67	3.28	-1.21	1.55	8	5	.0	0	9.7	NE	34	NW	27	9	5	16	6.2	59
Little Rock	257	1003.4	1016.8	73	52	62.2	-.3	89	30	36	14	0	0	48	62	2.57	-2.59	1.02	9	3	.0	0	10.3	SSW	31	NW	20	11	6	13	5.9	67
Texarkana	361	------	1017.1	72	52	61.9	-3.1	88	30	36	12	0	0	--	--	3.56	-1.74	1.00	11	8	.0	0	8.9	SSW	--	---	--	--	--	--	--	--
CALIFORNIA																																
Bakersfield	494	995.3	1013.4	82	55	68.3	5.3	91	30	48	27	3	0	47	52	.23	-.52	.23	1	0	.0	0	7.4	NW	*33	NNW	26	11	12	7	4.6	--
Bishop	4108	872.0	1011.9	79	37	58.0	3.3	90	29	29	27	1	3	--	--	.01	-.24	.01	1	0	.0	0	----	---	--	---	--	13	12	5	4.4	--
Blue Canyon	5280	838.5	1013.5	61	42	51.8	6.7	72	29	31	26+	0	2	--	--	3.06	-1.59	2.65	2	1	10.9	5	7.9	---	36	E	8	13	7	10	4.8	--
Burbank	699	987.8	1014.2	76	54	65.0	4.5	94	29	48	5	2	0	49	62	.50	-.71	.50	2	0	.0	0	3.2	S	*15	NW	27	11	10	9	5.2	--
Eureka (U)	43	1016.3	1018.6	55	46	50.6	.0	70	7	40	18+	0	0	--	--	.52	-2.36	.37	3	0	.0	0	7.9	---	29	N	17+	8	5	17	6.6	53
Fresno	331	1001.4	1013.1	81	50	65.6	4.1	89	30	45	19+	0	0	44	51	.54	-.42	.51	2	1	.0	0	6.3	NW	19	NW	30+	14	9	7	4.1	91
Long Beach	34	1013.2	1014.5	74	55	64.7	---	93	1	51	18+	1	0	53	70	.68	----	.68	2	0	.0	0	6.2	WNW	*21	WNW	27+	7	14	9	5.5	--
Los Angeles (U)	312	------	------	75	57	66.2	4.7	92	1	52	5	2	0	53	69	.50	-.67	.50	1	0	.0	0	5.8	---	19	W	26	10	13	7	4.9	69
Los Angeles	99	1010.5	1014.1	73	58	65.4	6.2	83	29+	54	12+	0	0	56	74	.39	-.57	.39	2	0	.0	0	7.7	WSW	*22	WSW	26	7	12	11	5.5	-
Mt. Shasta (R)	3544	892.0	1015.9	65	36	50.7	4.0	74	23+	30	15	0	5	--	--	.49	-2.57	.42	3	1	.0	0	----	---	--	---	--	14	4	12	5.1	-
Oakland	3	1014.9	1015.2	70	51	60.1	4.5	84	2	44	16	0	0	49	72	.02	-1.44	.02	1	0	.0	0	9.6	WNW	*26	WNW	30	8	16	6	5.2	-
Red Bluff	341	1001.0	1013.6	79	51	65.3	5.3	88	29	43	14	0	0	36	41	.39	-1.40	.38	2	1	.0	0	10.6	NNW	33	NW	6	12	7	11	5.2	92
Sacramento	17	1012.5	1013.4	79	49	63.8	5.6	90	29	44	15	1	0	45	56	.21	-1.17	.20	2	1	.0	0	9.8	SW	30	S	24	13	9	8	4.8	93
Sandberg (R)	4517	861.8	1012.5	67	47	57.1	6.6	82	29	37	18	0	0	--	--	.50	-.24	.34	2	0	.0	0	13.9	---	*39	NNW	6	18	7	5	3.6	-
San Diego	19	1010.8	1013.9	71	59	64.7	4.2	84	2	55	11+	0	0	55	73	.31	-.52	.23	4	0	.0	0	6.7	WSW	20	SW	30	7	11	12	6.0	56
San Francisco (U)	52	------	------	64	51	57.9	2.2	81	23	49	21+	0	0	--	--	.36	-1.13	.36	1	0	.0	0	8.9	---	25	SW	24	--	--	--	---	87
San Francisco	8	1014.9	1015.5	70	50	59.8	5.7	85	23	43	16	0	0	50	74	.37	-.92	.37	1	0	.0	0	11.4	WNW	32	WNW	28	12	10	8	5.0	--
Santa Maria	238	1005.4	1014.2	69	48	58.7	2.9	92	1	39	16	1	0	48	73	.26	-.94	.18	2	0	.0	0	6.9	WNW	*26	WNW	27	7	8	15	6.3	--
COLORADO																																
Alamosa	7536	769.7	1015.3	58	25	41.4	-.3	75	30	9	10	0	25	--	--	.58	.04	.39	7	1	10.0	2	----	---	--	---	--	6	14	10	6.1	-
Colorado Springs	6173	809.3	1016.2	58	29	43.9	-2.6	79	30+	-3	10	0	15	22	50	2.03	.63	1.23	8	1	25.5	13	10.8	NNE	*44	WNW	2	6	10	14	6.5	--
Denver	5292	836.4	1015.4	59	33	45.6	-1.9	81	30	7	12+	0	13	22	48	1.35	-.70	.87	8	2	17.6	9	12.5	SSW	35	NW	28+	4	11	15	6.8	61
Grand Junction	4849	857.8	1013.6	66	39	52.6	.8	82	5	26	10	0	9	19	31	.45	-.30	.30	4	1	T	T	9.8	ESE	38	NW	18	8	12	10	5.5	79
Pueblo	4639	855.7	1015.1	64	33	48.5	-1.3	84	24+	6	10	0	13	28	53	1.35	.11	.56	5	0	8.9	4	9.1	W	52	N	6	6	10	14	6.6	65
CONNECTICUT																																
Bridgeport	7	1014.9	------	59	41	49.9	3.6	79	8	33	14+	0	0	--	--	3.71	.22	1.80	14	2	.3	T	----	-	-	---	--	8	7	15	6.4	--
Hartford	169	1008.6	1014.8	61	38	49.4	1.4	78	16	24	14	0	7	34	62	3.82	.26	1.40	14	1	.0	0	10.5	S	35	W	7	6	8	16	6.7	57
New Haven	6	1014.6	------	58	40	48.6	2.5	77	17	29	14+	0	3	--	--	3.88	-.01	1.56	16	2	.7	T	8.1	---	29	NW	6	8	7	15	6.2	56
DELAWARE																																
Wilmington	78	1011.6	1015.0	65	43	54.3	2.5	85	9	33	12+	0	0	42	68	2.15	-1.49	.54	13	1	1.1	T	11.0	WNW	*23	ENE	27+	7	7	16	6.8	-
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	69	47	58.1	3.4	90	9	33	12	1	0	--	--	4.61	1.41	1.03	12	6	----	-	7.7	---	33	NW	3	--	-	-	--	--
Wash. Nat'l. AP	14	1010.6	1015.3	69	48	58.5	4.1	90	9	34	13+	1	0	41	58	4.01	.95	1.22	11	6	T	0	10.1	S	35	NW	6	7	6	17	6.7	56
FLORIDA																																
Apalachicola (U)	13	1016.9	------	73	60	66.8	-.7	80	30+	44	14	0	0	--	--	7.66	3.38	3.96	8	2	.0	0	7.7	---	42	N	14	9	9	12	5.9	70
Daytona Beach	31	1016.6	1018.5	78	59	68.9	-.1	89	20	45	14	0	0	60	78	3.17	.24	1.53	8	6	.0	0	10.1	ESE	*27	NNE	14+	9	5	16	6.2	--
Fort Myers	15	1016.8	------	83	62	72.7	-.3	89	10	52	15+	0	0	--	--	1.75	-.62	1.50	2	2	.0	0	9.2	---	*31	SW	2	8	11	11	5.7	--
Jacksonville	24	1016.7	1018.2	79	58	68.8	.4	87	30+	43	15+	0	0	57	72	2.65	-.69	1.21	8	4	.0	0	9.6	SE	33	SW	12	9	7	14	5.9	66
Key West	4	1015.7	1016.5	82	72	76.9	-.1	86	20	62	15	0	0	--	--	.00	-2.40	.00	0	0	.0	0	12.2	---	33	N	14	11	14	5	5.0	79
Lakeland (U)	214	------	------	79	63	70.9	-.7	87	20	48	14	0	0	--	--	8.48	5.61	3.42	9	5	.0	0	7.2	--	--	---	--	7	11	12	6.3	59
Miami	7	1015.9	1017.2	82	68	75.0	.1	91	2	56	15+	1	0	63	69	2.00	-1.99	1.15	5	2	.0	0	8.4	ESE	*29	SW	2	5	16	9	6.3	--
Miami Beach	9	------	------	81	71	76.2	.8	92	22	57	15	2	0	--	--	1.31	-1.30	.70	7	--	.0	0	---	-	*38	SW	2	11	16	3	--	64
Orlando	106	1013.6	1018.2	81	61	70.9	-.7	89	20	47	14	0	0	60	75	4.91	1.95	1.78	6	5	.0	0	8.0	SE	*29	NW	20	8	8	14	6.4	--
Pensacola (U)	13	------	------	73	59	66.1	-.9	80	30+	42	14	0	0	--		9.31	4.41	3.33	9	4	.0	0	10.2	---	22	W	3		--	-		57
Tallahassee	64	1014.9	1017.7	78	55	66.3	-.9	86	29+	39	14	0	0	55	74	3.65	-.84	1.18	8	4	.0	0	6.3	S	--	---	--	7	9	14	6.2	--
Tampa	19	1016.5	1018.2	81	63	71.9	.4	88	9	48	14	0	0	61	74	5.48	2.97	3.11	8	3	.0	0	10.1	ENE	*35	NNW	21	4	12	14	6.6	69
West Palm Beach	15	1016.5	1017.7	82	67	74.8	1.0	90	20	58	15+	1	0	63	71	3.43	-.70	1.53	9	4	.0	0	11.3	ESE	*42	W	2	4	12	14	6.7	--
GEORGIA																																
Athens	798	987.9	1017.1	75	50	62.4	.7	85	30+	34	14	0	0	50	69	2.40	-2.19	1.19	9	3	.0	0	10.0	SW	*35	NW	3	9	5	16	6.3	--
Atlanta	975	975.0	1016.7	73	53	63.0	1.3	85	7	36	14	0	0	49	65	2.83	-1.59	.74	7	2	.0	0	11.4	SW	35	SSW	28	9	7	14	6.0	60
Augusta	143	1009.7	1016.5	78	51	64.8	1.6	88	9	35	15	0	0	53	69	2.49	-.99	1.70	6	3	.0	0	6.5	SW	*32	NW	3	[illegible]	5	15	6.2	--
Columbus	385	1003.3	------	77	50	63.4	.0	87	7	36	14	0	0	--	--	1.41	-2.82	.35	9	2	.0	0	7.4	-	*25	NNW	14	9	6	15	6.0	--
Macon	356	1003.2	1016.9	79	54	66.1	.4	89	7	37	14	0	0	51	63	3.20	-.61	1.58	6	4	.0	0	9.3	SW	34	[illegible]	2	11	3	16	5.8	60
Rome	637	993.4	------	74	45	59.8	-.7	86	30+	29	14	0	4	47	69	4.25	-.37	1.76	10	3	.0	0	5.0	---	--	---	--	9	10	11		--
Savannah	48	1014.8	1017.6	78	55	66.7	1.0	86	20	39	15	0	0	56	73	2.27	-.20	.70	7	5	.0	0	7.6	SSE	28	N	14+	11	5	14	5.9	67
Thomasville	283	------	------	78	57	67.7	.3	88	7	39	14	0	0	--	--	3.21	-1.09	1.46	8	2	.0	0	---	- -		---	--	--	--	--	---	--
HAWAII																																
Hilo	31	1014.9	1016.2	79	66	72.5	.9	84	12	62	6+	0	0	66	81	8.06	-5.21	1.82	26	0	.0	0	9.0	WSW	*30	N	7	1	6	23	8.7	20
Honolulu	7	1016.3	1016.8	81	67	74.4	.1	86	17	63	16+	0	0	62	69	.54	-1.10	.36	7	0	.0	0	14.6	NE	40	NE	2	[illegible]	13	[illegible]	7.0	85
Lihue	115	1011.9	1016.9	79	66	72.6	.6	83	30+	57	14	0	0	63	74	2.01	-1.02	1.02	14	0	.0	0	12.2	NE	26	NE	2+	0	12	18	7.8	39

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground) Ft	Pressure: Station Mb	Pressure: Sea level Mb	Temperature: Average maximum °F	Average minimum °F	Average °F	Departure from normal °F	Highest °F	Date	Lowest °F	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point °F	Average relative humidity %	Precipitation: Total In	Departure from normal In	Greatest in 24 hours In	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total In.	Snow, Sleet: Max. depth on ground In.	Wind: Average hourly speed M p h.	Prevailing direction	Fastest mile: Speed M. p h.	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear 0–3	Partly cloudy 4–7	Cloudy 8–10	Sky cover, tenths (sunrise to sunset) 0–10	Possible sunshine %
IDAHO																																
Boise	2842	919.4	1015.7	64	37	50.7	0.8	78	5	25	7	0	10	30	48	0.19	-0.91	0.09	5	0	T	0	9.5	SE	40	NW	6	10	7	13	5.6	78
Idaho Falls 46W (R)	4933	846.6	1014.6	60	28	43.8	1.3	74	5	8	9	0	19	--	--	.04	-.71	.03	2	0	.3	T	11.8	---	a37	WSW	15	--	--	--	---	--
Idaho Falls 42NW (R)	4790	--	------	61	26	43.7	1.3	76	5	15	9	0	24	--	--	.01	-.58	.01	1	--	---	--	12.0	---	a40	SW	15	--	--	--	---	--
Lewiston	1413	965.1	1016.8	63	39	50.7	-.7	76	23	28	7	0	5	--	--	1.08	-.06	.38	9	2	T	T	----	---	--	---	--	9	4	17	6.4	--
Pocatello	4444	861.2	1014.8	61	35	47.8	1.5	78	5	19	9	0	12	27	47	.19	-1.13	.06	6	0	.9	1	14.9	SW	47	W	2	9	6	15	6.3	78
ILLINOIS																																
Cairo (U)	314	1002.7	------	70	50	59.9	-.1	88	30	36	14	0	0	--	--	2.94	-1.02	1.90	12	5	.0	0	11.4	SW	40	SW	28	6	12	12	6.1	65
Chicago (O'Hare)	656	989.8	1015.0	57	38	47.5	-	75	17	26	11	0	8	34	64	2.44	----	1.13	14	4	.6	T	14.5	SSW	*39	SSW	15	5	8	17	7.0	--
Chicago (Midway)	610	992.2	1015.4	58	40	49.2	1.1	77	25	27	11	0	4	34	60	4.00	1.18	2.15	14	4	.1	T	11.1	ENE	41	W	5	6	7	17	6.9	50
Moline	589	992.6	1015.1	60	39	49.4	-.5	77	24	27	13	0	7	34	60	4.75	1.74	2.80	9	4	1.7	T	10.2	ENE	35	W	28	5	12	13	6.7	57
Peoria	654	992.6	1015.1	62	40	51.0	.5	79	30	27	13+	0	4	36	60	2.50	-.94	.95	10	4	T	0	12.5	S	42	NW	5+	7	8	15	6.5	52
Rockford	728	987.5	1015.0	58	37	47.7	.4	74	17+	25	11	0	9	32	61	5.13	2.13	2.25	9	7	1.1	T	11.7	ENE	*32	SSW	15	6	11	13	6.6	--
Springfield	589	991.5	1015.1	64	42	53.0	1.3	85	30	29	11	0	4	39	62	2.23	-1.19	.68	11	3	.0	0	12.8	SSW	46	SW	29	7	8	15	6.4	57
INDIANA																																
Evansville	383	1000.3	1016.3	68	45	56.8	.3	87	30	33	23	0	0	42	60	1.10	-2.69	.31	8	2	.0	0	11.7	SSW	43	NW	3	6	10	14	6.5	64
Fort Wayne	801	983.4	1015.2	59	40	49.2	1.4	76	17	28	13	0	4	37	67	6.87	3.62	1.73	18	6	T	0	14.7	SW	47	SW	29	5	6	19	7.2	46
Indianapolis	793	984.8	1015.3	62	41	51.7	.9	80	25	32	13+	0	2	40	68	3.52	-.33	1.45	13	5	.0	0	13.5	SW	48	NW	3	7	5	18	7.2	62
South Bend	768	986.1	1014.7	58	37	47.7	.4	74	25+	27	13+	0	8	36	68	4.25	.85	1.80	17	6	T	0	13.2	SSW	*32	WNW	3	6	6	18	6.9	--
IOWA																																
Burlington	694	989.8	1015.9	61	40	50.5	-.5	79	30	29	13+	0	7	37	63	3.51	.08	.86	11	4	2.2	2	12.2	SW	40	NW	3	6	9	15	6.6	63
Des Moines	948	984.1	1015.8	60	39	49.4	-1.0	78	30	27	12	0	7	34	60	3.51	1.06	1.54	9	3	6.2	3	13.4	NW	45	NW	28	5	9	16	6.8	60
Dubuque	1065	989.5	1015.7	56	36	46.2	-.7	71	15	27	11+	0	12	30	56	6.04	3.35	2.29	9	4	2.7	2	----	---	--	---	--	3	12	15	6.8	--
Sioux City	1094	973.6	1015.3	62	37	49.3	.1	86	30	23	9	0	9	30	52	1.77	-.37	1.13	8	1	3.7	1	13.2	NW	50	NW	6	5	13	12	6.7	67
Waterloo	870	------	------	59	36	47.5	.7	76	30	25	13+	0	12	--	60	1.59	-.80	.89	9	3	.3	T	12.1	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	965.1	------	64	42	52.9	-1.1	87	30	26	13	0	3	--	57	.73	-1.53	.29	8	4	T	T	9.0	N	30	N	2	11	6	13	5.4	65
Dodge City	2594	926.9	1015.3	66	39	52.6	-1.2	89	30	22	13	0	8	33	55	.37	-1.89	.14	6	2	.4	T	17.0	NNW	50	N	2	8	9	13	6.0	63
Goodland	3645	887.6	1015.5	62	33	47.2	.0	86	24	20	12+	0	13	29	56	.62	-1.19	.32	5	2	5.3	4	13.0	NNE	*40	NW	27	10	5	15	6.2	--
Topeka	877	979.7	1015.9	65	41	53.0	-1.5	87	30	27	9	0	5	39	64	1.76	-1.74	.59	8	3	3.4	T	13.7	N	38	SW	5	9	6	15	6.2	58
Wichita	1321	965.8	1014.9	67	44	55.4	-.8	91	30	28	13	1	3	38	59	2.17	-1.35	1.25	6	3	.8	T	15.3	S	42	N	2	8	7	15	6.2	58
KENTUCKY																																
Lexington	979	980.1	1016.2	66	45	55.8	1.3	81	8+	33	14+	0	0	42	65	2.99	-.77	.81	14	2	.4	T	13.1	S	--	---	--	6	9	15	6.8	--
Louisville	474	995.9	1015.5	70	47	58.7	2.7	87	7	34	23	0	0	41	59	1.68	-2.33	.57	10	2	.0	0	12.0	SW	40	SW	28	5	10	15	6.7	58
LOUISIANA																																
Baton Rouge	64	1014.6	1017.9	78	57	67.2	.4	91	30	39	14	1	0	57	74	3.26	-1.24	.70	8	2	.0	0	8.8	S	--	---	--	5	9	16	6.9	--
Lake Charles	12	1015.6	1016.9	75	58	66.5	-1.5	87	30	41	13	0	0	55	73	4.16	-.11	1.31	9	4	.0	0	10.8	S	*28	N	1	8	5	17	6.4	--
New Orleans (U)	9	------	------	76	61	68.5	-1.3	87	19	48	14	0	0	--	74	4.16	-1.29	2.08	9	5	.0	0	6.5	---	25	NW	1	7	11	12	6.0	49
New Orleans	3	1015.2	1017.4	76	60	67.9	-.4	87	30	49	14+	0	0	57	73	3.18	-2.22	.97	9	2	.0	0	10.3	SSE	*32	WNW	1	5	11	14	6.4	--
Shreveport	252	1007.1	1016.8	73	52	62.6	-4.5	89	30	36	14+	0	0	50	68	3.58	-1.01	1.01	10	5	.0	0	11.2	S	--	---	--	6	6	18	6.9	52
MAINE																																
Caribou	624	990.2	1013.8	46	29	37.7	3.0	67	24	17	13	0	21	28	70	2.20	-.43	.73	11	0	2.3	24	9.0	NW	*28	NW	24+	8	5	17	6.7	--
Portland	61	1010.7	1014.9	53	33	43.0	1.1	68	24+	22	22+	0	14	33	71	1.71	-2.04	.97	14	0	T	0	9.8	S	39	SE	2	9	5	16	6.7	50
MARYLAND																																
Baltimore (U)	14	------	------	69	50	59.4	5.1	92	9	34	13+	1	0	--	--	3.03	-.69	1.11	10	--	----	--	----	---	--	---	--	--	--	--	---	--
Baltimore	146	1010.6	1015.6	68	45	56.6	4.2	89	9	33	12	0	0	42	63	3.44	-.28	.92	10	3	.4	T	12.5	SW	42	NW	6+	5	10	15	6.7	52
Frederick	294	------	------	67	42	54.3	1.4	86	9	31	13+	0	3	--	--	3.28	-.22	.75	15	--	2.3	1	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs.	629	990.9	1014.5	[illegible]	[illegible]	[illegible]	2.2	75	8	28	14	0	3	--	44	4.19	.20	1.13	14	1	T	T	15.3	NE	51	SSE	2	--	--	--	---	48
Boston	15	1009.5	1014.4	57	[illegible]	49.0	1.8	75	17	33	13	0	0	35	65	4.44	.98	1.10	13	1	T	T	11.9	ENE	40	SSW	2	6	8	16	6.9	56
Nantucket	43	1014.3	1015.0	50	38	44.0	4	67	17	26	14	0	4	37	80	3.66	.21	1.01	16	1	1.5	T	14.0	NE	36	N	20	6	7	17	7.3	55
Pittsfield	1153	971.4	------	57	33	44.9	2.9	75	16	20	14	0	13	--	--	2.65	-.96	.76	15	1	.2	T	----	---	--	---	--	--	--	--	---	--
Worcester	986	977.1	---	56	37	46.5	2.7	73	16	27	14+	0	5	--	--	5.93	2.44	2.35	13	1	T	T	13.3	---	*33	WNW	3	4	10	16	7.0	--
MICHIGAN																																
Alpena (U)	587	991.5	------	50	33	41.3	1.7	73	15	25	12	0	16	--	70	3.70	1.55	1.21	14	1	7.0	3	10.8	NW	32	SW	29+	5	13	12	6.3	56
Detroit	619	987.8	1015.0	58	39	48.6	2.2	77	17	31	13	0	3	33	60	4.73	1.82	1.36	16	4	T	T	12.3	NNE	43	NW	29+	7	6	17	6.8	44
Detroit (Willow Run)	722	985.8	1014.5	59	38	48.6	2.0	77	17	30	13	0	5	34	62	4.71	1.77	1.34	16	6	.6	T	13.5	SW	*41	WNW	3	6	5	19	7.0	--
East Lansing (U)	856	------	------	58	37	47.5	2.2	76	17	27	21	0	6	--	--	3.73	.90	1.15	15	5	.3	T	6.5	W	28	W	28	--	--	--	---	57
Escanaba (U)	594	991.5	------	47	31	39.0	.8	63	14	21	10	0	18	--	70	1.86	-.24	.99	8	0	T	T	10.4	---	31	N	20	6	11	13	6.3	58
Flint	761	986.5	1014.7	56	35	45.5	1.1	75	25	26	21+	0	7	33	65	3.87	1.26	1.16	14	3	.4	T	12.4	SW	*31	WSW	29	7	7	16	6.9	--
Grand Rapids	681	989.2	1014.8	55	36	45.5	.7	75	17	26	13+	0	8	33	65	4.80	1.90	1.43	14	5	.4	T	11.9	WSW	34	NW	5	8	6	16	6.8	43
Inkster (Wayne Co.)	630	990.2	1014.6	58	38	47.9	----	77	17	27	13	0	4	34	64	4.43	----	1.23	17	6	T	T	13.1	WSW	--	---	--	5	6	19	7.2	--
Marquette (U)	677	987.1	------	46	31	38.6	-.1	71	15	21	10	0	19	--	65	1.85	-.66	1.00	6	0	3.1	6	7.9	NW	30	SW	7+	6	9	15	6.8	63
Muskegon	627	991.5	1015.2	53	35	44.2	.6	72	17	24	13+	0	9	33	67	3.20	.86	1.19	14	2	1.7	T	----	---	--	---	--	8	6	16	6.4	--
Sault Ste. Marie	721	991.5	1015.0	44	28	36.0	-.8	62	22	20	12+	0	24	28	75	2.14	.19	1.01	9	0	.7	10	11.3	WNW	*28	WNW	18+	9	7	14	6.0	56
MINNESOTA																																
Duluth	1409	972.9	1015.1	48	28	37.7	.9	68	14	15	11	0	26	25	64	.59	-1.91	.26	8	0	3.5	2	12.1	WNW	48	NW	28	4	9	17	7.3	55
Intern'l Falls	1179	972.9	1014.8	49	24	36.5	-.7	71	14	14	26	0	28	23	61	.39	-1.34	.15	5	0	1.8	T	8.6	NW	*28	W	7	7	9	14	6.5	--
Minneapolis	830	980.7	1015.0	57	37	47.1	1.1	75	15	28	13	0	7	27	49	.64	-1.27	.57	6	1	T	0	12.5	NW	38	NW	5	7	8	15	6.6	56
Rochester	1017	977.3	1015.3	58	35	46.2	1.2	75	15	23	11	0	13	30	57	1.98	-.33	1.65	5	2	T	0	10.3	WNW	--	---	--	6	8	16	6.8	--
St. Cloud	1034	976.3	1015.1	55	30	42.7	-.2	73	14+	19	12+	0	19	24	73	.34	-1.62	.18	6	0	.5	T	----	---	--	---	--	5	7	18	7.1	--
MISSISSIPPI																																
Jackson	305	1004.8	1017.0	74	52	63.0	-1.9	85	30+	34	14	0	0	52	71	3.86	-.96	.83	12	5	.0	0	7.0	S	38	NW	19	5	13	12	6.1	60
Meridian	294	1004.8	------	77	51	63.7	-.6	90	30	31	14	1	1	--	--	3.76	-1.70	1.57	10	4	.0	0	----	---	--	---	--	9	9	12	5.7	--
Vicksburg (U)	234	1007.9	------	74	55	64.5	-1.3	85	30	43	14+	0	0	--	--	5.52	.68	2.52	8	4	.0	0	8.7	---	38	W	19	6	12	12	6.3	50
MISSOURI																																
Columbia	778	986.8	1015.5	66	43	54.7	.2	88	30	28	11	0	3	40	62	2.42	-1.38	1.06	7	5	T	0	12.4	S	42	NW	3	7	10	13	6.0	56
Kansas City	741	977.0	1014.9	66	47	56.5	.7	88	30	31	9	0	1	39	57	2.93	-.68	1.08	11	5	.9	1	11.7	SSW	34	SW	4	6	7	17	6.6	58
St. Joseph	809	979.7	------	64	42	52.8	1.7	83	30	29	9	0	5	--	--	2.50	-.85	1.33	6	4	4.3	1	13.0	N	*58	NNW	2	10	6	14	5.9	--
St. Louis RFC	465	------	------	67	48	57.5	1.0	87	30	34	11+	0	0	--	--	1.25	-2.76	.66	7	--	.0	0	----	---	--	---	--	--	--	--	---	--
St. Louis	552	994.6	1015.4	67	46	56.8	1.2	88	30	33	11	0	0	41	61	1.37	-2.56	.42	7	5	.0	0	10.0	SSW	32	SW	29	5	13	12	6.2	66
Springfield	1265	967.8	1015.6	67	43	55.0	-.5	84	30	27	13	0	0	43	67	2.41	-1.93	1.17	9	5	.0	0	15.3	SSE	39	S	27	8	9	13	6.0	64
MONTANA																																
Billings	3567	889.3	1014.8	56	32	44.2	-2.0	80	30	17	9	0	15	29	58	2.36	1.31	.77	9	3	11.3	3	12.4	SW	43	NE	16	4	7	19	7.4	47
Butte	5530	827.6	1016.8	50	24	37.2	-1.0	70	5	8	9	0	25	22	--	.27	-.77	.10	6	1	2.5	2	10.3	WSW	*38	WNW	6	5	10	15	6.8	--
Glasgow	2277	939.7	1015.1	55	30	42.4	-2.0	82	30	14	25	0	20	--	54	.42	-.58	.19	8	2	1.8	1	----	---	--	---	--	4	7	19	7.5	--
Great Falls	3664	886.9	1014.9	54	32	43.4	-.9	72	30+	18	9	0	14	23	50	.36	-.59	.20	7	1	2.7	1	11.0	SW	45	SW	27	4	7	19	7.5	82

See footnotes at end of table.

CLIMATOLOGICAL DATA

APRIL 1959

State and station	Elevation (ground)	Pressure: Station ø	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F.	°F	°F.	°F.		°F.				°F	%	In.	In.	In.			In.	In.	M p h		M p. h.			0–3	4–7	8–10	0–10	%
MONTANA (Cont'd.)																																
Havre (U)	2488	925.2	1014.9	57	31	43.9	-1.2	75	30	18	25	0	17	--	--	1.34	0.44	0.96	7	1	T	T	10.3	---	49	W	27	5	7	18	6.7	67
Helena	3893	872.3	1015.8	56	30	43.1	-.1	75	5	12	9	0	20	24	50	.35	-.53	.17	8	2	1.5	T	10.0	WSW	39	W	27	6	10	14	6.6	65
Kalispell	2965	------	------	55	32	43.5	-.2	68	5	24	24	0	16	--	--	1.22	.20	.57	8	2	.6	T	----	---	--	---	--	8	4	18	6.7	--
Miles City	2629	930.6	1015.6	57	31	44.0	-2.0	86	30	17	10+	0	17	28	--	1.02	-.06	.34	8	0	3.5	1	11.8	WNW	*35	NW	6+	4	5	21	7.5	--
Missoula	3200	901.8	1017.1	57	32	44.3	-.4	72	5	19	9	0	17	29	59	.88	-.02	.30	11	1	.5	T	6.8	NW	34	N	23	5	7	18	7.1	52
NEBRASKA																																
Grand Island	1841	948.5	1015.4	61	37	49.0	-1.9	84	30	20	13	0	11	33	59	3.09	.87	1.39	7	3	1.2	1	15.1	NNE	--	---	--	9	8	13	6.1	--
Lincoln (U)	1166	------	------	63	41	51.9	-.7	86	30	26	9	0	4	--	--	2.16	-.13	1.56	9	5	T	T	12.4	N	46	SW	4	9	7	14	5.9	67
Norfolk	1544	958.0	1015.1	61	35	47.8	-.5	83	30	20	9	0	12	29	51	1.58	-.70	1.24	7	3	3.0	T	----	---	--	---	--	6	10	14	6.4	--
North Platte	2779	915.0	1014.9	61	32	46.4	-2.3	83	30+	16	12	0	16	28	56	1.35	-.71	1.24	6	3	1.4	T	10.9	N	49	N	2	9	8	13	6.1	68
Omaha	978	975.3	1015.9	62	39	50.8	-1.4	85	30	25	9	0	6	33	56	2.63	.48	1.83	8	3	.7	T	12.9	N	40	N	25	5	10	15	6.5	58
Omaha N.Omaha AP	1323	966.8	------	60	38	49.2	-.8	82	30	24	9	0	9	--	--	2.28	.13	.98	9	3	3.0	3	----	---	--	--	--	5	9	16	6.8	--
Scottsbluff	3950	877.8	1015.2	60	30	44.9	-1.2	84	30+	13	12+	0	17	27	55	.74	-1.25	.35	5	1	6.7	1	13.7	WNW	*44	WSW	6	6	10	14	6.7	--
Valentine	2587	923.1	------	59	31	44.9	-1.6	86	30	10	12	0	14	--	57	1.27	-.70	.83	5	0	5.9	4	11.9	N	42	N	6	7	7	16	6.5	65
NEVADA																																
Elko	5075	843.9	1014.7	64	28	46.2	1.6	79	5	15	10+	0	22	18	36	.29	-.64	.17	3	1	2.2	1	6.5	WSW	*31	NW	30	11	7	12	5.3	--
Ely	6257	807.3	1013.6	63	27	44.8	1.1	78	30	12	10	0	23	18	38	.46	-.74	.41	3	2	.3	T	13.9	S	36	S	25	10	10	10	5.5	86
Las Vegas	2162	945.5	1010.1	84	53	68.7	3.1	98	30	43	10	8	0	16	15	T	-.24	T	0	0	.0	0	9.5	SW	*32	SSW	26	16	8	6	3.7	89
Reno	4397	861.5	1015.1	71	30	50.3	2.6	84	29	19	8+	0	21	23	37	T	-.46	T	0	0	.0	0	6.4	WNW	40	N	17	13	8	9	4.7	90
Winnemucca	4299	867.6	1015.9	67	27	47.0	.2	80	29	11	8	0	23	18	33	.06	-.77	.06	1	0	T	T	7.7	W	38	SW	30	13	6	11	4.9	70
NEW HAMPSHIRE																																
Concord	339	1004.0	1015.1	58	33	45.5	2.5	74	25+	19	13	0	13	31	64	2.60	-.48	1.02	13	1	T	T	7.5	NW	26	E	28	9	6	15	6.5	48
Mt. Washington	6262	800.7	------	31	17	24.0	2.0	41	25+	-2	7	0	30	--	84	2.19	-3.68	1.23	15	0	4.2	4	31.7	W	‡102	SE	2	5	9	16	7.2	42
NEW JERSEY																																
Atlantic City (U)	10	------	------	56	43	49.8	.4	78	17	34	12	0	0	--	--	3.83	.43	1.09	13	--	---	---	12.2	---	33	S	2	--	--	--	---	47
Atlantic City	58	1012.4	1015.2	62	43	52.6	2.5	85	9	32	13+	0	2	40	69	3.33	.00	.94	12	3	2.0	1	12.8	S	--	--	--	5	8	17	6.9	--
Newark	11	1013.7	1015.2	63	44	53.5	3.5	84	8	33	13+	0	0	38	60	2.05	-1.22	.51	11	0	1.1	1	10.1	NNE	*25	NW	2	7	7	16	6.7	--
Trenton (U)	56	1007.5	1014.5	64	44	53.9	3.2	83	9+	32	12	0	1	--	--	2.72	-.28	.68	14	2	.8	1	9.7	---	34	S	3	9	8	13	5.9	56
NEW MEXICO																																
Albuquerque	5310	847.3	1011.9	70	44	57.0	1.5	84	24	30	10	0	1	25	36	.43	-.10	.22	4	3	T	0	10.5	S	45	E	7	9	10	11	5.7	69
Clayton	4969	844.2	1013.5	65	35	49.6	-1.4	84	30+	18	13+	0	11	--	--	.53	-.60	.20	7	0	3.8	1	----	---	--	---	--	7	10	13	6.1	--
Raton	6379	804.6	1013.9	63	29	45.9	-1.0	80	30	12	10	0	19	--	--	.65	-.43	.30	5	1	4.4	1	----	---	--	---	--	7	7	16	6.6	--
Roswell	3612	892.3	1012.9	76	44	59.9	.2	97	25	29	13	5	2	33	42	.59	-.16	.40	4	0	T	0	12.8	---	47	NW	27	10	5	15	6.0	--
NEW YORK																																
Albany	277	1011.0	1014.8	59	37	48.0	2.9	77	25	24	14	0	8	33	61	2.46	-.15	.65	12	1	.0	T	10.6	WNW	34	W	6	6	10	14	6.7	51
Binghamton	1590	954.7	1014.3	56	37	46.6	4.0	73	25+	23	13	0	9	31	60	2.67	-.57	.85	14	2	T	T	10.2	N	43	NW	6	8	5	17	6.9	47
Buffalo	693	985.4	1015.0	55	37	46.0	2.2	77	25	25	13	0	10	34	68	3.21	.66	.75	14	4	.4	T	12.1	SW	45	S	28	8	6	16	6.2	55
New York (U)	10	1013.5	------	61	46	52.7	2.9	80	8	32	12	0	1	--	--	2.07	-1.15	.43	11	0	.6	T	12.4	N	40	NW	3	9	8	13	6.3	45
New York	19	1013.3	1015.3	62	45	53.4	3.3	83	8	34	12	0	0	38	62	2.38	-.72	.52	12	0	1.3	0	14.8	NE	39	NW	7	8	7	15	6.4	--
Rochester	543	995.2	1014.8	56	37	46.6	2.1	78	25	25	13	0	9	34	66	1.91	-.73	.58	12	2	.2	T	12.9	WSW	45	W	4	7	9	14	6.3	51
Schenectady	217	------	------	59	39	48.9	3.8	77	25	26	13	0	6	--	--	2.13	-.92	.75	15	0	.0	0	----	---	--	---	--	13	11	6	4.4	--
Syracuse	424	992.5	1014.9	58	37	47.6	1.6	78	25	23	13	0	6	34	64	2.51	-.61	.87	14	2	T	T	11.1	WNW	42	NW	4	8	9	13	6.2	52
NORTH CAROLINA																																
Asheville (U)	2203	936.5	------	70	45	57.3	1.8	83	8	30	14	0	3	--	--	4.70	1.84	1.49	13	4	.3	T	8.0	---	37	NW	3	7	10	13	6.5	66
Cape Hatteras (R)	9	1015.6	1016.4	68	53	60.5	.9	80	20	36	5	0	0	53	78	3.32	.24	1.08	10	2	.0	0	12.0	SW	--	---	--	8	11	11	6.1	--
Charlotte	725	988.0	1016.2	75	50	62.1	2.4	86	9	35	14	0	0	48	66	5.36	2.19	1.77	13	4	.0	0	11.3	SSW	36	NW	3	7	10	13	6.5	67
Greensboro	891	984.3	1016.6	72	46	58.9	1.8	85	9	32	5	0	1	45	67	4.37	1.02	1.16	13	3	T	T	10.4	SW	34	NW	3	8	7	15	6.5	72
Raleigh	433	1002.2	1016.3	73	51	60.7	2.2	87	9	35	14+	0	0	48	68	5.83	2.30	1.87	12	1	.0	0	9.1	SSW	*27	S	3	9	7	14	6.3	56
Wilmington	30	1015.6	------	73	52	62.8	.6	87	20	39	24+	0	0	--	--	2.74	.03	1.25	7	3	.0	0	15.3	---	35	S	2	7	15	8	5.8	65
Winston-Salem	967	980.6	1016.1	72	49	60.3	2.8	85	9+	34	14+	0	0	45	62	3.96	.56	.78	12	2	.0	0	11.7	SSW	*37	NE	12	9	9	12	6.2	--
NORTH DAKOTA																																
Bismarck	1650	954.6	1016.0	56	31	43.3	.2	85	30	17	11+	0	19	24	53	.37	-1.02	.30	5	0	2.9	1	12.6	WNW	59	NW	7	3	12	15	7.2	67
Devils Lake (U)	1471	961.1	------	53	28	40.4	.4	79	30	16	11	0	22	--	53	.28	-1.16	.14	6	0	.1	T	10.6	NW	36	NW	28	8	12	10	5.7	74
Fargo	895	980.4	1015.7	56	31	43.2	1.1	78	30+	18	11	0	16	25	55	.66	-1.22	.29	6	0	1.1	T	15.9	N	58	W	7	5	14	11	6.4	69
Williston (U)	1877	946.8	1015.6	54	32	42.9	.0	82	30	17	11	0	16	23	48	.30	-.77	.15	5	0	.8	T	9.5	W	39	W	27	4	9	17	6.7	65
OHIO																																
Akron	1210	976.8	1015.4	59	38	48.6	1.5	76	1	26	14+	0	7	36	65	3.43	.23	.91	16	3	.3	0	12.8	N	--	---	--	4	5	21	7.5	--
Cincinnati Obs.	761	------	------	67	46	56.4	2.8	83	7	34	13+	0	0	--	--	2.12	-1.52	1.00	10	3	.7	T	7.9	---	31	W	3	--	--	--	---	51
Cincinnati	869	983.1	1015.4	66	45	55.6	3.5	80	7+	34	23+	0	0	38	57	2.33	-1.26	1.07	10	3	.6	0	11.8	SSW	*35	WSW	28+	4	6	20	7.7	--
Cleveland	787	986.7	1015.0	59	40	49.8	2.5	78	1	27	13	0	4	36	64	4.70	1.97	1.56	15	6	T	0	13.7	S	60	NW	29	6	5	19	7.2	51
Columbus (U)	724	------	------	63	44	53.2	1.8	78	1	33	12	0	6	--	--	3.12	-.07	1.06	13	5	.1	--	----	---	--	---	--	-	--	--	---	--
Columbus	815	984.8	1015.9	64	41	52.6	2.4	80	1	31	23+	0	3	38	63	3.60	.16	1.09	12	5	.1	0	9.4	NNE	48	SW	28+	4	7	19	7.1	56
Dayton	1002	978.4	1015.3	62	42	52.0	1.5	78	7	29	13	0	1	38	63	3.58	.50	1.64	14	4	T	0	11.7	SSW	52	W	28	4	5	21	7.6	51
Sandusky (U)	603	992.6	------	58	41	49.8	1.9	79	17	34	13	0	0	--	--	4.19	1.23	1.85	13	6	T	0	9.7	---	75	SW	28	9	8	13	5.9	64
Toledo	676	989.3	1015.1	59	39	48.7	2.2	76	17+	27	13	0	6	36	66	3.67	.42	1.15	12	6	T	0	8.8	SW	40	NW	3	7	4	19	7.0	64
Youngstown	1178	971.9	1015.1	60	37	48.5	1.3	77	1	22	13	0	9	35	66	4.15	.51	1.10	15	5	T	T	10.9	WSW	*40	WSW	28	6	6	18	7.3	--
OKLAHOMA																																
Oklahoma City	1280	971.6	1015.4	71	47	58.5	-1.8	91	27	30	13	1	2	44	64	2.81	-.36	1.19	4	4	.0	0	16.3	S	42	SW	24	8	8	14	6.2	53
Tulsa	672	990.5	1015.2	72	49	60.5	-.2	91	30	34	14+	1	0	44	57	1.46	-2.79	.45	5	4	T	0	12.1	S	35	N	8	5	13	12	6.5	60
OREGON																																
Astoria	8	1019.0	1019.2	57	42	49.4	-.3	77	9	31	3	0	1	41	77	4.40	-.75	.86	14	0	.0	0	11.1	WNW	*29	S	29	7	6	17	7.2	--
Burns (U)	4140	872.7	1015.6	63	33	47.6	1.0	74	29+	21	15	0	15	26	47	.24	-.58	.10	4	1	T	T	----	---	--	---	--	11	7	12	5.4	--
Eugene	361	1005.8	1019.5	63	39	51.0	.1	77	21	30	14+	0	4	--	--	.90	-1.64	.37	7	0	.0	0	9.4	---	*28	N	6	5	12	13	6.5	--
Meacham	4050	------	------	51	32	41.5	.4	65	21	23	6	0	17	--	--	2.40	-.33	.68	12	0	10.3	6	----	---	--	---	--	7	8	15	6.5	--
Medford	1312	969.9	1018.0	69	38	53.8	1.5	80	24+	29	16	0	6	38	61	.59	-.60	.36	4	0	.0	0	5.5	NNW	*29	NW	14	9	7	14	6.1	--
Pendleton	1492	963.1	1017.3	64	40	51.7	-.6	78	21	31	7	0	4	34	54	.51	-.53	.14	8	0	T	T	11.1	SE	*46	W	26	9	7	14	5.8	--
Portland	21	1013.5	1019.2	62	43	52.3	.5	77	21	33	7	0	0	40	63	.92	-1.19	.30	11	0	.0	0	8.9	NW	31	S	29	8	3	19	6.9	50
Roseburg	505	1000.0	1018.6	66	39	52.6	1.1	83	9	28	7	0	6	--	--	.59	-1.54	.44	5	0	.0	0	5.1	---	22	NW	14+	6	12	12	6.1	58
Salem	195	1012.2	1019.6	63	38	50.8	-.6	77	21+	29	6	0	6	40	69	1.12	-1.27	.34	10	0	.0	0	7.6	S	*22	NNE	7	8	5	17	6.4	--
Sexton Summit (R)	3836	884.5	1018.0	56	36	45.8	1.5	69	23	24	6	0	12	--	--	.69	-1.39	.30	5	0	.6	T	10.4	---	--	---	--	9	8	13	5.8	--
PACIFIC AREA																																
Canton Island	9	1008.5	1008.8	91	79	84.9	1.2	94	18+	75	19	24	0	75	77	3.45	-.33	2.18	10	1	.0	0	12.4	E	*26	NE	25	0	1	29	9.8	--
Guam (R)	361	------	------	85	73	79.0	-.1	87	7+	62	24	0	0	--	--	3.22	.85	.59	20	0	.0	0	----	---	27	E	16	--	--	--	---	83
Johnston Island	7	1013.5	1014.2	81	73	77.2	---	84	30+	70	7	0	0	68	76	3.46	----	2.84	13	0	.0	0	16.1	---	28	NE	10+	3	18	9	6.5	36
Koror (R)	94	1006.1	1009.8	88	75	81.6	.1	91	24	73	17+	3	0	75	83	12.96	4.18	3.27	20	2	.0	0	----	---	--	---	--	0	9	21	8.4	--
Majuro	10	1009.5	1009.8	85	76	80.5	---	86	30+	72	20	0	0	75	83	12.69	----	3.35	26	1	.0	0	13.8	---	32	E	4	0	0	30	9.9	43
Ponape (R)	120	1004.7	1010.1	85	75	80.2	-1.3	88	26+	72	30+	0	0	76	87	38.65	19.65	8.05	26	2	.0	0	8.7	---	21	E	11	0	0	30	9.9	20
Truk, Moen Island	5	1009.8	1010.2	85	76	80.8	-.4	89	16	74	29+	0	0	75	83	16.12	4.60	3.11	24	0	.0	0	----	---	--	---	--	0	0	30	10.0	--
Wake Island	11	1016.3	1016.7	82	72	76.7	-1.6	85	2	69	29	0	0	66	71	2.22	.28	.62	17	0	.0	0	19.1	ENE	*29	ENE	7+	12	14	4	4.9	--
Yap (R)	55	1007.8	1009.9	87	77	82.1	-.2	90	16	74	7	1	0	75	81	4.38	-1.37	.98	18	1	.0	0	6.3	NE	*17	ESE	30+	0	3	27	9.4	--

See footnotes at end of table.

State and station	Elevation (ground)	Pressure: Station ø	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
PENNSYLVANIA																																
Allentown	376	1000.8	1015.2	64	41	52.3	3.8	79	17	31	13	0	3	40	67	2.84	-0.55	0.60	13	1	1.3	1	11.4	WSW	*38	WNW	6	8	8	14	6.4	--
Erie	732	------	------	57	38	47.2	2.9	77	25	23	13	0	8	--	--	3.38	-.12	.95	12	4	T	T	----	---	*21	WSW	3	8	6	16	6.5	--
Harrisburg	335	1000.8	1014.8	66	44	54.8	3.9	80	18	31	13+	0	2	37	57	3.18	.21	.80	11	1	3.1	2	8.2	WSW	34	NW	6	7	6	17	7.0	59
Philadelphia (U)	26	------	------	65	47	56.0	3.3	84	9	34	13+	0	0	--	--	----	----	----	--	--	---	--	----	---	--	---	--	--	--	--	---	--
Philadelphia	7	1010.3	1014.9	66	44	54.8	3.2	84	9	33	13+	0	0	40	63	2.25	-1.13	.72	13	1	T	0	11.9	SW	38	W	6	7	8	15	6.6	53
Pittsburgh (U)	749	------	------	64	44	53.7	1.9	80	8	30	13	0	3	--	--	4.57	1.49	1.26	16	--	3.7	--	----	---	--	---	--	--	--	--	---	46
Pittsburgh	1151	984.5	1015.5	62	41	51.3	2.5	78	8+	27	14+	0	4	35	59	3.33	.14	1.01	14	5	3.1	2	9.7	N	*32	W	3	4	6	20	7.5	59
Reading (U)	266	1003.0	1015.2	66	45	55.4	4.1	81	18+	34	13+	0	0	--	--	3.06	-.18	.60	15	0	1.1	1	11.5	---	47	E	28	7	10	13	6.4	55
Scranton	940	980.6	1015.2	61	40	50.4	3.4	78	17	25	13	0	5	37	63	3.76	.51	.83	13	3	.4	T	9.1	SW	34	SE	2	7	7	16	6.7	50
Williamsport	527	996.2	------	62	38	50.3	1.2	80	17	26	13	0	7	--	--	4.38	.84	1.00	14	--	1.9	2	----	---	--	---	--	6	8	16	6.8	--
RHODE ISLAND																																
Block Island	110	1010.2	1014.4	52	40	46.1	1.2	68	17	28	14	0	1	--	--	3.64	.27	.95	14	0	.3	0	----	---	--	---	--	11	2	17	6.3	--
Providence	55	1008.7	1015.0	58	40	49.0	3.0	77	17+	26	14	0	2	35	65	3.83	.46	1.08	14	1	T	0	12.7	NW	*40	SSE	2	10	4	16	6.5	55
SOUTH CAROLINA																																
Charleston (U)	9	------	------	74	59	66.2	.6	88	20	44	14	0	0	--	--	1.62	-.83	.67	7	--	.0	0	10.2	---	33	NW	14	--	--	--	---	--
Charleston	41	1015.6	1017.7	76	53	64.3	.0	87	20	40	15	0	0	55	78	2.39	-.43	.88	8	1	.0	0	9.3	S	--	---	--	8	6	16	6.2	74
Columbia	217	1003.7	1016.7	78	53	65.6	2.1	88	20+	36	15	0	0	51	64	2.64	-.90	.90	10	3	.0	0	9.4	SW	32	NNW	12	10	8	12	5.6	76
Florence	146	1010.2	1016.1	77	52	64.5	1.1	90	20	40	14+	1	0	52	69	7.60	3.93	2.57	9	5	.0	0	8.7	S	25	SSE	18	8	11	11	5.5	--
Greenville	1018	978.8	1016.2	73	50	61.4	1.2	85	30	36	14	0	0	46	64	5.88	2.06	1.82	10	3	.0	0	8.8	SW	34	W	28	6	9	15	6.6	61
Spartanburg	801	------	------	73	50	61.8	1.3	85	8	35	14	0	0	--	--	5.65	2.10	1.90	12	4	.0	0	8.7	---	*46	W	28	--	--	--	---	--
SOUTH DAKOTA																																
Huron	1282	967.8	1015.6	60	33	46.7	.3	87	30	10	9	0	11	24	47	.49	-1.43	.38	3	0	.9	T	14.7	WNW	57	N	1	5	5	20	7.3	67
Rapid City	3165	900.4	1016.2	56	31	43.3	-1.2	85	30	14	21	0	17	25	54	1.89	-.12	1.17	10	1	13.9	9	11.7	NNW	45	W	2	3	7	20	7.2	60
Sioux Falls	1420	963.1	1015.4	60	34	46.8	.4	85	30	16	9	0	13	24	46	.36	-1.99	.18	6	0	1.0	1	12.8	NW	*43	NW	6	6	7	17	6.9	--
TENNESSEE																																
Bristol	1519	961.5	------	69	44	56.8	.8	84	8	32	14+	0	3	--	--	4.56	1.31	1.05	14	4	T	T	----	---	--	---	--	7	9	14	6.6	--
Chattanooga	670	988.5	1016.4	73	48	60.3	.6	85	20	32	15+	0	2	47	67	4.30	-.23	1.89	12	2	.0	0	7.6	S	36	SW	3	7	8	15	6.7	59
Knoxville	950	981.0	1016.5	71	49	60.0	1.0	84	8	33	14	0	0	47	65	4.17	.53	1.30	11	4	.0	0	9.0	SW	41	SW	3	6	8	16	6.9	43
Memphis (U)	271	------	------	70	53	61.6	-.6	84	30	40	13	0	0	--	--	2.98	-1.72	1.46	12	--	.0	0	----	---	--	---	--	--	--	--	---	--
Memphis	263	1002.0	1016.8	72	51	61.5	-.3	87	30	34	14	0	0	47	63	3.73	-1.07	1.61	11	6	.0	0	9.0	SSW	31	NW	28	7	9	14	6.1	63
Nashville	577	996.3	1016.4	71	49	59.7	.0	85	30+	33	14	0	0	47	68	2.49	-1.20	1.12	11	4	.0	0	9.4	SSW	30	SW	1	8	7	15	6.4	52
Oak Ridge	905	982.4	------	72	47	59.0	1.4	84	8	31	14	0	2	--	--	4.35	.27	1.06	11	4	.0	0	5.5	--	50	---	28	8	8	14	6.2	--
TEXAS																																
Abilene	1759	953.6	1014.6	76	50	63.1	-1.4	97	25	28	13	7	1	44	55	1.88	-.59	1.40	5	5	.0	0	14.1	SSE	39	NE	3	8	8	14	6.1	68
Amarillo	3590	888.3	1013.8	70	40	55.0	-.6	93	25	27	13	2	7	30	47	1.18	-.27	1.11	5	2	T	T	12.7	SW	40	W	27	11	4	15	5.9	74
Austin	615	994.2	1016.3	75	56	65.1	-2.8	88	28	39	13	0	0	54	71	4.35	.39	1.97	9	7	.0	0	11.1	SSE	33	N	3	9	5	16	6.5	41
Brownsville	16	1012.5	1015.1	78	63	70.7	-3.0	91	19	54	14+	1	0	63	80	2.62	1.03	1.85	7	2	.0	0	11.7	SSE	36	S	27	4	8	18	7.5	52
Corpus Christi	41	1014.9	1016.1	76	60	68.1	-3.6	91	3	46	2	1	0	60	78	1.39	-.35	.48	7	4	.0	0	12.8	SSE	38	N	21	5	7	18	7.2	46
Dallas	487	997.6	1016.3	74	53	63.2	-3.1	90	30	36	13	1	0	49	62	.72	-3.15	.17	8	3	.0	0	13.7	S	44	NE	3	9	7	14	6.2	62
Del Rio (U)	957	------	------	78	57	67.4	-3.7	93	28+	44	13	3	0	--	--	2.25	.80	.94	9	4	.0	0	----	---	--	---	--	--	--	--	---	--
El Paso	3920	884.9	1011.8	79	51	65.0	1.9	93	30+	40	13+	3	0	30	31	.15	-.12	.12	3	1	.0	0	12.4	WSW	43	NE	11	10	8	12	6.0	78
Fort Worth	544	995.3	1016.3	75	52	63.4	-2.5	90	30	35	14+	1	0	49	63	.92	-2.93	.25	7	3	.0	0	15.7	S	*53	SE	18	8	8	14	6.3	--
Galveston (U)	7	------	------	71	62	66.3	-2.6	77	30+	46	13	0	0	--	--	1.94	-1.15	1.08	7	--	.0	0	13.5	---	40	NW	1	--	--	--	---	58
Galveston	5	1014.6	1017.0	72	62	66.6	-2.5	80	29	47	13	0	0	60	79	3.37	-.03	1.49	8	5	.0	0	13.7	ESE	--	---	--	8	3	19	6.8	--
Houston (U)	41	1011.2	------	74	59	66.7	-2.8	88	29	42	13	0	0	--	--	6.92	3.52	2.46	10	3	.0	0	11.7	SE	37	NW	1	8	8	14	6.5	50
Houston	50	1013.9	1016.8	75	59	66.7	-1.7	88	29	44	13	0	0	57	76	7.76	4.67	3.11	9	5	.0	0	13.7	SE	--	---	--	6	6	18	7.1	--
Laredo	500	998.6	1014.5	83	61	71.9	-4.0	99	20+	50	13	12	0	55	62	.90	-.71	.50	8	1	.0	0	12.3	SE	*27	NW	8	7	7	16	6.8	--
Lubbock	3243	902.8	1014.1	73	44	58.6	-.9	96	25	27	13	5	1	37	50	1.28	.17	1.24	4	1	.0	0	14.0	SW	*44	WSW	26	10	7	13	5.5	--
Midland	2854	915.3	1014.1	76	48	62.1	-2.4	97	26+	29	13	7	1	38	47	.39	-1.02	.28	3	2	.0	0	11.5	SSE	*29	WSW	27+	9	10	11	5.7	--
Port Arthur	16	1015.2	1016.7	74	58	66.4	-1.5	85	29	42	13	0	0	59	80	6.68	2.74	2.49	9	4	.0	0	13.1	ESE	43	NW	1	5	9	16	6.9	59
San Angelo	1903	947.9	1014.9	76	52	63.9	-3.5	96	5	31	13	6	1	44	55	2.40	.21	1.69	4	3	.0	0	14.4	SW	*40	NNE	3	12	6	12	5.5	--
San Antonio	792	990.9	1015.8	76	55	65.9	-2.9	89	28	36	13	0	0	54	70	2.55	-.47	1.44	11	4	.0	0	11.3	SSE	36	N	3	6	7	17	6.9	52
Victoria	110	1011.2	1015.9	75	59	66.8	-3.8	86	3	45	13	0	0	58	75	1.73	-.71	.50	9	5	.0	0	11.6	SSE	‡52	NNW	1	7	7	16	6.8	--
Waco	500	997.3	1016.2	74	53	63.8	-3.0	89	30	37	13	0	0	52	69	2.74	-1.23	1.63	10	5	.0	0	13.5	SSE	*30	NNE	3	8	6	16	6.7	--
Wichita Falls	1020	978.0	1014.7	77	51	63.7	1.1	97	26+	31	13	7	1	42	51	1.53	-.82	.66	4	4	.0	0	13.7	S	*37	NNE	8	10	8	12	5.4	--
UTAH																																
Milford	5028	842.9	1013.9	68	31	49.5	1.7	87	30	16	10	0	16	--	--	.19	-.57	.11	3	2	T	T	----	---	--	---	--	9	13	8	4.9	--
Salt Lake City	4220	866.6	1014.4	65	38	51.6	1.5	84	30	22	10	0	11	27	42	1.61	-.15	1.15	5	0	1.3	1	9.4	S	35	S	13	8	8	14	6.2	72
VERMONT																																
Burlington	331	999.4	1014.4	56	34	45.0	2.7	72	25	21	13	0	12	31	60	1.57	-1.06	1.01	10	0	.1	T	8.8	SSW	35	S	28	7	7	16	6.4	58
VIRGINIA																																
Lynchburg	947	981.4	------	70	46	57.9	2.4	87	8	32	14+	0	3	--	--	4.26	1.13	.92	12	1	.6	T	9.5	---	39	S	3	7	6	17	6.7	61
Norfolk	26	1014.8	1016.2	71	49	60.2	3.9	87	9+	39	13	0	0	47	68	5.03	1.87	2.27	13	1	.0	0	11.5	SW	45	NE	12	7	10	13	6.5	69
Richmond	162	1009.8	1016.2	72	47	59.3	3.2	90	9	34	13	1	0	45	66	4.32	1.09	1.55	12	3	.0	0	9.2	S	30	NW	3	7	8	15	6.3	56
Roanoke	1174	973.5	1015.9	71	46	58.5	3.0	89	8	32	14+	0	3	42	60	4.27	1.32	1.38	13	3	.7	1	9.4	SW	--	---	--	5	11	14	6.7	—
WASHINGTON																																
Olympia	190	1011.5	1018.7	60	37	48.3	-.1	75	9	28	3	0	6	37	66	4.51	2.17	1.32	10	0	.0	0	7.8	SW	*28	WSW	5	7	9	14	6.6	--
Seattle (U)	14	------	------	59	45	52.1	.3	78	9	38	3	0	0	--	--	1.86	-.08	.79	12	--	.0	0	----	---	40	SW	28	--	--	--	---	39
Seattle	14	1017.3	1018.5	--	--	---	---	--	--	--	--	--	--	38	63	----	----	----	--	1	---	--	8.3	SSW	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	1004.1	1018.3	57	42	49.6	.5	73	9	34	3	0	0	39	70	3.59	1.47	1.15	16	1	.0	0	12.2	SSW	*32	S	28	5	6	19	7.2	--
Spokane	2357	946.5	1016.0	58	36	47.4	1.1	71	11	27	7	0	7	32	59	.57	-.42	.18	7	0	T	T	10.1	SSW	33	SW	30+	9	6	15	6.4	70
Stampede Pass (R)	3958	879.4	1019.4	41	30	35.8	-1.3	57	21	24	5	0	21	--	--	6.27	.77	1.35	20	0	21.9	118	----	---	--	---	--	7	5	18	7.0	--
Tatoosh (R)	101	1014.9	1018.0	53	44	48.2	.7	69	9	36	14	0	0	41	79	8.16	2.93	3.70	14	0	T	0	15.5	E	54	E	9	4	5	21	7.5	52
Walla Walla (U)	949	980.7	1016.6	64	43	53.6	-.3	79	21	32	9	0	1	--	--	.86	-.38	.21	9	1	T	0	6.3	---	25	W	5	10	6	14	5.9	60
Yakima	1061	977.7	1017.0	66	36	50.6	-.8	75	23+	24	9	0	11	28	44	.05	-.38	.05	1	0	T	0	10.4	NNW	*44	NW	5	12	8	10	5.1	--
WEST VIRGINIA																																
Charleston	950	979.6	1015.3	67	44	55.9	.9	86	8	32	14+	0	2	39	59	4.77	1.03	1.10	16	3	5.9	3	7.0	SW	*31	SW	28	1	9	20	7.9	--
Elkins	1970	------	------	64	37	50.1	1.0	82	8	24	7	0	14	39	--	3.41	.05	.66	17	2	5.0	3	7.6	WNW	*46	W	28	5	5	20	7.4	--
Huntington (U)	565	------	------	69	44	56.7	-.6	87	8+	33	12	0	0	--	--	4.90	1.48	1.55	12	--	----	--	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	------	67	43	55.1	1.3	85	8	32	14+	0	2	--	--	3.95	.87	.70	12	4	2.1	2	6.5	---	27	NW	3	4	9	17	7.2	46
WEST INDIES																																
San Juan, P.R. (U)	47	------	------	83	73	78.3	1.7	88	25+	71	13+	0	0	--	--	7.50	3.70	4.01	16	2	.0	0	----	---	--	---	--	--	--	--	---	--
San Juan, P.R.	15	1012.4	1015.3	85	71	77.9	1.7	90	20	67	6+	1	0	70	78	6.18	2.27	3.15	16	1	.0	0	8.1	ENE	27	NE	10	1	17	12	6.6	63
Swan Island	31	1011.6	------	87	76	81.6	.6	89	14	73	26+	0	0	--	--	1.63	.53	1.06	6	1	.0	0	----	---	--	---	--	3	15	12	6.5	--
WISCONSIN																																
Green Bay	689	992.2	1015.3	53	32	42.7	.9	73	15	21	21	0	14	32	70	2.84	.33	.81	11	2	.5	1	13.2	NE	45	SW	15	7	6	17	6.5	47
La Crosse	652	989.5	1014.5	58	38	47.5	.9	76	15	26	11	0	9	31	55	.65	-1.66	.41	7	2	T	2	11.3	S	*37	NW	5	7	9	14	6.3	--
Madison	857	979.3	1015.3	57	36	46.3	.6	73	16+	24	11	0	9	32	64	4.01	1.52	1.58	9	2	.4	T	11.4	ENE	45	W	5	6	8	16	6.7	50
Milwaukee	672	990.2	1015.6	54	36	45.0	.7	74	16	25	11	0	10	32	67	3.29	.90	1.06	11	3	1.5	1	12.3	WNW	33	NW	5	7	9	14	6.2	57
WYOMING																																
Casper	5319	835.1	1013.8	56	28	42.0	-1.0	77	30	13	12	0	19	22	52	.74	-1.18	.56	6	1	8.9	7	14.4	SW	*48	SW	16	3	8	19	7.5	--
Cheyenne	6131	810.0	1015.5	52	27	39.3	-1.8	78	30	-3	12	0	21	23	57	1.54	-.60	.70	8	1	14.0	8	16.3	W	63	W	2	5	12	13	6.6	68
Lander	5563	833.4	1014.0	57	30	43.4	1.3	79	30	18	9	0	19	25	53	1.24	-1.17	.87	7	0	18.9	9	8.4	---	47	W	2	5	9	16	6.7	73
Sheridan	3942	882.8	1015.6	55	28	41.8	-1.7	78	30	16	12+	0	19	26	58	1.72	-.54	.69	12	0	10.3	3	9.7	WNW	52	NW	22	4	12	14	7.0	60

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
\+ And also on an earlier date or dates.
a Maximum hourly average.
ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
\# Number of days maximum 70° or above for Alaskan Stations.

¢ City Office Data
† Airport Data
‡ Peak Gust

HEATING DEGREE DAYS

(Base 65° F.)

APRIL 1959

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ALABAMA			
Birmingham	124	2823	2750
Mobile	71	1816	1612
Montgomery	78	2171	2137
ALASKA			
Anchorage	931	10519	9852
Annette	648	6069	6279
Barrow	2029	17435	17629
Barter Island	2060	17039	
Bethel	1399	12252	11733
Cold Bay	1009	8622	
Cordova	850	8846	8459
Fairbanks	1166	14406	13419
Juneau	781	8018	7988
King Salmon	1003	10526	
Kotzebue	1781	14565	14403
McGrath	1228	14159	13431
Nome	1577	13095	12540
St. Paul	1093	9082	9210
Yakutat	823	8172	8216
ARIZONA			
Flagstaff	572	6064	6848
Phoenix (U)	0		1492
Phoenix	0	1112	1698
Prescott	261	3749	4352
Tucson	8	1449	1776
Winslow	228	4061	4550
Yuma	0	542	951
ARKANSAS			
Ft. Smith	179	3413	3164
Little Rock	146	3030	2964
Texarkana	147	2642	2362
CALIFORNIA			
Bakersfield	14	1583	2094
Bishop	207	3468	4044
Blue Canyon	389	4010	5120
Burbank	55	1014	1701
Eureka (U)	428	3549	3975
Fresno	38	1972	2489
Los Angeles (U)	29	684	1364
Los Angeles	15	609	1838
Mt. Shasta (R)	420	4536	5382
Oakland	146	1931	2832
Red Bluff	36	1863	2495
Sacramento (U)	45	1760	2510
Sacramento	51	1987	2712
Sandberg (R)	241	3141	3926
San Diego	29	676	1434
San Francisco (U)	213	1949	2641
San Francisco	157	1672	2993
San Jose	95	1549	2227
Santa Maria	193	1884	2553
COLORADO			
Alamosa	703	7626	8016
Colorado Springs	628	5749	5872
Denver	572	5550	5781
Grand Junction	369	4977	5628
Pueblo	486	5261	5479
CONNECTICUT			
Bridgeport	448	5618	5609
Hartford	462	6404	5907
New Haven	485	5799	5713
DELAWARE			
Wilmington	325	5049	4794
DIST. OF COLUMBIA			
Washington (U)	235	4152	4178
Washington	222	4129	4246
FLORIDA			
Apalachicola (U)	40	1247	1307
Daytona Beach	25	693	868
Fort Myers	8	317	405
Jacksonville	33	1142	1243
Key West	0	46	77
Miami	2	126	178
Miami Beach	0	79	123
Orlando	15	550	650
Pensacola (U)	51	1504	1435
Tallahassee	49	1433	1519
Tampa	10	452	674
West Palm Beach	0	175	248
GEORGIA			
Athens	117	2923	2785
Atlanta	108	2777	2806
Augusta	92	2479	2138
Columbus	95	2375	2396
Macon	75	2172	2049
Rome	174	3415	3111
Savannah	60	1884	1710
IDAHO			
Boise	421	4877	5549
Lewiston	419	4757	5193
Pocatello	512	5831	6523
ILLINOIS			
Cairo (U)	190	3860	3709
Chicago	466	6139	6023
Chicago University	500	6092	
Moline	462	6353	6120

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ILLINOIS (Cont'd.)			
Peoria	418	6016	5854
Springfield	364	5484	5490
INDIANA			
Evansville	264	4634	4264
Ft. Wayne	470	6255	6008
Indianapolis	397	5664	5405
South Bend	512	6452	6214
IOWA			
Burlington	432	6128	5888
Des Moines	467	6396	6200
Dubuque	557	7396	6928
Sioux City	470	6604	6730
KANSAS			
Concordia (U)	363	5216	5157
Dodge City	370	5008	4908
Goodland	525	5827	6068
Topeka	361	5103	5057
Wichita	300	4628	4463
KENTUCKY			
Lexington	284	4717	4824
Louisville	222	4357	4340
LOUISIANA			
Baton Rouge	54	1688	1595
Lake Charles	56	1664	1543
New Orleans (U)	27	1301	1175
New Orleans	29	1411	1317
Shreveport	127	2392	2117
MAINE			
Caribou	813	9618	9460
Greenville (U)	823	9185	
Portland	653	7836	7170
MARYLAND			
Baltimore (U)	218	4186	4130
Baltimore	276	4719	4667
Frederick	322	5149	4748
MASSACHUSETTS			
Blue Hill Obs. (R)	573	6631	
Boston	476	5734	5513
Nantucket	624	5762	5569
Pittsfield	595	7370	7253
MICHIGAN			
Alpena (U)	704	7822	7501
Detroit	486	6273	6093
Detroit(Willow Run)	484	6378	6170
East Lansing (U)	516	6636	
Escanaba (U)	773	8311	8020
Grand Rapids	580	6967	6695
Marquette (U)	787	8128	7863
Muskegon	617	6930	6623
S. Ste. Marie	864	9052	8752
MINNESOTA			
Duluth (U)	793	9453	8887
Duluth	813	9531	9285
Internat. Falls	848	10458	9992
Minneapolis	530	7423	7514
Rochester	557	7974	7705
St. Cloud	663	8395	8456
MISSISSIPPI			
Jackson	127	2495	2202
Meridian	107	2475	2324
Vicksburg (U)	102	2274	2000
MISSOURI			
Columbia	318	4905	4964
Kansas City	273	4560	4769
St. Joseph	363	5341	5195
St. Louis (U)	258	4498	4368
St. Louis	273	4681	4587
Springfield	305	4529	4559
MONTANA			
Billings	616	6452	6683
Glasgow	670	8809	8265
Great Falls	637	6888	7030
Havre (U)	628	7863	7775
Helena	651	7517	7654
Kalispell	636	7329	7449
Miles City	625	7630	7459
Missoula	613	6887	7332
NEBRASKA			
Grand Island	474	6190	6077
Lincoln (U)	393	5585	5661
Norfolk	507	6661	6754
North Platte	550	6408	6244
Omaha	426	5956	5953
Scottsbluff	597	6459	6455
Valentine	597	6893	6704
NEVADA			
Elko	557	6099	6774
Ely	598	6358	6825
Las Vegas	21	2185	2425
Reno	435	5036	5553
Tonopah	353	4724	5450
Winnemucca	533	5571	5959

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
NEW HAMPSHIRE			
Concord	577	7294	7214
Mt. Washington Obs.	1222	12920	
NEW JERSEY			
Atlantic City (U)	451	4953	4528
Newark	343	5051	5093
Trenton (U)	334	5040	4924
NEW MEXICO			
Albuquerque	249	4058	4319
Clayton	454	5029	4930
Roswell	212	3540	3396
NEW YORK			
Albany	502	6932	6666
Binghamton	544	7021	7131
Buffalo	562	6608	6451
New York (U)	365	4981	4879
New York	351	4937	4838
Rochester	545	6774	6520
Schenectady	479	6602	6777
Syracuse	516	6818	6236
NORTH CAROLINA			
Asheville (U)	249	4027	3962
Cape Hatteras (R)	164	2564	2367
Charlotte	145	3190	3176
Greensboro	208	3875	3760
Raleigh	179	3513	3328
Wilmington	131	2578	2316
Winston-Salem	179	3633	3672
NORTH DAKOTA			
Bismarck	643	8668	8562
Devils Lake (U)	731	9444	9409
Fargo	649	8662	8835
Grand Forks	694	9493	
Pembina	692		
Williston (U)	658	8538	8570
OHIO			
Akron	484	6337	5918
Cincinnati (U)	272	4460	4424
Cincinnati	292	5011	5023
Cleveland	451	5906	5737
Columbus	366	5587	5404
Dayton	383	5692	5379
Sandusky (U)	449	5938	5601
Toledo	485	6364	6089
Youngstown	489	6416	5878
OKLAHOMA			
Oklahoma City	248	3865	3604
Tulsa	196	3595	3540
OREGON			
Astoria	460	4094	4416
Burns (U)	513	5644	6410
Eugene	413	3842	4384
Mecham	701	6405	7034
Medford	333	3849	4271
Pendleton	393	4577	4956
Portland (U)	336	3473	3874
Portland	375	3951	4297
Roseburg	366	3553	
Salem	417	3830	4234
Sexton Summit (R)	569	5145	5497
PENNSYLVANIA			
Allentown	372	5769	5691
Harrisburg	307	5250	5116
Philadelphia (U)	277	4550	4430
Philadelphia	311	4949	4762
Pittsburgh (U)	338	5165	4898
Pittsburgh	407	5870	5674
Reading (U)	294	5052	4926
Scranton	429	6340	5816
Williamsport	432	6041	5692
RHODE ISLAND			
Block Island	561	5536	5412
Providence	473	5900	5809
SOUTH CAROLINA			
Charleston (U)	55	1850	1769
Charleston	100	2182	1973
Columbia	95	2609	2435
Florence	104	2554	2507
Greenville	141	3048	3028
Spartanburg	133	3108	3018
SOUTH DAKOTA			
Huron	543	7666	7543
Pierre	551	7250	
Rapid City	643	6626	7030
Sioux Falls	540	7425	7492
TENNESSEE			
Bristol	252	4219	4053
Chattanooga	171	3524	3339
Knoxville	182	3608	3540
Memphis	155	3204	3113
Nashville	191	3721	3470
TEXAS			
Abilene	183	2826	2657
Amarillo	321	4297	4246
Austin	112	1934	1713

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
TEXAS (Cont'd.)			
Brownsville	27	829	617
Corpus Christi	39	1176	1011
Dallas	141	2444	2272
Del Rio (U)	71	1669	
El Paso	86	2406	2641
Ft. Worth	143	2549	2356
Galveston (U)	43	1329	1211
Galveston	41	1351	1233
Houston (U)	69	1430	1276
Houston	58	1495	1388
Laredo	46	1149	781
Lubbock	246	3639	3551
Midland	179	2880	
Port Arthur	59	1638	1517
San Angelo	156	2550	2107
San Antonio	90	1774	1579
Victoria	66	1452	1126
Waco	132	2234	2025
Wichita Falls	166	3009	3009
UTAH			
Milford	459	5572	6099
Salt Lake City	404	4967	5552
VERMONT			
Burlington	594	7835	7486
VIRGINIA			
Lynchburg	230	4105	4066
Norfolk	180	3303	3395
Richmond	212	3869	3889
Roanoke	218	4046	4071
WASHINGTON			
Olympia	495	4508	4980
Seattle (U)	378	3732	4085
Seattle-Tacoma	456	4296	4813
Spokane	517	5948	6376
Stampede Pass (R)	866	7797	8075
Tatoosh Island (R)	497	4670	4957
Walla Walla (U)	335	4310	4639
Yakima	426	4554	5587
WEST VIRGINIA			
Charleston	282	4541	4299
Elkins	442	5809	5496
Huntington (U)	255	4390	3983
Parkersburg (U)	303	4923	4618
WISCONSIN			
Green Bay	663	8215	7805
La Crosse	519	7583	7326
Madison (U)	551	7320	6955
Madison	557	7555	7063
Milwaukee	592	7215	6745
WYOMING			
Casper	684	5856	7111
Cheyenne	767	6753	6927
Lander	641	7154	7744
Sheridan	690	7204	7355

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

APRIL 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ø ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS
Alabama	1	1	0	0	3	0	0	4	4	0	0	4	1	0	1	2	1												
Alaska										0	0	3	0																
Arkansas	2	2	0	0	4	0	0	5	4	0	0	4	0																
California	*1	1	0	0	0	0	0	0	6					0	0	2	0									0	0	4	0
Colorado										0	0	4	0					3	0	3	0	1	0	0	0				
Connecticut										0	0	4	0																
Florida	3	1	1	11	6					0	0	4	0																
Georgia	3	2	0	2	5	0	0	4	5	0	0	5	3																
Idaho										0	1	4	0																
Illinois	1	1	0	0	4																								
Indiana	2	1	0	0	4					0	1	5	0	0	0	5	0												
Iowa						0	0	2	0					0	0	3	0	S	0	4	0								
Kansas										0	0	3	0	0	0	3	0	0	0	3	0								
Kentucky						0	0	4	3																				
Louisiana	3	3	0	1	5	0	0	4	0	0	0	5	0																
Maryland																										0	0	2	0
Michigan														0	1	2	0												
Minnesota	F 3	1	0	0	0																					0	0	4	0
Mississippi	1	1	0	0	3	0	0	4	0	0	0	4	0																
Missouri						0	2	5	4	0	0	5	0																
Montana						0	0	0	1									0	0	W5	0								
Nebraska										0	0	4	3	0	0	4	3												
New Jersey										0	1	3	0													2	0	0	0
New Mexico	1	1	0	0	3																								
North Carolina						0	0	3	5	0	0	5	3													0	0	3	3
Ohio	2	1	0	2	3																								
Oklahoma	**8	2	0	0	4	0	0	5	6	1	1	4	0	2	1	5	0												
Oregon						0	0	1	1	0	0	3	2	0	0	2	1												
Pennsylvania														0	0	4	0												
Puerto Rico																										0	0	5	0
South Carolina	1	1	0	0	1	0	0	0	1																				
South Dakota										0	1	4	0																
Texas	4	2	0	0	4	0	2	5	5	0	2	4	0	1	0	4	0												
Utah																		0	0	4	0					0	0	0	5
Virginia	2	2	0	0	5																								
Washington										0	D4	D4	D5													0	0	6	5
West Virginia	1	1	0	12	4					0	10	4	0																

* Funnel aloft.
F Funnel clouds only.
W Includes 7% wind damage.
D Includes duststorm.
** Includes (5) funnels aloft.
S Several deaths from automobile accidents at least partially attributed to snowstorm of 19-20th.
‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

APRIL 1959

The Pecatonica in Wisconsin and the Rock River in Illinois approached record high crests in April. The second major flood of the season occurred in the upper Wabash Basin in Indiana. Major flooding occurred in streams in the Puget Sound Drainage in Washington towards the end of the month. This was the highest water in the Skagit Valley since November 1955 and in the Snohomish Valley since February 1951. Floods elsewhere were mostly light.

ST. LAWRENCE DRAINAGE

Lake Huron.--Minor flooding occurred on the Chippewa River at Mount Pleasant, Mich., on the 3d and 4th and on the Saginaw River at Saginaw, Mich., on the 6th. Moderate flooding occurred from the 3d to the 6th on the Tittabawassee River at Midland, Mich., where flood stage was exceeded by 3.3 feet. The 21.3-foot stage was the highest crest at this point since March 28, 1950, when a stage of 21.6 feet was recorded. Some roads and homes were flooded and about 20 people were evacuated. A building supply company and a lumber yard were flooded up to 3 feet deep.

Lake Erie.--Heavy rains in the immediate Fort Wayne, Ind., area caused local flooding on the Maumee River in that area on the 2d and 3d. Little or no damage resulted from this flooding. Additional heavy rains over the entire Maumee Basin between the 25th and 30th caused minor flooding on the St. Joseph and St. Marys Rivers between the 28th and the first few days of May. At Fort Wayne, Ind., the Maumee River crested nearly 4 feet above flood stage. The water was high enough to necessitate the evacuation of 3 or 4 families in the Waynesdale section of Fort Wayne. Flooding along the Ohio reach of the Maumee was mostly light.

The Sandusky River rose just above flood stage at Upper Sandusky, Ohio, on the 28th and 29th from rainfall averaging 2.1 inches on the 27th and 28th. Little or no damage was reported.

Lake Ontario.--Light flooding occurred in the Lake Ontario Drainage in the Genesee River Basin in New York between the 1st and 7th. Flooding along Canaseraga Creek at Groveland was restricted to uncultivated land and to the highway extending west of the village. Mt. Morris control appears to have alleviated flooding in the area where Oatka Creek joins the Genesee River as the crest of 6.45 feet at Garbutt (flood stage 5 feet) on the 3d passed with no reports of damage. The road extending east from Scottsville is usually inundated with stages a little over 5 feet. Flood waters did not reach buildings or dwellings along Black Creek or the Genesee River at Scio, N. Y.

ATLANTIC SLOPE DRAINAGE

Ice was still solid and abnormally thick on the major rivers in Maine in the beginning of the month. A little thawing had begun, but snow cover still ranged up to 4 feet deep on the eastern slopes of the White Mountains with water content up to 11 inches. Rather heavy rains fell over all of Maine on the night of the 2d, ranging from 0.5 to 2 inches. Minor ice jams occurred on smaller streams. Travel was disrupted principally in Washington County due to road washouts. The only major damage occurred on the 3d at Cherryfield on the Narraguagus River where the main business section adjoins the river. River ice, jamming at the Route 1 bridge, caused water to flood about 4 acres embracing the business section and 10 residences, the water and ice-cakes smashing 3 buildings. Water flooded basements and from 5 inches to 3 feet of the first floors of buildings in this area. Total damage was estimated at $62,100. Streamflow on the major rivers increased sharply following the rains of the 2d, cresting a week later at volumes about 4 times that of April 1. The dry period that followed from the 10th to the 26th and the moderate temperatures allowed the snow cover to diminish steadily and the ice on the major rivers to leave without incident. The only snow remaining at the end of the month was in the deeply wooded mountain regions, where the maximum snow cover was about 8 inches with a water content of 4 inches.

Minor floods occurred in the Merrimack Drainage in New Hampshire between the 3d and 5th from 1.5 inch rains and snowmelt. Flooding was limited to a few widely scattered localities and no damage occurred. Where flooding did occur it was mostly caused by ice jams. The jams broke up quickly with the result that peaks were only a little above flood stage.

Minor flooding occurred on the Neponset River at Norwood, Mass., from the 3d to the 6th. No damage resulted as flooding was confined to lowlands.

Relatively warm temperatures through the Connecticut River Basin prior to the heavy rain of the 2d and 3d melted considerable amounts of snow and contributed to the moderately rapid rise of the Connecticut beginning on the 2d. Small streams and brooks overflowed their banks during the evening of the 2d. Larger rivers rose above bankfull stages by the 3d with minor lowland flooding.

The Chemung and Susquehanna Rivers in New York reached and slightly exceeded flood stage on the 3d and 4th. The rises resulted from unseasonable high temperatures from the 1st to the 3d, causing runoff from snowmelt. Slight showers with average precipitation of 0.25 to 0.50 inch added to the snowmelt, causing rivers to rise and slightly exceed flood stage. No damage was reported.

There were two periods of minor flooding along the Tar, Neuse, and Cape Fear Rivers in eastern North Carolina during the month. These overflows were due to frequent light to moderately heavy rains rather than to any unusually heavy rain period. April rainfall totals were the highest in more than 20 years over most of North Carolina. Many acres of lowland woods and pastures were flooded. No damage was reported and economic losses are believed to have been confined to temporary loss of pasturage.

Minor flooding occurred on the Rocky River at Norwood, N. C., and on the Pee Dee and Saluda Rivers in South Carolina beginning on the 13th. Flooding was brief with two periods of flooding on the Rocky River. Flood damages were negligible.

Light flooding occurred on the Saluda River in the Pelzer, S. C., area from the 12th to the 15th; on the Broad River in the Blair, S. C., area on the 14th; and on the Congaree River in the lowlands below Columbia, S. C., on the 14th and 15th. Flooding was minor and confined mostly to lowland pastures. Damage was light and not preventable.

Minor flooding occurred on the Savannah River at Clyo, Ga., from the 7th to the 9th and on the Ogeechee River at Dover, Ga., from the 6th to the 8th from rainfall averaging 0.75 to 1 inch. No damage resulted.

The Satilla River at Atkinson, Ga., continued

in flood from March 9 to April 17 and was due to heavy rains in March. No damage resulted.

EAST GULF OF MEXICO DRAINAGE

The Apalachicola River continued in flood from March 6 through April 10. This flood was due to excessive rains in March. The moderately heavy rainfall on the 1st and 2d resulted in another crest on the 2d and 3d. This 18.7-foot crest was 1 foot lower than the crest in March. No damages or work stoppage occurred.

Moderate rains between the 18th and 22d caused minor flooding in the upper and lower reaches of the Tombigbee in Mississippi and Alabama. No damage resulted.

Brief periods of excessive rainfall caused minor flooding on the Pearl River during the last decade of the month. Damages were light.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The spring snowmelt rise that began in March in the Upper Mississippi Basin continued into April. Streams were rising slowly in the beginning of the month with secondary crests occurring along tributary streams during the first 7 days of April. As in March, daily temperatures helped to reduce rapid snowmelt with warm days and cool to cold nights. The secondary crests on the Pecatonica and Rock Rivers in Wisconsin and Illinois were higher than in March and approximated the alltime previous high records. Much of the agricultural bottom land throughout the middle and lower Rock River Basin remained water soaked, with many ponds, throughout April. This situation was further aggravated by heavy rains near the end of the month causing great concern over the possibility of planting crops.

The flooding of the northern reaches of the Illinois River towards the end of April was due to heavy rains on the 27th and 28th. No damage was reported.

The flooding of the Mississippi at Keithsburg, Ill., and in the reach from Hannibal to Winfield, Mo., resulted primarily from heavy rains and melting snow late in March. There was very little or no snow along the Mississippi River and its tributaries from its headwaters downstream to Lake City, Minn. This was the second year in a row deficient winter precipitation resulted in no spring rise for the Mississippi River in that area. All flooding along the main stem occurred in the flood plain outside the levees, and no significant damages were reported.

Missouri Basin.--The flooding on Moniteau Creek at Fayette, Mo., on the 5th and on the Lamine and Petite Saline Rivers in Missouri on the 6th was due to heavy precipitation which began during the afternoon of the 4th in central Missouri. The rainfall ranged from 1 to 2.5 inches. Moderate rain on the 25th and 26th caused flooding on the Grand and Chariton Rivers in Missouri between the 26th and 30th. These streams were near half bankfull stage when these rains began. Flooding was quite extensive along the Grand. Due to the time of the year, crop damage was negligible.

Ohio Basin.--The flooding in the Ohio Basin towards the end of the month was due to heavy rains on the 27th and 28th. The rainfall averaged 2.5 inches in the upper Scioto and 1.6 inches in the lower Scioto in Ohio. Little or no damage resulted from the flooding in the Scioto Basin. In the upper Wabash Basin in Indiana the precipitation averaged more than 3 inches, ranging from 2 to more than 5 inches. As a result of these rains, many residents along the upper Wabash experienced the second major flood of the season. At Wabash, Ind., the Police, Red Cross, and Civil Defense were alerted and some dozen or more families were moved to safety before the river crested almost 10 feet above flood stage late on the 28th. Below Logansport, Ind., the river spread out closing numerous roads, surrounding dwellings, and causing some evacuations in the Delphi-Pittsburgh area. Downstream at Lafayette, the river rose rapidly toward a crest almost as high as that of the great flood of February 1959. On the upper White River moderate flooding occurred from Anderson, Ind., to about Elliston, Ind. A number of homes were surrounded by high water in the Noblesville and Indianapolis, Ind., area. Flood damage was relatively minor due to the higher stages of earlier floods.

Red Basin.--The flooding along the Sulphur River at Hagansport and Naples, Tex., between the 18th and 25th was due to heavy rain on the 17th and 18th. Additional light rains fell from the 19th to the 22d. No damage was reported.

Lower Mississippi Basin.--Light flooding occurred on the St. Francis River at Fisk, Mo., on the 24th from the heavy rains on the 19th and 20th. Resulting damage was negligible.

Minor flooding occurred on the Big Black River at Pickens and Bovina, Miss., between the 20th and the end of the month. This flood was due to rainfall ranging from 2 to 4 inches, most of which fell during the night of the 17th and 18th. Pastures and fields were inundated. Flood damages were agricultural and mostly light to moderate.

WEST GULF OF MEXICO DRAINAGE

General heavy rains over the Calcasieu Basin in Louisiana on the 8th, 9th, and 11th caused sharp rises over the upper and middle portions of the Calcasieu with light flooding of lowlands between the 13th and 25th. The rainfall on the 8th and 9th ranged from 2 to over 4 inches and on the 11th from 0.75 to 1.6 inches. No damages were reported.

The flooding on the Sabine River at Mineola, Tex., from the 12th to the 15th was due to heavy rainfall on the 9th. Additional heavy rain on the 17th and 18th caused light flooding in the upper and lower portions between the 19th and the end of the month. Although the flooding was slightly greater than in previous months this year, little or no damage occurred this month.

Heavy rains in the Trinity River Basin on the 8th, 11th, and 12th caused light flooding at Liberty, Tex., between the 12th and 24th. Additional heavy rains on the 17th and 18th produced a double crest at Long Lake and Liberty, Texas.

Moderate to heavy rains from the 7th to 11th caused light flooding on the Navidad and Lavaca Rivers in Texas between the 10th and 15th. Heavy rains over the middle and lower portions of the Guadalupe from the 11th to the 13th caused minor flooding at Guadalupe, Tex.

PACIFIC SLOPE DRAINAGE

Heavy rains on the 1st caused moderate flooding of the Snohomish and minor flooding on the Snoqualmie and Stillaguamish Rivers in Washington between the 1st and 4th. Rainfall during the last 5 days of April ranging from 4 to 10 inches plus

heavy snowmelt at the higher elevations caused major flooding along these rivers and the Skagit on the 29th and 30th. Some moderate flooding occurred near the mouth of the Nooksack in Washington on the 30th due to tidal effects and excessive runoff. This was the highest water experienced in the Skagit Valley since November 1955 and the highest in the Snohomish Valley since February 1951. A few families were evacuated from the area just southeast of Snohomish along the old Snohomish-Monroe highway and from the lower Nooksack River near Marietta, Wash., on the 30th. Many livestock were driven to higher ground but none were lost. Many thousand acres of low pasture- and cropland were inundated along these rivers. Property damage is believed to have been light.

FLOOD STAGE DATA

(All dates in April unless otherwise specified)

APRIL 1959

River and station	Flood stage	Above flood stages -dates From–	Above flood stages -dates To–	Crest* Stage	Crest* Date
	Ft.			Ft.	
ST. LAWRENCE DRAINAGE					
Lake Huron					
Chippewa: Mount Pleasant, Mich.	13	3	4	13.3	3
Tittabawassee: Midland, Mich.	18	3	6	21.3	4
Saginaw: Saginaw, Mich.	19	6	6	19.0	6
Lake Erie					
St. Marys: Decatur, Ind.	13	28	May 3	20.4	29
St. Joseph: Montpelier, Ohio	10	28	May [illegible]	11.5	30
Maumee: Fort Wayne, Ind.	15	2 29	3 May 2	16.2 18.9	2 29
Defiance, Ohio	10	30	May 1	11.2	30
Napoleon, Ohio	10	30	30	10.4	30
Sandusky: Upper Sandusky, Ohio	13	28	29	13.3	28
Lake Ontario					
Canaseraga Creek: Groveland, N. Y.	11	[illegible] 6	2 6	11.9 11.2	2 6
Oatka Creek: Garbutt, N. Y.	5	1 6	4 7	6.45 5.35	3 7
Black Creek: Churchville, N. Y.	5	2	4	6.25	3
Genesee: Scio, N. Y.	8	2	2	8.2	2
ATLANTIC SLOPE DRAINAGE					
Pemigewassett: Plymouth, N. H.	11	3	5	12.8	3
Contoocook: Penacook, N. H.	7	5	5	7.2	5
Suncook: North Chichester, N. H.	10	3	4	11.0	3
Merrimack: Concord, N. H.	12	5	5	12.1	5
Neponset: Norwood, Mass.	9	3	6	9.7	4
Connecticut: Montague City, Mass.	28	4	5	30.7	4
Hartford, Conn.	16	4	14	20.7 18.4	[illegible] 12
Chemung: Chemung, N. Y.	12	3	3	13.5	3
Susquehanna: Bainbridge, N. Y.	13	3	4	E13.3	3
Conklin, N. Y.	11	3	[illegible]	12.25	[illegible]
Tar: Tarboro, N. C.	19	17 23	19 26	20.9 #20.2	18 25
Greenville, N. C.	13	16	28	15.0	26
Neuse: Neuse, N. C.	14	13 20	16 21	#16.7 #15.0	15 21
Smithfield, N. C.	13	13 20	18 26	18.5 19.0	15 22
Goldsboro, N. C.	14	13	May 1	#21.1	26
Kinston, N. C.	14	16	May 3	17.6	30
Cape Fear: Fayetteville, N. C.	35	13 21	15 24	#39.6 #37.7	14 23
Lock No. 2, Elizabethtown, N. C.	20	13	27	30.2	15
Rocky: Norwood, N. C.	16	13 20	14 20	20.6 18.0	13 20
Pee Dee: Cheraw, S. C.	30	13	14	31.9	14
Peedee, S. C.	19	14	30	21.0 21.6	18 26
Saluda: Pelzer, S. C.	6	13	15	8.5	14
Broad: Blair, S. C.	14	14	14	15.0	14
Edisto: Givhans Ferry, S. C.	10	7	9	10.1	[illegible]
Savannah: Clyo, Ga.	11	7	[illegible]	11.2	7-8
Ogeechee: Dover, Ga.	7	[illegible]	8	7.3	7
Satilla: Atkinson, Ga.	13	Mar. 9	17	19.1	Mar. 13
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.	15	Mar. 6	10	19.7 18.7	Mar. 9 2, 3
Tombigbee: Macon, Miss.	20	20	26	21.1	21
Tibbie, Miss.	23	21	24	24.7	23
Lock No. 3, Whitfield, Ala.	33	22	28	38.8	24
Pearl: Jackson, Miss.	18	21	30	22.6	29

River and station	Flood stage	Above flood stages -dates From–	Above flood stages -dates To–	Crest* Stage	Crest* Date
EAST GULF OF MEXICO DRAINAGE (Cont'd.)	Ft.			Ft.	
Pearl (Cont'd.): Monticello, Miss.	19	22	24	19.2	23
Bogalusa, La.	15	20	30	18.1	26
Pearl River, La.	12	24	30	13.1	28
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Root: Houston, Minn.	15	1	1	15.0	1
Hoka, Minn.	47	Mar. 30	4	49.1	1
Upper Iowa: Dorchester, Iowa	14	Mar. 31	3	15.9	1
Kickapoo: Steuben, Wis.	8	Mar. 25	11	10.9	3
Turkey: Garber, Iowa	11	Mar. 23	6	19.9	1
Wapsipinicon: DeWitt (nr.), Iowa	10	Mar. 30	9	11.2	2
East Branch Pecatonica: Blanchardville, Wis.	11	Mar. 30	3	15.3	1
Pecatonica: Darlington, Wis.	11	Mar. 20	3	14.2 17.2	Mar. 26 1
Martintown, Wis.	11	Mar. 19	8	19.6 20.2	Mar. 28 3
Freeport, Ill.	13	Mar. 21	7	16.7 16.9	Mar. 29 5
Rock: Rockton, Ill.	10	Mar. 26	15	14.1	[illegible]
Joslin, Ill.	14	5	11	14.4	7
Iowa: Wapello, Iowa	10	Mar. 27	6	10.7 11.3	Mar. 31 3
Illinois: Morris, Ill.	13	28	1/	16.8	29
LaSalle, Ill.	20	28	1/	E24.1	29
Mississippi: Keithsburg, Ill.	12	2	9	13.2	5
Hannibal, Mo.	16	4	8	16.6	6
Louisiana, Mo.	15	5	8	15.15	8
Dam 24, Clarksville, Mo.	23	Mar. 29	12	25.3	7
Dam 25, Winfield, Mo.	23	Mar. 29	13	25.4	8
Missouri Basin					
Grand: Pattonsburg, Mo.	25	Mar. 26 20	Mar. 27 21	26.45 27.3	Mar. 27 21
Gallatin, Mo.	21	21	21	22.1	21
Chillicothe, Mo.	21	Mar. 26 20	Mar. 28 22	25.6 28.35	Mar. 27 21
Sumner, Mo.	26	Mar. 26 20	Mar. 30 24	31.1 31.35	Mar. 28 22
Brunswick, Mo.	12	24	24	13.0	24
Chariton: Novinger, Mo.	20	Mar. 27	Mar. 27	20.8	Mar. 27
Lamine: Clifton City, Mo.	19	Mar. 6	Mar. 6	22.6	Mar. 6
Petite Saline: Boonville, Mo.	16	Mar. 6	Mar. 6	20.25	Mar. 6
Moniteau Creek: Fayette, Mo.	16	Mar. 5	Mar. 5	18.5	Mar. 5
Ohio Basin					
Scioto: LaRue, Ohio	11	28	30	#12.7	28
Prospect, Ohio	12	30	30	13.0	30
White: Anderson, Ind.	10	28	30	11.9	29
Noblesville, Ind.	14	29	29	14.1	29
Spencer, Ind.	14	30	1/		
Edwardsport, Ind.	15	6	6	15.4	6
Skillet Fork: Wayne City, Ill.	15	20	21	16.4	20
Wabash: Bluffton, Ind.	10	28	1/	13.9	29
Wabash, Ind.	12	28	4 1/	17.55 21.9	2 28
Peru, Ind.	20	29	29	20.8	29
Delphi, Ind.	A 16			23.75	29
Lafayette, Ind.	11	3 28	6 1/	16.7	4
Covington, Ind.	16	4 28	7 1/	19.55	5

FLOOD STAGE DATA

(All dates in April unless otherwise specified)

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.) Ohio Basin (Cont'd.)	Ft.			Ft.	
Wabash (Cont'd.):					
Montezuma, Ind.	14	4	8	17.2	6
		22	22	14.2	22
		28	1/		
Clinton, Ind.	18	28	1/		
Terre Haute, Ind.	14	6	8	14.9	7
		14	1/		
Red Basin					
Sulphur: Hagansport, Tex.	38	18	19	41.05	18
Naples, Tex.	22	22	25	23.6	24
Lower Mississippi Basin					
St. Francis: Fisk, Mo.	20	24	24	20.0	24
Big Black: Pickens, Miss.	16	20	30	18.5	23
Bovina, Miss.	28	27	30	28.5	28
WEST GULF OF MEXICO DRAINAGE					
Calcasieu: Hineston, La.	12	13	16	12.5	14
		19	25	13.3	22, 23
Kinder, La.	16	14	15	18.0	15
Sabine: Quitman, Tex.	16	20	22	17.5	20
Mineola, Tex.	14	12	15	14.85	13
		19	27	17.6	22
WEST GULF OF MEXICO DRAINAGE (Cont'd.)	Ft.			Ft.	
Sabine (Cont'd.):					
Gladewater, Tex.	26	23	1/	31.05	28
Bon Wier, Tex.	17	21	24	17.45	22
Deweyville, Tex.	14	23	30	14.45	24, 25
Trinity: Liberty, Tex.	24	12	24	26.6	20
Navidad: Ganado, Tex.	21	10	15	28.4	14
Lavaca: Edna, Tex	21	12	13	23.5	13
Guadalupe: Victoria, Tex.	21	15	16	22.2	15
PACIFIC SLOPE DRAINAGE					
Snoqualmie: Carnation, Wash	51	1	3	54.5	2
		29	30	55.2	30
Snohomish: Snohomish, Wash.	23	1	4	27.5	2
		29	30	28.3	29
Stillaquamish: Arlington, Wash.	16	2	2	16.0	2
Skagit: Concrete, Wash.	26	29	May 1	32.4	30
Mt. Vernon, Wash.	21	30	May 1	24.2	30

* Provisional
E Estimated
1/ Continued at end of month
Highest stage observed
A Tentative flood stage

RAWINSONDE DATA

Average monthly values

APRIL 1959

ALBANY, N. Y. (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	86	4.6	79	234	1.5
1,000	30	126			285	1.5
950	30	543	4.5	64	276	4.4
900	30	985	3.0	62	281	10.4
850	30	1,446	1.3	59	284	16.7
800	30	1,933	- .7	60	289	20.7
750	30	2,445	- 2.7	56	276	23.5
700	30	2,992	- 5.2	51	266	28.1
650	30	3,567	- 7.7	46	267	31.0
600	30	4,191	-11.2	42	264	32.6
550	30	4,849	-15.2	43	268	35.9
500	30	5,569	-19.7	43	271	40.9
450	30	6,338	-25.1	44	275	44.1
400	30	7,189	-31.3	42	275	47.6
350	30	8,120	-38.8		271	52.4
300	30	9,160	-46.8		275	61.5
250	30	10,350	-53.4		273	68.0
200	30	11,773	-56.6		271	68.1
175	30	12,621	-55.8		269	63.3
150	30	13,606	-54.5		267	54.5
125	30	14,773	-55.0		265	49.7
100	30	16,194	-56.4		265	37.6
80	30	17,613	-55.4		269	23.7
60	29	19,448	-55.3		265	11.6
50	29	20,612	-55.0		308	1.7
40	29	22,042	-54.1		64	4.2
30	28	23,894	-53.2		82	12.8
25	27	25,073	-51.9		92	12.4
20	23	26,521	-50.4		103	9.1
15	20	28,396	-48.2		89	9.7
10	6	31,110	-44.1			

ALBUQUERQUE, N. MEX. (838 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,619	8.1	49	127	3.6
1,000	30	128				
950	30	557				
900	30	1,016				
850	30	1,497				
800	30	2,001	8.5	40	243	3.6
750	30	2,530	5.5	41	277	9.5
700	30	3,093	1.9	41	285	15.1
650	30	3,683	- 2.5	42	286	17.8
600	30	4,317	- 6.9	40	280	19.2
550	30	4,984	-11.3	31	273	22.5
500	30	5,716	-16.5		271	28.5
450	30	6,492	-22.3		277	32.2
400	30	7,356	-28.3		278	34.0
350	30	8,300	-35.5		274	34.0
300	30	9,355	-43.6		271	36.1
250	30	10,556	-52.7			
200	30	11,972	-59.8			
175	30	12,803	-61.0			
150	30	13,761	-60.7			
125	29	14,895	-62.6			
100	28	16,267	-64.5			
80	26	17,628	-64.0			
60	24	19,404	-60.9			
50	23	20,543	-59.0			
40	22	21,951	-57.6			
30	22	23,778	-55.4			
25	18	24,936	-54.0			
20	15	26,364	-52.9			
15	10	28,255	-49.7			
10						

AMARILLO, TEX. (892 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,095	6.8	64	264	2.5
1,000	30	137				
950	30	566				
900	30	1,019				
850	30	1,489	9.6	49	273	8.1
800	30	1,991	7.9	42	299	11.8
750	30	2,515	5.2	41	287	15.9
700	30	3,081	1.7	44	282	16.9
650	30	3,665	- 2.2	43	278	20.4
600	30	4,305	- 6.7	41	274	24.4
550	30	4,969	-11.5	38	275	29.1
500	30	5,703	-16.5	34	277	30.5
450	30	6,478	-22.1		277	34.1
400	30	7,343	-28.4		273	38.0
350	30	8,288	-35.1		272	41.5
300	30	9,345	-43.1		271	48.9
250	30	10,549	-52.2		275	56.1
200	28	11,960	-58.4		271	61.3
175	28	12,798	-59.3		272	57.3
150	28	13,763	-60.0		272	53.0
125	27	14,900	-61.7		273	46.4
100	27	16,277	-63.2		271	37.1
80	26	17,650	-63.0		272	26.4
60	26	19,433	-60.1		271	9.7
50	26	20,574	-58.1		265	6.8
40	21	21,993	-56.5		261	3.8
30	20	23,823	-54.5		287	2.1
25	20	24,995	-52.9		318	2.1
20	16	26,431	-50.8		341	3.1
15	12	28,323	-47.7			
10	5	31,078	-42.0			

ANCHORAGE, ALASKA (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	30	- 1.3	78	332	0.7
1,000	30	69			32	1.1
950	30	475	- 1.2	65	79	1.9
900	30	908	- 3.2	66	128	5.0
850	30	1,358	- 5.8	68	146	7.5
800	30	1,831	- 8.5	69	159	8.7
750	30	2,326	-11.5	66	180	9.3
700	30	2,855	-14.0	60	189	10.2
650	30	3,410	-17.3	61	198	10.6
600	30	4,010	-21.0	62	219	11.2
550	30	4,643	-24.9	58	228	13.2
500	30	5,334	-29.7	55	208	12.4
450	30	6,072	-35.0	49	209	12.4
400	30	6,890	-40.4		235	9.7
350	30	7,788	-46.5		190	8.7
300	30	8,799	-51.7		189	6.8
250	30	9,974	-53.4		226	8.1
200	30	11,425	-49.5		242	7.9
175	30	12,301	-49.0		259	12.6
150	29	13,313	-48.6		258	11.2
125	29	14,510	-49.3		250	9.5
100	29	15,970	-49.6		241	8.9
80	29	17,432	-49.9		249	6.6
60	28	19,317	-50.3		268	4.6
50	28	20,507	-50.5		259	1.9
40	28	21,963	-50.4		78	.9
30	23	23,847	-50.7		86	5.6
25	21	25,033	-50.9		89	6.6
20	14	26,481	-50.6			
15	9	28,364	-50.3			
10						

ANNETTE, ALASKA (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	37	4.1	81	105	1.5
1,000	30	125			159	.7
950	30	541	2.8	71	195	2.7
900	30	979	.0	71	207	3.6
850	30	1,435	- 2.5	68	216	6.0
800	30	1,914	- 5.4	66	224	6.9
750	30	2,416	- 7.8	61	239	7.1
700	30	2,953	-10.8	60	248	9.1
650	30	3,515	-14.0	59	251	13.0
600	30	4,124	-17.5	56	261	15.1
550	30	4,761	-21.7	53	262	17.6
500	30	5,466	-26.8	48	254	18.0
450	30	6,210	-32.0	46	253	22.7
400	30	7,042	-37.7		250	19.2
350	30	7,951	-43.5		252	21.1
300	30	8,974	-49.8		253	20.2
250	30	10,154	-54.0		267	23.8
200	30	11,589	-52.9		273	30.5
175	29	12,460	-52.0			
150	29	13,456	-52.9			
125	29	14,633	-53.1			
100	29	16,070	-53.4			
80	29	17,505	-53.7			
60	29	19,359	-53.2			
50	29	20,534	-53.5			
40	28	21,970	-53.3			
30	25	23,830	-53.1			
25	19	25,007	-53.3			
20	14	26,458	-53.0			
15						
10						

ATHENS, GA. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	246	11.6	87	238	2.5
1,000	30	151				
950	30	585	14.7	60	266	8.7
900	30	1,039	12.4	56	270	11.8
850	30	1,516	9.6	52	265	13.0
800	30	2,017	6.9	45	263	13.0
750	30	2,545	4.1	38	267	15.1
700	30	3,103	1.2	33	267	18.4
650	30	3,692	- 2.8	33	268	20.5
600	30	4,326	- 6.6		270	23.3
550	30	4,996	-11.2		279	23.5
500	30	5,725	-16.0	39	279	25.0
450	30	6,508	-21.2	37	281	30.3
400	30	7,371	-26.9		277	37.8
350	30	8,321	-33.8		275	39.6
300	30	9,383	-42.0		279	47.2
250	30	10,595	-50.6		283	55.5
200	30	12,023	-58.2		274	63.7
175	30	12,860	-59.3		279	57.5
150	30	13,822	-60 8			
125	30	14,953	-62.4			
100	28	16,327	-63.4			
80	27	17,694	-64.1			
60	26	19,467	-61.1			
50	25	20,601	-60.0			
40	25	21,998	-58.7			
30	25	23,818	-56.0			
25	25	24,982	-54.5			
20	17	26,424	-52.4			
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BARROW, ALASKA (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	8	-21.1	66	53	2.5
1,000	30	145	-17.7	74	78	4.8
950	30	532	-15.2	73	43	4.4
900	30	942	-13.3	66	46	3.3
850	30	1,377	-13.9	60	85	2.7
800	30	1,836	-15.6	60	115	1.5
750	30	2,318	-17.5	58	118	1.7
700	30	2,837	-20.0	55	158	.5
650	30	3,378	-22.8	54	259	2.1
600	30	3,967	-26.3	52	303	2.5
550	30	4,586	-30.2	51	291	4.0
500	30	5,264	-34.8	48	281	5.8
450	30	5,985	-39.5		307	7.9
400	30	6,790	-44.6		282	7.1
350	30	7,675	-49.4		269	8.7
300	30	8,676	-52.9		269	9.1
250	30	9,852	-52.4		259	10.1
200	30	11,309	-48.8		257	8.9
175	29	12,189	-47.9		252	8.7
150	29	13,207	-47.5		241	10.4
125	29	14,414	-47.0		239	8.3
100	29	15,895	-46.5		231	8.5
80	28	17,377	-46.1		222	8.3
60	28	19,287	-46.7		212	6.4
50	28	20,495	-47.1		219	4.2
40	28	21,970	-47.6		160	2.9
30	25	23,864	-47.8		144	5.4
25	20	25,054	-47.7		144	5.6
20	12	26,499	-47.2			
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BARTER IS., ALASKA (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	-21.6	35	268	4.0
1,000	30	137	-18.7	55	277	5.2
950	30	524	-14.1	61	272	6.9
900	30	935	-12.8	56	275	6.8
850	30	1,371	-13.7	56	274	5.6
800	30	1,830	-15.4	55	277	5.2
750	30	2,316	-17.5	55	284	4.4
700	30	2,831	-19.9	51	270	5.0
650	30	3,378	-23.1	53	262	5.2
600	30	3,961	-26.5	50	266	5.2
550	30	4,582	-30.3	47	264	6.4
500	30	5,259	-34.7	47	259	7.9
450	30	5,984	-39.5		266	9.5
400	30	6,787	-44.4		265	11.2
350	30	7,672	-49.4		269	12.0
300	29	8,676	-52.6		259	13.4
250	29	9,856	-51.1		256	15.9
200	28	11,320	-48.1		260	16.1
175	27	12,207	-47.2		261	14.7
150	27	13,227	-47.2		261	12.8
125	27	14,434	-47.2		266	11.4
100	27	15,914	-46.3		266	7.9
80	27	17,399	-46.3		251	6.9
60	27	19,308	-47.1		269	4.2
50	27	20,515	-47.3		260	2.5
40	26	21,987	-47.6		114	.9
30	26	23,888	-47.8		89	4.2
25	24	25,086	-47.8		103	5.0
20	17	26,565	-47.2		87	7.7
15	9	28,470	-47.5			
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BETHEL, ALASKA (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	4	- 8.8	79	2	3.6
1,000	29	78			29	3.1
950	29	484	- 6.2	70	53	3.3
900	29	903	- 6.7	66	86	1.3
850	29	1,348	- 8.3	62	140	.9
800	29	1,817	-10.3	60	193	2.5
750	29	2,315	-12.7	59	211	4.4
700	29	2,837	-15.5	54	246	4.0
650	29	3,393	-18.7	50	243	5.2
600	29	3,986	-22.1	49	232	7.1
550	29	4,621	-25.9	47	225	5.4
500	29	5,306	-30.4	46	245	4.4
450	29	6,048	-35.5		229	9.5
400	29	6,860	-40.7		257	8.1
350	29	7,759	-46.0		280	9.9
300	29	8,773	-50.9		295	13.7
250	29	9,954	-52.1		286	20.7
200	29	11,410	-49.5		257	14.3
175	29	12,286	-48.7			
150	29	13,300	-48.9			
125	29	14,497	-49.2			
100	28	15,965	-49.4			
80	26	17,436	-49.2			
60	26	19,322	-49.8			
50	25	20,509	-50.1			
40	25	21,967	-50.6			
30	25	23,840	-51.0			
25	21	25,028	-51.3			
20	8	26,495	-51.7			
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BISMARCK, N. DAK. (956 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	505	0.5	70	306	1.1
1,000	30	135				
950	30	550			10	2.7
900	30	987	2.1	53	286	5.6
850	30	1,447	.4	49	300	10.1
800	30	1,931	- 2.1	46	301	13.6
750	30	2,436	- 4.9	44	294	15.3
700	30	2,981	- 8.1	46	288	18.4
650	30	3,542	-11.7	47	287	20.5
600	30	4,161	-15.5	46	285	20.7
550	30	4,806	-19.8	46	289	22.5
500	30	5,514	-24.4	45	286	27.2
450	30	6,265	-29.6	42	279	26.0
400	30	7,104	-35.9	42	279	19.8
350	30	8,019	-42.5		268	15.1
300	30	9,044	-49.9		254	25.0
250	30	10,220	-55.7		270	24.2
200	29	11,640	-55.4			
175	29	12,496	-53.9			
150	29	13,488	-53.4			
125	29	14,659	-54.3			
100	29	16,088	-55.3			
80	28	17,511	-54.7			
60	28	19,354	-54.3			
50	28	20,522	-54.2			
40	28	21,954	-53.5			
30	27	23,809	-52.8			
25	26	24,988	-52.1			
20	25	26,436	-51.5			
15	20	28,299	-51.2			
10	[illegible]	30,902	-49.6			

BOISE, IDAHO (916 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	868	5.1	62	167	2.9
1,000	30	144				
950	30	567				
900	30	1,014	7.9	50	236	.9
850	30	1,485	7.0	15	287	3.6
800	30	1,981	3.7	47	284	6.8
750	30	2,498	- .2	52	278	11.6
700	30	3,051	- 4.0	54	282	15.3
650	30	3,627	- 7.7	50	278	16.9
600	30	4,251	-11.8	47	278	19.0
550	30	4,908	-16.1	45	279	21.5
500	30	5,625	-21.0	43	280	22.1
450	30	6,394	-26.6	39	292	22.5
400	30	7,237	-32.7	36	301	23.8
350	30	8,164	-39.9		313	23.7
300	30	9,199	-47.7		328	22.1
250	30	10,384	-54.9			
200	30	11,798	-58.7			
175	30	12,637	-57.9			
150	30	13,610	-57.6			
125	30	14,760	-58.5			
100	30	16,162	-59.1			
80	30	17,563	-58.5			
60	30	19,374	-57.4			
50	30	20,526	-57.6			
40	30	21,937	-56.7			
30	28	23,763	-55.7			
25	27	24,926	-54.9			
20	24	26,358	-53.7			
15	17	28,232	-51.7			
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BROWNSVILLE, TEX. (1014 MB)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	7	18.4	92	153	3.1
1,000	30	123	18.6	88	114	4.2
950	30	561	17.8	79	149	10.4
900	30	1,027	17.2	66	161	10.2
850	30	1,514	15.8	57	178	7.9
800	30	2,028	13.8	46	243	4.6
750	30	2,564	11.1	45	255	5.8
700	30	3,142	7.5	44	290	7.3
650	30	3,740	3.6	42	282	8.9
600	30	4,392	- .9	39	278	12.4
550	30	5,071	- 5.7		275	16.7
500	30	5,822	-10.8		270	19.6
450	30	6,617	-16.2		265	22.5
400	30	7,502	-22.3		268	26.8
350	30	8,469	-29.0		265	30.3
300	30	9,553	-37.3		280	34.7
250	30	10,787	-46.4		282	35.7
200	30	12,237	-56.3			
175	30	13,075	-61.4			
150	30	14,021	-65.6			
125	30	15,122	-68.2			
100	30	16,451	-71.2			
80	30	17,766	-72.3			
60	30	19,483	-65.4			
50	30	20,602	-61.6			
40	26	21,992	-59.0			
30	23	23,810	-55.4			
25	22	24,980	-53.2			
20	19	26,420	-50.8			
15	14	28,314	-48.0			
10	9	31,003	-42.7			

BUFFALO, N. Y. (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	182	4.0	78	217	1.7
1,000	29	121				
950	29	541	4.8	65	259	5.8
900	29	979	3.3	60	269	10.2
850	29	1,441	1.0	60	273	13.9
800	29	1,927	- 1.1	58	273	17.0
750	29	2,440	- 3.1	56	271	22.9
700	29	2,984	- 5.9	56	273	25.2
650	29	3,563	- 8.6	53	269	30.3
600	29	4,180	-12.1	53	271	31.8
550	28	4,839	-16.4	53	270	35.1
500	29	5,551	-20.8	50	268	39.4
450	29	6,317	-26.3	48	268	41.3
400	29	7,165	-32.1	47	268	46.0
350	29	8,094	-38.9		275	50.3
300	29	9,136	-46.3		274	55.1
250	29	10,326	-53.6		275	57.7
200	29	11,750	-56.2		271	54.9
175	29	12,601	-54.9		274	49.9
150	29	13,591	-53.5		271	42.5
125	29	14,762	-54.3		270	34.9
100	28	16,189	-55.0		272	28.1
80	27	17,610	-55.1		271	21.9
60	25	19,450	-54.1		266	13.6
50	25	20,620	-54.1		263	7.5
40	21	22,054	-53.9		224	1.9
30	12	23,898	-52.5			
25	[illegible]	25,085	-51.9			
20						
15						
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BURRWOOD, LA. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	3	17.9	89	92	0.5
1,000	29	148	18.5	81	132	2.5
950	29	587	16.2	76	157	3.8
900	29	1,046	13.8	70	198	5.2
850	29	1,528	12.6	52	222	7.7
800	29	2,036	11.2	38	246	8.7
750	29	2,572	8.9	36	260	10.4
700	29	3,141	5.4	36	263	12.2
650	29	3,735	1.3	37	272	15.1
600	29	4,381	- 3.0	35	268	17.4
550	29	5,058	- 7.4		269	22.3
500	29	5,802	-12.1		268	26.6
450	29	6,594	-17.6	37	269	33.0
400	29	7,473	-23.5	37	270	38.4
350	29	8,436	-30.4	40	271	42.9
300	29	9,515	-38.4		271	44.8
250	29	10,745	-48.0		274	47.9
200	29	12,183	-57.8			
175	29	13,018	-61.5			
150	29	13,969	-64.0			
125	29	15,077	-67.3			
100	29	16,416	-69.5			
80	29	17,745	-69.0			
60	29	19,483	-64.5			
50	28	20,604	-62.0			
40	27	21,997	-58.9			
30	26	23,817	-55.3			
25	24	24,981	-53.0			
20	22	26,420	-50.0			
15	15	28,325	-45.7			
10	7	31,097	-38.7			

CAPE HATTERAS, N. C. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	4	13.9	85	299	3.1
1,000	30	138	14.8	74	278	6.0
950	30	567	13.0	66	283	8.3
900	30	1,024	10.8	62	275	9.9
850	30	1,499	8.3	59	271	12.6
800	30	1,998	5.8	53	267	15.3
750	30	2,525	3.3	48	263	18.4
700	30	3,081	.3	42	262	20.4
650	30	3,667	- 2.8	40	261	22.9
600	30	4,303	- 6.4		259	25.0
550	30	4,969	-10.5		259	28.3
500	30	5,707	-15.3		257	32.4
450	30	6,487	-20.8		255	33.4
400	30	7,356	-27.0		257	38.0
350	30	8,306	-33.9		262	42.9
300	30	9,368	-42.0		264	47.6
250	30	10,578	-50.8		264	54.7
200	30	12,003	-58.5		269	62.5
175	30	12,841	-59.6		271	60.6
150	30	13,805	-59.7		270	56.1
125	30	14,944	-61.1		268	44.6
100	30	16,326	-61.9		265	35.9
80	30	17,707	-61.0		267	23.3
60	30	19,500	-59.5		271	11.0
50	30	20,643	-58.2		281	6.0
40	30	22,051	-56.2		358	2.7
30	27	23,895	-52.8		296	.9
25	16	25,077	-51.1		335	.9
20	7	26,559	-49.5			
15	5	28,490	-45.0			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

APRIL 1959

CARIBOU, ME. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	191	0 2	80	239	1.9
1,000--	30	117				
950----	30	529	- .7	67	246	4.8
900----	30	960	- 1.6	65	267	7.7
850----	30	1,413	- 3.7	63	265	10.4
800----	30	1,890	- 5.5	59	258	12.2
750----	30	2,396	- 7.5	56	262	17.0
700----	30	2,930	- 9.8	51	264	22.7
650----	30	3,499	-12.5	43	265	25.8
600----	30	4,107	-15.7	40	264	29.1
550----	30	4,756	-19.2		267	32.8
500----	30	5,462	-23.7	38	267	40.2
450----	30	6,223	-28.8		264	45.8
400----	30	7,059	-34.6		265	50.9
350----	30	7,980	-40.9		266	57.9
300----	30	9,014	-47.4		270	62.7
250----	30	10,204	-52.8		268	61.5
200----	30	11,640	-52.9		268	56.9
175----	30	12,505	-51.6		264	45.8
150----	30	13,506	-51.6		267	37.3
125----	30	14,689	-51.7		264	29.9
100----	29	16,136	-52.3		258	26.2
80-----	27	17,580	-52.2		261	19.8
60-----	24	19,441	-52.1		245	11.8
50-----	23	20,621	-52.2		232	5.6
40-----	22	22,064	-51.5		113	2.7
30-----	22	23,938	-50.6		113	7.9
25-----	21	25,126	-50.2		100	9.9
20-----	20	26,591	-48.8		88	8.7
15-----	15	28,480	-48.2		85	10.2
10-----	6	31,203	-44.1			

CHARLESTON, S. C (1017 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	13	13.6	96	229	1.1
1,000--	29	154	16.1	80	233	5.6
950----	29	582	14.8	66	251	10.2
900----	29	1,047	12.6	62	263	11.4
850----	29	1,525	10.0	57	265	11.8
800----	29	2,028	7.4	52	265	13.7
750----	29	2,552	4.5	44	262	14.9
700----	29	3,117	1.7	34	266	17.4
650----	29	3,706	- 2.0		270	21.7
600----	29	4,344	- 5.7		267	26.0
550----	29	5,014	- 9.6		264	28.1
500----	29	5,753	-14.3		262	30.6
450----	29	6,537	-19.8		263	36.5
400----	29	7,411	-25.6		266	39.4
350----	29	8,366	-32.4		266	42.7
300----	29	9,436	-40.6		266	50.9
250----	29	10,654	-49.5		267	61.9
200----	29	12,086	-58.0		271	65.8
175----	29	12,924	-59.4		273	66.2
150----	29	13,887	-61.0		271	57.9
125----	29	15,015	-63.1		270	47.9
100----	29	16,385	-64.1		267	38.0
80-----	29	17,751	-63.6		272	24.0
60-----	28	19,528	-61.1		279	12.8
50-----	28	20,665	-59.8		301	5.6
40-----	26	22,068	-57.4		10	2.3
30-----	25	23,904	-54.1		24	1.1
25-----	24	25,074	-52.3		73	.9
20-----	21	26,524	-50.2		326	2.7
15-----	21	28,416	-47.2		287	8.5
10-----	6	31,127	-42.7			

COLD BAY, ALASKA (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	27	- 1.5	90	273	5.6
1,000--	30	82			292	6.0
950----	30	489	- 3.6	84	287	10.6
900----	30	916	- 5.5	81	310	11.2
850----	30	1,364	- 6.8	75	289	12.0
800----	30	1,836	- 8.9	70	291	12.8
750----	30	2,331	-11.0	62	278	13.4
700----	30	2,861	-13.4	54	266	15.7
650----	30	3,418	-16.4	50	275	16.7
600----	30	4,020	-20.1	[illegible]	[illegible]	19.0
550----	30	4,653	-24.2	47	[illegible]	23.1
500----	30	5,349	-28.3	[illegible]	243	25.0
450----	30	6,091	-33.0	[illegible]	256	24.8
400----	30	6,918	-38.7		238	21.1
350----	30	7,824	-44.1		270	22.3
300----	30	8,845	-49.4			
250----	30	10,032	-51.8			
200----	30	11,477	-51.4			
175----	28	12,348	-50.6			
150----	28	13,353	-50.6			
125----	27	14,537	-51.2			
100----	27	15,984	-52.2			
80-----	26	17,432	-52.1		281	8.3
60-----	25	19,300	-52.2		338	2.5
50-----	24	20,475	-52.3		119	3.4
40-----	23	21,919	-52.4			
30-----	21	23,775	-52.8			
25-----	17	24,947	-53.0			
20-----	9	26,390	-52.0			
15-----						
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COLUMBIA, MO. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	238	8.0	78	141	0.0
1,000--	30	131				
950----	30	555	8.9	63	234	6.6
900----	30	1,003	7.4	62	268	12.6
850----	30	1,472	5.1	61	285	12.8
800----	30	1,966	3.2	55	284	13.6
750----	30	2,486	.9	47	275	16.3
700----	30	3,039	- 2.1	44	275	18.8
650----	30	3,619	- 5.6	40	275	21.3
600----	30	4,248	- 9.8	42	275	26.2
550----	30	4,907	-14.4	43	274	29.3
500----	30	5,630	-19.3	40	270	33.6
450----	30	6,399	-24.7		268	35.1
400----	30	7,254	-30.7		265	37.6
350----	30	8,191	-37.0		266	41.3
300----	30	9,241	-44.6		264	46.6
250----	30	10,440	-52.3		260	52.2
200----	30	11,863	-57.8		264	59.8
175----	30	12,706	-57.3		270	56.9
150----	30	13,682	-56.9		270	50.9
125----	30	14,837	-57.1		269	39.6
100----	30	16,246	-58.6		270	32.6
80-----	30	17,651	-58.1		266	22.1
60-----	30	19,469	-56.9		265	12.0
50-----	30	20,626	-56.2		267	6.4
40-----	30	22,048	-55.1		291	2.5
30-----	28	23,893	-53.5		348	1.7
25-----	25	25,076	-52.0		84	1.3
20-----	20	26,529	-50.2		105	1.3
15-----	15	28,397	-48.5		69	1.3
10-----						

DAYTON, OHIO (980 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	297	6.8	70	[illegible]	0.7
1,000--	30	129				
950----	30	549	7.8	61	268	3.3
900----	30	999	6.7	59	266	7.9
850----	30	1,467	4.4	59	[illegible]	13.2
800----	30	1,959	2.0	60	272	16 3
750----	30	2,470	- .7	54	270	17.4
700----	30	3,026	- 3.5	52	[illegible]	[illegible]
650----	30	3,601	- 6.7	48	[illegible]	[illegible]
600----		4,230	-10.5	45	268	27.3
550----	[illegible]	4,888	-14.6	44	266	31.0
500----	30	5,613	-19.1	43	264	34.1
450----	29	6,373	-24.6	43	263	38.0
400----	29	7,231	-30.9	42	262	41.9
350----	29	8,164	-37.9		264	48.9
300----	29	9,209	-45.5		262	53.4
250----	29	10,402	-53.5		264	57.9
200----	29	11,820	-57.7		267	58.6
175----	29	12,664	-56.8		269	58.2
150----	29	13,643	-56.0		267	50.9
125----	29	14,801	-56.8		266	43.1
100----	29	16,211	-57.6		264	33.8
80-----	29	17,620	-57.0		266	23.3
60-----	28	19,439	-56.4		260	13.6
50-----	28	20,598	-55.6		269	6.8
40-----	28	22,021	-54.9		298	2.9
30-----	25	23,868	-53.3		71	2.3
25-----	25	25,044	-51.9		93	2.9
20-----	23	26,486	-50.0		72	2.9
15-----	11	28,378	-47.3		159	1.9
10-----	5	31,051	-44.4			

DENVER, COLO. (837 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,611	1.4	68	211	3.6
1,000--	30	153				
950----	30	574				
900----	30	1,019				
850----	30	1,486				
800----	30	1,978	4 4	51	259	5.8
750----	30	2,502	1.7	49	279	9.9
700----	30	3,054	- 1.9	46	291	13.9
650----	30	3,536	- 5.7	45	291	18.2
600----	30	4,261	- 9.9	43	295	21.5
550----	30	4,924	-14.2	41	295	24.2
500----	30	5,644	-19.1	38	291	25.2
450----	30	6,414	-25.1	38	286	27.5
400----	30	7,264	-31.7		284	30.5
350----	30	8,195	-38.7		280	35.3
300----	30	9,237	-45.8		277	43.1
250----	30	10,433	-52.5		278	48.7
200----	30	11,856	-58.1		281	53.0
175----	30	12,697	-57.8		281	50.9
150----	30	13,672	-57.1		278	44.1
125----	30	14,823	-58.1		277	34.1
100----	30	16,227	-58.9		277	26.2
80-----	29	17,628	-58.2		273	20.0
60-----	29	19,444	-57.2		268	8.9
50-----	28	20,602	-56.6		279	7.7
40-----	28	22,021	-55.8		286	3.4
30-----	27	23,862	-54.2		21	2.7
25-----	25	25,035	-53.2		45	4.0
20-----	24	26,484	-51.3		83	4.2
15-----	18	28,370	-48.2		71	5.2
10-----	6	31,060	-45.0			

DODGE CITY, KANS (925 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	792	5.1	76	335	2.7
1,000--	30	142				
950----	30	567				
900----	30	1,012	7.6	62	334	3.8
850----	30	1,483	7.4	53	304	7.1
800----	30	1,981	6.1	45	308	10.1
750----	30	2,508	3.1	39	295	12.4
700----	30	3,063	- .5	38	287	11.5
650----	30	3,650	- 4.5	40	280	17.0
600----	30	4,277	- 8.7	38	279	21.3
550----	30	4,943	-13.5		278	22.5
500----	30	5,665	-18.6	31	273	25.0
450----	30	6,437	-24.2		271	30.6
400----	30	7,292	-30.3		265	34.1
350----	30	8,229	-37.2		270	34.7
300----	30	9,277	-44.8		268	38.2
250----	30	10,474	-53.0		262	40.9
200----	30	11,894	-58.3			
175----	30	12,733	-58.5			
150----	29	13,700	-58.2			
125----	29	14,845	-58.9			
100----	28	16,241	-59.5			
80-----	27	17,638	-59.6			
60-----	27	19,444	-58.2			
50-----	27	20,596	-56.9			
40-----	27	22,012	-56.1			
30-----	26	23,848	-54.1			
25-----	25	25,021	-52.8			
20-----	15	26,466	-51.4			
15-----						
10-----						

EL PASO, TEX. (881 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	1,197	12.9	42	333	1.5
1,000--	29	113				
950----	29	551				
900----	29	1,014				
850----	29	1,498	14.2	37	316	1.9
800----	29	2.008	12.0	39	271	7.5
750----	29	2,543	8.8	40	265	10.6
700----	29	3,113	4.5	43	264	13.6
650----	29	3,707	.1	41	260	13.6
600----	29	4,349	- 4.2	33	258	16.5
550----	29	5,026	- 8.4		260	18.6
500----	29	5,764	-13.5		274	20.7
450----	29	6,551	-19.5		273	24.2
400----	29	7.424	-26.0		270	31.4
350----	29	8,376	-33.3		273	33.0
300----	29	9,441	-41.6		270	39.4
250----	28	10,649	-51.1		259	39.4
200----	28	12,075	-58.6		265	50.1
175----	28	12,910	-60.6		262	51.8
150----	28	13,865	-62.4			
125----	28	14,988	-64.1			
100----	28	16,347	-66.5			
80-----	28	17,696	-66.6			
60-----	28	19,450	-63.2			
50-----	27	20.577	-60.8			
40-----	26	21,973	-58.6		254	5.0
30-----	25	23,783	-56.6		224	5.6
25-----	25	24,944	-55.1		222	3.6
20-----	24	26,380	-52.4		87	.7
15-----	21	28,264	-49.5		285	9.3
10-----	16	30,955	-44.3			

ELY, NEV. (808 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,908	- 1.0	58	190	7.7
1,000--	30	170				
950----	30	592				
900----	30	1,040				
850----	30	1,501				
800----	30	1,990	3.4	48	202	7.1
750----	30	2,517	3.8	36	258	2.9
700----	30	3,072	.1	38	278	8.7
650----	30	3,659	- 3.6	37	278	13.7
600----	30	4,289	- 8.2	39	282	18.4
550----	30	4,955	-13.0	38	290	20.2
500----	30	5,678	-18.0	36	289	24.2
450----	30	6,451	-23.5		278	26.4
400----	30	7,308	-30.1		278	27.5
350----	30	8,244	-37.3		269	31.8
300----	30	9,292	-45.1		281	27.7
250----	30	10,488	-53.2			
200----	30	11,900	-60.3			
175----	30	12,732	-60.2			
150----	30	13,695	-59.9			
125----	30	14,834	-59.9			
100----	30	16,227	-60.4			
80-----	29	17,613	-61.4			
60-----	29	19,406	-59.5			
50-----	29	20,548	-58.6			
40-----	29	21,956	-57.1			
30-----	26	23,782	-55.7			
25-----	24	24,951	-55.0			
20-----	22	26,391	-53.1			
15-----	18	28,262	-50.7			
10-----	13	30,939	-46.6			

FAIRBANKS, ALASKA (996 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	135	- 6.2	66	360	3.3
1,000--	30	103			352	1.7
950----	30	508	- 4.1	49	85	2.7
900----	30	932	- 6.3	51	154	3.3
850----	30	1,376	- 9.0	55	201	5.0
800----	30	1,844	-11.4	57	221	6.9
750----	30	2,335	-14.0	55	222	8.5
700----	30	2,858	-16.9	51	228	10.2
650----	30	3,406	-20.2	48	237	11.0
600----	30	4,000	-23.6	42	234	13.2
550----	30	4,627	-27.5	39	250	13.9
500----	30	5,311	-31.9	37	251	14.9
450----	30	6,043	-36.5		262	14.5
400----	30	6,858	-41.7		267	13.6
350----	30	7,752	-47.2		265	17.2
300----	30	8,760	-52.4		278	19.6
250----	30	9,936	-52.6		275	16.1
200----	30	11,391	-49.2		279	15.1
175----	30	12,268	-48.7		274	13.6
150----	30	13,282	-48.1		265	12.8
125----	29	14,480	-48.1		267	10.8
100----	29	15,951	-48.4		271	9.1
80-----	28	17,425	-48.2		286	6.6
60-----	28	19,320	-49.0		301	3.8
50-----	27	20,513	-49.0		14	3.1
40-----	25	21,975	-49.3		53	3.8
30-----	18	23,874	-49.7		38	3.4
25-----	14	25,067	-49.7			
20-----	[illegible]	26,545	-51.0			
15-----						
10-----						

FLINT, MICH. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	234	4.3	76	204	0.9
1,000--	30	123				
950----	30	541	4.7	66	279	4.8
900----	30	982	3.5	61	284	9.5
850----	30	1,444	1.7	58	279	13.4
800----	30	1,931	- .6	56	279	15.5
750----	30	2,442	- 2.7	51	272	18.8
700----	30	2,989	- 5.3	48	274	21.9
650----	30	3,563	- 8.5	49	273	25.0
600----	30	4,183	-12.2	49	279	27.5
550----	30	4,838	-16.0	44	271	32.2
500----	30	5,555	-20.5	42	269	36.1
450----	30	6,318	-25.7	41	268	39.4
400----	30	7,170	-31.9	39	266	43.5
350----	30	8,100	-38.9		266	47.4
300----	30	9,139	-47.1		269	53.0
250----	30	10,327	-54.1		266	57.1
200----	30	11,748	-56.0		272	54.7
175----	30	12,599	-54.7		272	48.3
150----	30	13,588	-54.0		270	39.8
125----	30	14,758	-54.6		271	34.9
100----	30	16,185	-54.9		271	28.7
80-----	30	17,611	-55.1		264	18.8
60-----	29	19,453	-54.4		268	11.2
50-----	28	20,620	-54.1		273	6.0
40-----	28	22,055	-53.1		177	.5
30-----	25	23,909	-51.9		73	3.3
25-----	24	25,094	-50.8		80	4.4
20-----	21	26,568	-48.4		72	1.9
15-----	11	28,478	-44.6			
10-----						

FORT WORTH TEX. (995 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	180	12.8	77	287	1.1
1,000--	30	137				
950----	30	566	12.9	68	228	4.2
900----	30	1,023	11.9	64	244	8.3
850----	30	1,501	11.2	54	259	8.3
800----	30	2,006	9.6	44	262	10.4
750----	30	2,533	6.7	39	266	13.2
700----	30	3,103	3.1	38	271	14.7
650----	30	3,697	- 1.1	37	277	19.8
600----	30	4,333	- 5.5	39	278	24.2
550----	30	5,007	-10.2	38	273	26.8
500----	30	5,739	-15.2		271	30.8
450----	30	6,519	-20.4		269	34.3
400----	30	7,391	-26.6		268	38.0
350----	30	8,341	-33.7		267	44.4
300----	30	9,405	-41.8		267	51.4
250----	30	10,617	-50.6		264	59.8
200----	30	12,045	-58.2		267	71.5
175----	30	12,881	-60.3		270	69.5
150----	30	13,840	-61.2		268	63.5
125----	29	14,965	-62.6		268	52.4
100----	29	16,335	-64.7		266	42.1
80-----	28	17,694	-64.7		266	27.9
60-----	27	19,465	-61.2		263	12.8
50-----	27	20,605	-58.7		262	7.9
40-----	25	22,001	-57.3		272	3.6
30-----	24	23,832	-54.5		352	2.1
25-----	21	25,003	-53.0		313	3.3
20-----	20	26,449	-50.5		305	5.0
15-----	14	28,327	-47.6		295	4.8
10-----	8	31,026	-42.4			

GLASGOW, MONT. (933 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	696	0.9	72	355	0.9
1,000--	30	133				
950----	30	547				
900----	30	988	2.6	60	278	3.6
850----	30	1,449	.7	54	290	7.1
800----	30	1,934	- 2.1	54	291	8.1
750----	30	2,438	- 5.1	53	299	8.5
700----	30	2,983	- 8.2	51	299	8.9
650----	30	3,546	-11.5	49	301	9.3
600----	30	4,164	-15.2	49	307	12.4
550----	30	4,811	-19.3	49	311	14.3
500----	30	5,519	-24.1	46	318	14.3
450----	30	6,267	-29.4	45	308	16.5
400----	30	7,109	-35.8	40	297	14.9
350----	30	8,024	-42.5		285	15.7
300----	30	9,048	-50.0		283	14.5
250----	30	10,221	-56.8		278	13.4
200----	30	11,633	-55.6		280	11.8
175----	30	12,488	-53.7		291	13.2
150----	30	13,481	-53.1		287	13.6
125----	30	14,654	-53.9		282	11.0
100----	30	16,083	-55.1		296	8.5
80-----	30	17,508	-54.9		313	5.0
60-----	30	19,353	-54.3		309	1.5
50-----	29	20,521	-54.3			
40-----	29	21,953	-54.1			
30-----	28	23,800	-53.6			
25-----	26	24,974	-52.8			
20-----	20	26,417	-51.7			
15-----	11	28,323	-48.8			
10-----	5	31,058	-45.5			

GRAND JUNCTION, COLO. (851 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,474	6.7	45	121	5.6
1,000--	30	127				
950----	30	556				
900----	30	1,009				
850----	30	1,486			126	4.6
800----	30	1,986	7.2	35	167	4.8
750----	30	2,511	3.6	38	246	5.0
700----	30	3,069	- .7	43	273	9.5
650----	30	3,653	- 5.3	45	280	13.2
600----	30	4,280	- 9.9	43	280	18.4
550----	30	4,938	-14.5	43	283	22.3
500----	30	5,661	-19.5	41	284	23.5
450----	30	6,428	-24.9	37	292	27.5
400----	30	7,283	-31.3	37	297	28.5
350----	30	8,215	-38.6		292	30.8
300----	30	9,257	-46.1		290	36.9
250----	30	10,450	-53.4		285	37.3
200----	30	11,868	-58.7			
175----	30	12,705	-59.2			
150----	30	13,672	-59.0			
125----	30	14,816	-59.2			
100----	30	16,210	-60.5			
80-----	29	17,595	-60.7			
60-----	29	19,390	-59.4			
50-----	29	20,535	-58.0			
40-----	28	21,939	-57.4			
30-----	25	23,769	-55.9			
25-----	24	24,935	-55.0			
20-----	22	26,367	-53.5			
15-----	16	28,213	-51.4			
10-----	6	30,826	-48.7			

GREAT FALLS, MONT (886 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,123	2.3	63	242	5.2
1,000--	30	127				
950----	30	549				
900----	30	995				
850----	30	1,458	2.9	52	245	12.4
800----	30	1,946	- .2	55	267	12.2
750----	30	2,453	- 3.6	57	278	15.9
700----	30	3,002	- 6.9	56	282	20.0
650----	30	3,571	-10.0	51	289	21.7
600----	30	4,190	-13.9	50	287	24.4
550----	30	4,838	-18.3	48	289	26.0
500----	30	5,551	-23.2	47	288	28.9
450----	30	6,309	-28.6	49	282	30.8
400----	30	7,148	-34.8	50	273	33.6
350----	30	8,068	-41.5		269	39.8
300----	30	9,097	-49.3		267	41.5
250----	30	10,274	-55.8		272	39.6
200----	30	11,688	-56.9		282	38.4
175----	30	12,537	-55.7		282	35.7
150----	30	13,522	-54.8		285	30.3
125----	30	14,690	-54.6		283	26.2
100----	28	16,114	-55.6		283	20.7
80-----	27	17,533	-56.1		282	16.3
60-----	27	19,364	-55.5		286	9.5
50-----	26	20,527	-54.9		288	7.1
40-----	25	21,953	-54.7		300	3.8
30-----	24	23,797	-54.1		35	3.6
25-----	24	24,968	-53.4		78	5.4
20-----	21	26,401	-52.7		88	7.7
15-----	19	28,270	-50.8		77	8.5
10-----	7	30,935	-47.2			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

GREEN BAY, WIS. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	210	1.7	85	312	3.1
1,000	30	121				
950	30	536	3.1	64	309	6.8
900	30	975	1.8	58	299	9.7
850	30	1,435	.3	57	291	13.7
800	30	1,919	-1.9	51	286	14.3
750	30	2,430	-4.4	47	295	15.7
700	30	2,972	-7.1	50	293	17.0
650	30	3,543	-10.2	45	294	19.0
600	30	4,159	-13.9	47	287	23.3
550	30	4,813	-17.7	49	276	24.4
500	30	5,523	-22.5	46	274	27.2
450	30	6,280	-28.1	45	267	29.5
400	30	7,123	-34.2	42	271	34.7
350	30	8,045	-40.7		277	31.8
300	30	9,078	-47.8		261	34.9
250	30	10,262	-54.2		260	38.2
200	30	11,684	-55.6			
175	30	12,539	-53.9			
150	30	13,531	-53.3			
125	30	14,703	-54.0			
100	30	16,134	-54.7			
80	30	17,561	-54.5			
60	29	19,401	-54.1		270	15.5
50	29	20,570	-54.0		281	11.4
40	29	22,004	-53.5		277	5.0
30	27	23,854	-53.0		281	5.2
25	23	25,036	-52.4			
20	17	26,499	-51.6			
15	8	28,393	-49.1			
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GREENSBORO, N. C. (985 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	273	10.0	87	225	2.1
1,000	30	148				
950	30	575	12.5	66	256	10.1
900	30	1,030	10.7	60	279	11.0
850	30	1,505	8.4	60	278	12.8
800	30	2,004	5.7	55	274	13.4
750	30	2,531	3.1	48	276	15.7
700	30	3,086	-.2	41	268	15.3
650	30	3,673	-3.9	[illegible]	261	18.0
600	30	4,304	-7.6	35	268	21.7
550	30	4,968	-11.8		268	25.8
500	30	5,699	-17.0		267	24.4
450	30	6,474	-22.2		264	26.8
400	30	7,339	-28.4		271	31.6
350	30	8,283	-35.0		277	31.2
300	30	9,343	-42.6		280	37.8
250	30	10,553	-50.8		277	41.7
200	30	11,981	-57.9		289	43.5
175	30	12,820	-58.7			
150	30	13,789	-58.7			
125	30	14,929	-60.4			
100	29	16,316	-61.5			
80	29	17,703	-61.5			
60	29	19,497	-59.4			
50	29	20,641	-58.7			
40	29	22,047	-57.6			
30	25	23,875	-55.6			
25	25	25,041	-54.2			
20	23	26,486	-52.3			
15	17	28,347	-49.9			
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HILO, T. H. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	11	20.4	87	245	2.9
1,000	30	145	21.3	80	276	.7
950	30	588	18.4	83	80	5.2
900	30	1,051	15.3	87	84	5.4
850	30	1,534	12.4	90	87	4.0
800	30	2,041	10.1	85	93	3.4
750	30	2,582	9.8	50	151	.3
700	30	3,150	7.8	38	245	2.5
650	30	3,756	4.8	36	253	6.0
600	30	4,407	1.2		247	9.9
550	30	5,096	-2.9		259	12.4
500	30	5,850	-7.9		260	16.3
450	30	6,654	-13.5		256	20.0
400	30	7,547	-19.6		258	25.4
350	30	8,526	-26.1		263	33.0
300	30	9,625	-33.7		267	35.7
250	30	10,879	-43.3		278	43.7
200	30	12,344	-54.7		286	43.3
175	30	13,187	-60.5		289	40.6
150	30	14,134	-66.4		291	33.2
125	30	15,222	-71.8		291	26.4
100	29	16,527	-75.2		291	17.8
80	29	17,817	-74.8		308	7.5
60	28	19,511	-68.5		57	9.5
50	28	20,615	-64.1		89	11.0
40	28	21,993	-60.6		84	9.5
30	28	23,800	-56.5		92	13.7
25	27	24,966	-54.5		91	7.7
20	23	26,403	-52.0		99	6.0
15	7	28,240	-50.2			
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INTERNAT. FALLS, MINN. (971 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	360	-1.8	73	290	1.9
1,000	30	125				
950	30	536	-.4	65	289	3.3
900	30	966	-1.8	61	290	8.3
850	30	1,420	-3.7	60	298	11.6
800	30	1,897	-5.7	56	300	14.5
750	30	2,398	-8.0	56	304	16.7
700	30	2,935	-10.8	55	299	18.8
650	30	3,494	-13.8	52	293	23.3
600	30	4,106	-17.3	49	293	27.5
550	30	4,750	-21.0	46	288	31.8
500	30	5,452	-25.5	44	286	34.9
450	30	6,204	-30.9	43	282	38.8
400	30	7,037	-37.0		282	42.5
350	30	7,948	-43.2		282	50.1
300	30	8,973	-49.2		284	53.2
250	30	10,156	-53.1		284	54.9
200	29	11,603	-52.2		284	44.6
175	29	12,469	-51.2		283	36.3
150	29	13,472	-51.0		284	29.1
125	29	14,656	-51.7		282	25.2
100	29	16,104	-51.9		278	20.7
80	29	17,548	-52.1		283	14.5
60	28	19,409	-52.1		288	5.2
50	26	20,592	-51.6		311	2.1
40	25	22,044	-50.8		76	3.1
30	20	23,915	-50.0		88	8.5
25	18	25,116	-49.0		93	9.9
20	14	26,598	-47.0		94	11.8
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JACKSONVILLE, FLA. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	15.3	94	255	1.5
1,000	30	162	17.6	78	221	4.4
950	30	595	15.8	67	233	5.6
900	30	1,058	13.4	64	256	6.4
850	30	1,537	11.5	54	261	8.7
800	30	2,043	9.4	42	255	9.7
750	30	2,574	6.8	35	263	13.9
700	30	3,139	3.3	31	274	14.9
650	30	3,732	.1	34	270	19.4
600	30	4,374	-3.6	36	271	22.1
550	30	5,052	-7.8	35	272	26.0
500	30	5,792	-12.4		269	29.9
450	30	6,580	-17.9		268	31.2
400	30	7,460	-24.0		267	38.8
350	30	8,421	-31.0		270	45.6
300	30	9,496	-39.2		272	54.5
250	30	10,722	-48.5		272	61.5
200	30	12,159	-58.1		278	72.0
175	29	12,991	-60.6		278	74.0
150	29	13,947	-62.3		276	66.2
125	28	15,071	-64.7		277	56.1
100	28	16,425	-67.1		276	43.1
80	28	17,772	-66.7		277	34.0
60	27	19,528	-63.8		274	10.8
50	27	20,652	-61.9		268	6.9
40	27	22,041	-59.1		36	3.1
30	26	23,858	-56.2		34	1.5
25	26	25,022	-54.3		313	1.5
20	24	26,468	-51.5		294	5.2
15	23	28,353	-48.0		276	7.9
10	14	31,071	-43.1			

KING SALMON, ALASKA (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	-2.5	83	345	1.3
1,000	30	66			314	2.3
950	30	473	-3.2	73	95	1.3
900	30	900	-4.9	70	134	2.1
850	30	1,348	-6.5	70	183	3.4
800	30	1,820	-8.7	67	192	4.0
750	30	2,316	-10.9	63	206	5.2
700	30	2,846	-13.5	60	221	6.4
650	30	3,403	-16.9	58	216	7.1
600	30	4,003	-20.5	55	219	8.3
550	30	4,627	-24.7	50	223	9.3
500	30	5,330	-29.5	44	226	10.6
450	30	6,066	-34.8	43	234	12.8
400	30	6,887	-40.3		224	14.9
350	30	7,788	-45.5		241	17.4
300	30	8,805	-50.1		249	23.1
250	30	9,991	-51.5		253	19.8
200	30	11,446	-49.4		248	18.4
175	30	12,323	-48.8		247	19.6
150	30	13,336	-49.0		247	17.6
125	30	14,530	-49.9		249	16.7
100	30	15,989	-50.0		242	11.8
80	29	17,449	-50.3		243	6.4
60	29	19,329	-50.5		213	2.9
50	28	20,518	-50.9		162	2.3
40	28	21,972	-51.1		114	4.2
30	24	23,842	-51.1		117	6.0
25	20	25,032	-51.5		97	7.3
20	18	26,489	-51.3		86	9.9
15	9	28,375	-51.0			
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KOTZEBUE, ALASKA (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	-16.8	75	110	4.4
1,000	30	118	-11.9	68	83	4.8
950	30	510	-10.6	63	113	6.8
900	30	928	-10.9	57	115	6.8
850	30	1,367	-11.7	52	123	6.6
800	30	1,830	-13.5	53	130	5.6
750	30	2,316	-15.7	52	134	4.4
700	30	2,838	-18.0	48	142	6.6
650	30	3,385	-20.9	46	155	5.8
600	30	3,977	-24.3	41	158	5.8
550	30	4,599	-28.0	39	189	5.0
500	30	5,284	-32.7	39	209	5.6
450	30	6,015	-37.6		222	2.1
400	30	6,824	-42.8		290	5.8
350	30	7,717	-47.8		284	9.3
300	30	8,724	-52.3		278	12.6
250	30	9,901	-52.5		271	12.0
200	30	11,355	-49.1		275	12.0
175	30	12,233	-48.6		271	13.9
150	30	13,248	-48.1		269	12.4
125	30	14,451	-47.9		236	15.9
100	30	15,925	-47.4		213	13.6
80	30	17,401	-47.3		199	15.7
60	30	19,303	-47.8		181	3.4
50	29	20,505	-48.4		179	5.4
40	29	21,973	-48.6		107	6.2
30	24	23,866	-49.3			
25	20	25,047	-49.4			
20	12	26,510	-49.5			
15						
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LAKE CHARLES, LA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	15.3	87	55	1.7
1,000	30	143	15.8	81	136	3.3
950	30	577	14.1	75	151	3.6
900	30	1,035	13.1	61	195	4.8
850	30	1,515	11.9	53	236	6.2
800	30	2,022	10.6	41	266	8.9
750	30	2,560	8.0	40	267	13.0
700	30	3,124	4.3	40	271	14.3
650	30	3,718	.3	42	269	19.6
600	30	4,361	-4.0	38	266	21.7
550	30	5,034	-8.0		273	24.2
500	30	5,778	-12.8		268	28.9
450	30	6,568	-18.4		267	31.8
400	30	7,444	-24.5	35	268	38.6
350	30	8,404	-31.2	36	271	46.8
300	30	9,479	-39.1		276	48.7
250	30	10,706	-48.2		286	55.9
200	30	12,145	-57.7		290	58.2
175	30	12,980	-61.3			
150	30	13,934	-63.0			
125	30	15,051	-65.2			
100	30	16,402	-67.8			
80	30	17,745	-67.5			
60	30	19,495	-62.9			
50	30	20,627	-60.2			
40	30	22,026	-58.0			
30	29	23,852	-55.0			
25	28	25,023	-52.8			
20	26	26,468	-51.0			
15	19	28,330	-49.4			
10	10	31,011	-44.8			

LANDER, WYO. (827 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,696	1.6	63	264	2.1
1,000	30	139				
950	30	560				
900	30	1,007				
850	30	1,475				
800	30	1,967	2.9	50	315	1.5
750	30	2,481	.3	48	294	7.1
700	30	3,037	-3.3	49	279	13.2
650	30	3,610	-6.9	45	282	18.4
600	30	4,240	-10.8	43	289	19.6
550	30	4,895	-15.1	41	283	21.3
500	30	5,617	-20.3	39	279	22.3
450	30	6,379	-26.2	37	276	23.1
400	30	7,229	-32.8		281	22.3
350	30	8,155	-39.7		281	25.2
300	30	9,193	-46.9		286	23.5
250	30	10,383	-53.3		284	26.4
200	30	11,805	-57.6		276	19.4
175	30	12,648	-57.3		273	20.2
150	30	13,626	-56.2		278	18.0
125	29	14,784	-56.0		274	21.7
100	28	16,199	-57.1		269	17.0
80	27	17,611	-56.7		278	10.8
60	27	19,434	-56.4		271	7.7
50	27	20,591	-56.0		242	6.4
40	26	22,013	-55.3		233	1.7
30	25	23,851	-54.4		76	.9
25	23	25,015	-53.4		85	2.5
20	23	26,451	-52.2		78	3.8
15	18	28,328	-50.1			
10	10	31,026	-46.5			

LAS VEGAS, NEV. (936 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	660	14.8	21	250	3.8
1,000	30	95				
950	30	534				
900	30	996	17.5	18	331	1.1
850	30	1,482	15.1	19	295	2.3
800	30	1,991	11.4	22	279	2.7
750	30	2,524	7.4	24	252	2.5
700	30	3,089	3.1	27	259	4.2
650	30	3,680	-1.2	30	273	6.9
600	30	4,318	-5.8	32	265	9.1
550	30	4,988	-10.4		275	16.5
500	30	5,721	-15.5		276	21.1
450	30	6,502	-21.5		280	23.8
400	30	7,365	-28.1		276	27.2
350	30	8,308	-35.6		280	34.9
300	30	9,363	-44.0		278	39.8
250	29	10,564	-53.1		280	44.3
200	28	11,970	-60.2		278	48.7
175	28	12,801	-60.7		274	48.7
150	28	13,762	-60.2		272	45.4
125	28	14,896	-61.8		269	40.6
100	28	16,274	-62.8		272	31.0
80	28	17,644	-63.4		277	20.9
60	27	19,423	-60.7		285	8.9
50	25	20,557	-59.5		285	3.3
40	22	21,957	-58.2		248	.5
30	21	23,778	-56.7		299	.3
25	18	24,937	-55.5		34	2.9
20	17	26,364	-53.9		36	.9
15	10	28,266	-50.3			
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LITTLE ROCK, ARK. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	79	11.4	85	222	2.5
1,000	30	141			225	2.7
950	30	574	12.0	66	252	7.1
900	30	1,024	10.5	57	259	10.1
850	30	1,499	8.7	53	262	10.4
800	30	1,999	6.7	47	262	12.2
750	30	2,531	4.1	46	264	14.1
700	30	3,086	.6	43	264	16.3
650	30	3,674	-3.3	41	266	18.8
600	30	4,306	-7.5	35	262	21.7
550	30	4,972	-11.8		263	26.2
500	30	5,703	-16.5		261	29.5
450	30	6,481	-21.9		257	35.5
400	30	7,345	-27.7		259	41.3
350	30	8,293	-34.7		259	41.9
300	30	9,352	-43.0		272	43.5
250	30	10,558	-51.7		277	47.0
200	30	11,981	-58.7			
175	30	12,818	-59.5			
150	30	13,783	-60.2			
125	30	14,917	-61.7			
100	30	16,294	-63.7			
80	29	17,664	-63.1			
60	28	19,447	-60.8			
50	28	20,585	-59.1			
40	27	21,987	-58.0			
30	25	23,811	-55.2			
25	22	24,973	-54.3			
20	17	26,400	-52.8			
15	8	28,247	-50.3			
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McGRATH, ALASKA (999 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	103	-7.5	74	294	1.3
1,000	30	94			44	2.3
950	30	496	-5.9	62	80	3.4
900	30	918	-7.2	60	114	3.6
850	30	1,363	-8.9	62	155	3.3
800	30	1,831	-10.7	57	183	3.3
750	30	2,322	-13.2	53	199	5.2
700	30	2,847	-15.7	48	195	5.8
650	30	3,402	-18.7	47	208	7.9
600	30	3,995	-22.2	48	215	9.9
550	30	4,625	-26.2	47	223	11.2
500	30	5,314	-30.8	46	226	12.4
450	30	6,046	-35.9		233	13.7
400	30	6,864	-41.5		237	13.7
350	30	7,759	-47.0		222	11.8
300	30	8,768	-52.0		232	11.8
250	30	9,946	-52.2		232	13.2
200	30	11,402	-49.0		236	16.9
175	30	12,280	-48.3		243	16.1
150	30	13,295	-48.5		242	11.8
125	30	14,494	-48.7		249	13.4
100	30	15,960	-48.9		242	10.4
80	30	17,429	-48.6		225	9.1
60	30	19,322	-49.1		233	4.2
50	29	20,512	-49.8		214	3.3
40	27	21,977	-50.1		100	1.1
30	27	23,858	-50.5		125	4.4
25	24	25,037	-50.6		[illegible]	5.0
20	18	26,486	-50.4			
15	6	28,376	-51.1			
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MEDFORD, OREG. (972 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	401	5.5	83	248	0.7
1,000	30	162				
950	30	587	8.3	72	281	2.7
900	30	1,031	7.2	65	332	.9
850	30	1,500	5.0	64	294	1.1
800	30	1,993	3.4	50	269	4.0
750	30	2,512	1.2	45	286	9.1
700	30	3,068	-1.7	43	282	12.8
650	30	3,651	-5.0	34	279	16.5
600	30	4,280	-8.3	32	282	20.0
550	30	4,944	-12.5		271	20.0
500	30	5,672	-17.7	34	270	21.9
450	30	6,442	-23.5	36	264	22.3
400	30	7,303	-30.3	38	269	20.0
350	30	8,239	-37.6	38	264	21.3
300	30	9,285	-45.9		269	25.0
250	30	10,476	-55.0		277	26.4
200	30	11,879	-61.4		273	28.1
175	30	12,709	-60.5		259	27.5
150	30	13,675	-58.9		262	21.9
125	30	14,819	-59.3		265	22.9
100	30	16,216	-59.9		264	14.7
80	30	17,610	-59.5		263	16.1
60	29	19,415	-58.7		277	2.1
50	29	20,561	-58.1		235	4.6
40	28	21,969	-57.2		123	1.9
30	28	23,749	-55.9		131	.7
25	28	24,956	-55.5		26	7.7
20	27	26,382	-54.7		350	1.5
15	26	28,230	-53.0		124	3.3
10	18	30,874	-50.2			

MIAMI, FLA. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	4	20.8	81	97	1.3
1,000	30	150	21.5	73	106	4.0
950	30	591	18.7	77	123	6.8
900	30	1,057	15.8	75	137	5.4
850	30	1,542	13.8	57	150	2.1
800	30	2,052	11.7	43	295	2.9
750	30	2,589	9.5	36	285	5.8
700	30	3,160	6.4	32	288	8.7
650	30	3,760	2.8	34	277	10.6
600	30	4,408	-.7	38	279	14.1
550	30	5,092	-5.0		277	19.0
500	30	5,843	-9.6	36	275	22.9
450	30	6,644	-15.2	35	279	28.5
400	30	7,531	-21.3	36	280	34.3
350	30	8,502	-28.5	37	278	37.3
300	30	9,588	-36.7		280	41.9
250	30	10,825	-46.5		288	43.7
200	30	12,272	-56.7		299	46.2
175	30	13,110	-61.4		300	47.2
150	30	14,056	-65.6			
125	30	15,155	-69.5			
100	30	16,479	-71.4			
80	30	17,794	-71.5			
60	28	19,516	-65.2			
50	28	20,635	-61.9			
40	27	22,025	-58.4		66	3.4
30	27	23,849	-54.8			
25	24	25,014	-52.6			
20	21	26,463	-49.1			
15	13	28,378	-44.2			
10						

MIDLAND, TEX. (916 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	871	10.8	67	125	1.1
1,000	30	132				
950	30	566				
900	30	1,020	12.2	62	151	2.1
850	30	1,500	12.9	47	230	4.0
800	30	2,008	11.2	42	266	8.3
750	30	2,543	8.4	40	274	11.6
700	30	3,111	4.5	39	268	13.6
650	30	3,712	.2	41	270	14.9
600	30	4,346	-4.8	42	267	20.4
550	30	5,024	-9.5	39	264	24.0
500	30	5,756	-14.2	35	268	28.9
450	30	6,542	-20.0		267	31.4
400	30	7,410	-26.5	35	267	36.1
350	30	8,362	-33.3		266	40.0
300	30	9,427	-41.5		267	47.9
250	30	10,640	-50.4		264	55.3
200	30	12,067	-58.1			
175	30	12,903	-60.7			
150	30	13,859	-62.1			
125	30	14,981	-64.2			
100	30	16,339	-66.4			
80	29	17,687	-65.6			
60	29	19,446	-62.4			
50	29	20,576	-60.3			
40	28	21,975	-58.0			
30	26	23,803	-55.6			
25	23	24,958	-53.8			
20	22	26,397	-51.7			
15	19	28,269	-49.0			
10	7	30,985	-44.3			

See reference note at end of table.

RAWINSONDE DATA

Average monthly values

MONTGOMERY, ALA. (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	61	13.5	87	212	0.1
1,000--	30	150	14.9	77	200	.7
950----	30	583	15.0	63	252	5.6
900----	30	1,042	12.2	59	257	7.3
850----	30	1,519	10.3	47	257	9.7
800----	30	2,023	8.7	37	257	13.0
750----	30	2,555	6.1	35	257	16.3
700----	30	3,116	2.6	36	257	17.0
650----	30	3,711	- 1.2	39	263	19.2
600----	30	4,346	- 4.7	38	268	23.1
550----	30	5,020	- 9.1	40	267	26.2
500----	30	5,753	-13.7	36	269	30.3
450----	30	6,538	-19.7	32	270	35.5
400----	30	7,410	-25.7		268	41.5
350----	30	8,365	-32.6		267	48.1
300----	30	9,432	-40.7		268	55.1
250----	30	10,650	-49.6		270	67.4
200----	30	12,082	-57.8		270	76.1
175----	30	12,919	-60.2		270	75.1
150----	30	13,876	-61.9		271	66.8
125----	30	15,000	-63.7		269	55.9
100----	30	16,366	-64.9		267	43.1
80-----	30	17,724	-65.4		265	30.1
60-----	[illegible]	19,493	-62.0		263	14.1
50-----	28	20,626	-60.4		268	6.9
40-----	28	22,025	-58.2		268	2.1
30-----	24	23,856	-54.2		285	.3
25-----	21	25,030	-52.4		256	2.3
20-----	18	26,476	-49.8		274	5.8
15-----	15	28,376	-46.1		272	11.2
10-----	6	31,108	-41.4			
7------	5	33,553	-38.6			

NANTUCKET, MASS. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	14	5.9	81	315	1.7
1,000--	28	124	6.1	73	357	5.8
950----	28	545	7.6	59	338	8.9
900----	28	990	5.9	57	309	9.3
850----	28	1,457	3.7	58	299	12.0
800----	28	1,947	1.2	51	291	15.3
750----	28	2,463	- 1.4	52	279	19.4
700----	28	3,013	- 4.0	53	279	19.8
650----	28	3,591	- 7.0	52	265	23.1
600----	28	4,216	-10.5	47	260	27.9
550----	28	4,877	-14.4		256	29.1
500----	28	5,598	-19.0		257	31.0
450----	28	6,366	-24.7	37	249	34.1
400----	28	7,223	-30.9		248	31.4
350----	28	8,157	-37.9		249	35.1
300----	28	9,202	-45.8			
250----	28	10,396	-53.0			
200----	28	11,818	-57.5			
175----	28	12,662	-57.0			
150----	28	13,641	-56.3			
125----	28	14,799	-56.7			
100----	27	16,207	-57.7			
80-----	27	17,616	-57.3			
60-----	26	19,437	-57.2			
50-----	26	20,590	-57.0			
40-----	25	22,004	-56.3			
30-----	25	23,834	-55.5			
25-----	24	24,996	-55.0			
20-----	23	26,426	-54.1			
15-----	20	28,281	-52.1			
10-----	7	30,968	-48.1			

NASHVILLE, TENN (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	177	10.9	82	238	1.9
1,000--	30	142				
950----	30	569	11.9	63	258	7.7
900----	30	1,025	9.8	65	270	9.9
850----	30	1,498	7.4	64	272	11.4
800----	30	1,995	4.8	56	275	12.8
750----	30	2,517	2.7	46	275	14.7
700----	30	3,076	- .5	47	274	17.4
650----	30	3,659	- 4.0	44	267	18.2
600----	30	4,292	- 8.1	41	262	22.1
550----	30	4,956	-12.3	38	262	25.6
500----	30	5,686	-16.9		263	31.2
450----	30	6,463	-22.3		263	30.6
400----	30	7,326	-28.5		260	32.6
350----	30	8,270	-35.4		277	33.8
300----	30	9,327	-43.4		287	35.3
250----	30	10,531	-51.9			
200----	29	11,950	-58.4			
175----	28	12,783	-58.6			
150----	26	13,752	-59.3			
125----	26	14,893	-60.0			
100----	24	16,277	-61.5			
80-----	24	17,661	-60.8			
60-----	23	19,451	-59.5			
50-----	22	20,591	-58.8			
40-----	21	21,996	-57.4			
30-----	21	23,823	-55.5			
25-----	21	24,986	-54.7			
20-----	21	26,419	-53.0			
15-----	20	28,286	-50.4			
10-----	13	30,948	-46.5			

N. Y. INT. AP, IDLEWILD (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	7.9	71	339	4.6
1,000--	30	134	7.5	64	334	6.6
950----	30	559	6.9	61	317	6.6
900----	30	999	6.1	57	294	11.0
850----	30	1,466	4.0	[illegible]	[illegible]	13.4
800----	30	1,957	1.6	52	274	17.0
750----	30	2,476	- 1.2	52	271	20.5
700----	30	3,022	- 4.1	51	274	24.0
650----	30	3,605	- 6.6	51	269	28.1
600----	30	4,226	-10.3	51	267	29.9
550----	30	4,890	-14.5	48	267	35.3
500----	30	5,607	-19.1	42	266	39.2
450----	30	6,378	-24.7	44	267	42.5
400----	30	7,230	-30.8	45	269	47.0
350----	30	8,164	-37.9		268	51.2
300----	30	9,209	-45.6		268	55.3
250----	30	10,404	-52.8		269	60.0
200----	30	11,825	-57.7		269	61.2
175----	30	12,668	-57.4		265	55.1
150----	30	13,645	-56.5		266	45.8
125----	30	14,801	-57.3		268	39.0
100----	30	16,208	-57.9		268	32.8
80-----	30	17,616	-57.5		266	22.3
60-----	30	19,437	-57.0		266	9.9
50-----	30	20,592	-56.8		264	2.5
40-----	30	22,012	-55.1		87	1.9
30-----	29	23,856	-53.5		89	5.6
25-----	28	25,034	-52.8		88	5.6
20-----	26	26,483	-51.6		94	4.6
15-----	21	28,358	-48.8		63	3.1
10-----	6	31,006	-45.0			

NOME, ALASKA (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	[illegible]	-12.2	75	53	4.8
1,000--	30	103			51	5.2
950----	30	[illegible]	- 9.8	64	90	5.6
900----	30	917	- 9.9	61	93	5.0
850----	30	1,357	-10.5	[illegible]	100	4.0
800----	30	1,823	-12.1	50	95	2.3
750----	30	2,310	-14.3	[illegible]	135	1.1
700----	30	2,835	-16.8	45	335	1.1
650----	30	3,384	-19.4	43	262	1.1
600----	30	3,981	-22.7		257	4.4
550----	30	4,608	-26.3	45	269	4.6
500----	30	5,299	-30.5	45	281	6.9
450----	[illegible]	6,034	-35.2		275	6.4
400----	30	6,855	-40.4		[illegible]	8.9
350----	30	7,754	-46.4		277	16.5
300----	[illegible]	8,764	-52.3		272	20.0
250----	30	9,938	-53.0		271	20.2
200----	30	11,389	-49.7		[illegible]	20.4
175----	30	12,267	-48.6		[illegible]	20.2
150----	30	13,281	-48.5		263	19.2
125----	30	14,482	-48.4		[illegible]	17.4
100----	30	15,951	-48.3		[illegible]	12.0
80-----	30	17,423	-47.7		231	11.2
60-----	30	19,321	-48.6		226	7.1
50-----	30	20,521	-48.8		[illegible]	5.4
40-----	29	21,988	-49.1		152	4.6
30-----	29	23,874	-49.7		124	9.1
25-----	29	25,068	-49.9		109	8.5
20-----	26	26,524	-49.7		98	12.0
15-----	25	28,413	-49.1		101	14.7
10-----	11	31,092	-48.8			

NORFOLK, VA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	9	11.6	81	246	2.3
1,000--	30	140	12.5	73	252	5.2
950----	30	567	11.9	64	266	9.1
900----	30	1,023	9.9	59	277	10.4
850----	30	1,496	7.5	57	278	12.8
800----	30	1,993	4.8	55	273	14.7
750----	30	2,517	2.0	50	273	17.2
700----	30	3,072	- 1.0	45	270	20.7
650----	30	3,656	- 4.1	41	267	23.3
600----	30	4,287	- 7.8	40	264	28.7
550----	30	4,951	-11.9		261	29.9
500----	30	5,682	-16.9		261	34.3
450----	30	6,456	-22.2		261	38.6
400----	30	7,321	-28.4		260	41.3
350----	30	8,266	-35.1		262	47.6
300----	30	9,324	-43.1		262	52.4
250----	30	10,529	-51.7		264	57.3
200----	30	11,950	-58.8		270	60.0
175----	30	12,788	-58.9		270	60.0
150----	30	13,756	-59.0		271	51.2
125----	30	14,898	-59.7		269	42.7
100----	30	16,290	-61.0		266	34.9
80-----	26	17,674	-59.6		267	22.7
60-----	25	19,479	-58.5		273	11.0
50-----	24	20,626	-57.5		302	3.3
40-----	24	22,041	-56.0		16	2.1
30-----	23	23,884	-53.5		72	4.2
25-----	23	25,061	-52.2		83	4.0
20-----	23	26,513	-50.0		78	4.6
15-----	17	28,395	-47.0		108	.5
10-----	7	31,094	-42.9			

NORTH PLATTE, NEBR. (917 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	848	1.4	77	328	1.3
1,000--	30	140				
950----	30	558				
900----	30	997	3.9	62	314	2.9
850----	30	1,464	5.4	49	310	6.4
800----	30	1,958	3.6	46	299	8.1
750----	30	2,476	.7	43	295	11.4
700----	30	3,031	- 2.8	46	296	14.1
650----	30	3,605	- 6.8	48	295	17.6
600----	30	4,235	-10.9	45	285	19.2
550----	30	4,891	-15.2	41	278	24.6
500----	30	5,613	-20.2	38	278	23.1
450----	30	6,375	-25.8	35	271	24.0
400----	30	7,229	-32.3		264	29.3
350----	30	8,158	-39.2		261	28.3
300----	30	9,198	-46.4		250	26.6
250----	30	10,389	-53.7		270	29.5
200----	30	11,809	-57.3		273	31.8
175----	30	12,654	-56.7		278	26.2
150----	30	13,634	-56.0		272	32.4
125----	30	14,793	-56.5		278	21.9
100----	29	16,207	-57.5		267	15.9
80-----	28	17,619	-57.4		271	14.9
60-----	28	19,440	-56.3		272	10.6
50-----	28	20,599	-55.9		274	4.4
40-----	28	22,022	-55.1		173	2.1
30-----	26	23,865	-53.7		27	6.0
25-----	25	25,042	-53.1		102	4.4
20-----	19	26,472	-52.1			

OAKLAND, CALIF (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	11.4	85	253	1.7
1,000--	30	125	11.5	81	246	2.3
950----	30	554	11.6	65	279	3.1
900----	30	1,008	13.6	37	317	4.2
850----	30	1,488	12.0	26	297	2.9
800----	30	1,993	9.3		272	4.0
750----	30	2,520	6.2		274	5.0
700----	30	3,087	2.4		286	8.1
650----	30	3,681	- 1.5		284	9.9
600----	30	4,314	- 6.0		279	12.0
550----	30	4,985	-10.7		280	12.8
500----	30	5,717	-16.0		274	15.3
450----	30	6,496	-21.9		277	18.4
400----	30	7,358	-28.7		278	19.0
350----	30	8,300	-36.1		281	22.5
300----	30	9,353	-44.5		281	27.3
250----	30	10,549	-53.7		278	33.4
200----	30	11,958	-61.1		276	38.0
175----	30	12,785	-61.5		276	38.4
150----	30	13,744	-60.3		275	36.9
125----	30	14,879	-61.2		275	33.2
100----	30	16,262	-62.1		277	25.8
80-----	29	17,644	-62.2		275	19.0
60-----	28	19,429	-61.0		281	8.9
50-----	28	20,563	-59.8		287	6.0
40-----	28	21,962	-58.1		320	2.1
30-----	26	23,779	-56.7		40	1.5
25-----	26	24,937	-55.8		17	1.5
20-----	24	26,360	-54.7		6	4.2
15-----	20	28,217	-52.3		20	2.9

OKLAHOMA CITY, OKLA. (969 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	392	9.7	82	202	1.7
1,000--	30	131				
950----	30	555	11.5	68	199	5.2
900----	30	1,011	11.1	58	226	7.5
850----	30	1,487	10.2	48	291	5.2
800----	30	1,990	7.8	44	271	6.6
750----	30	2,514	4.9	42	260	11.8
700----	30	3,077	1.3	42	269	13.4
650----	30	3,663	- 2.8	45	272	17.8
600----	29	4,300	- 7.2	43	278	22.3
550----	29	4,966	-11.9	41	276	27.3
500----	29	5,695	-17.0		276	31.8
450----	29	6,470	-22.3		279	35.3
400----	29	7,332	-28.6		279	36.9
350----	29	8,275	-35.6		273	39.8
300----	29	9,330	-43.5		284	36.3
250----	29	10,534	-51.6			
200----	28	11,960	-58.1			
175----	26	12,796	-59.6			
150----	25	13,760	-59.5			
125----	25	14,899	-60.7			
100----	24	16,276	-61.4			
80-----	24	17,660	-61.0			
60-----	23	19,455	-58.9			
50-----	23	20,605	-56.9			
40-----	21	22,022	-56.2			
30-----	19	23,849	-54.6			
25-----	19	25,020	-53.2			
20-----	16	26,459	-51.8			
15-----	12	28,341	-49.6			

OMAHA, NEBR (967 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	403	4.6	73	339	2.1
1,000--	30	130				
950----	30	551	6.1	61	340	2.5
900----	30	994	5.8	52	317	5.6
850----	30	1,460	4.1	49	314	7.9
800----	30	1,952	2.1	45	299	9.3
750----	30	2,469	- .6	43	290	10.6
700----	30	3,019	- 4.2	47	286	13.9
650----	30	3,594	- 7.9	49	282	17.4
600----	30	4,218	-11.9	51	282	21.9
550----	30	4,873	-16.4	47	281	23.7
500----	30	5,590	-21.1	43	280	25.2
450----	30	6,352	-26.8	41	277	26.2
400----	30	7,200	-33.0		277	29.1
350----	30	8,127	-39.5		272	32.4
300----	30	9,166	-46.4		273	37.4
250----	30	10,358	-53.6		269	41.7
200----	30	11,776	-57.5		272	45.0
175----	30	12,622	-56.1		274	42.5
150----	30	13,603	-55.6		273	37.8
125----	29	14,759	-56.4		274	31.6
100----	29	16,175	-56.9		271	24.6
80-----	29	17,585	-57.7		269	19.8
60-----	29	19,406	-56.4		273	13.4
50-----	28	20,564	-56.3		272	7.9
40-----	28	21,984	-55.2		287	4.0
30-----	28	23,824	-53.9		346	1.1
25-----	27	24,996	-53.0		29	1.7
20-----	25	26,445	-51.5		351	1.5
15-----	22	28,327	-49.0		315	3.3
10-----	16	31,008	-45.2		290	6.2

PEORIA, ILL. (991 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	201	5.9	75	340	0.9
1,000--	30	125				
950----	30	550	7.5	58	272	3.8
900----	30	992	6.0	60	277	8.5
850----	30	1,458	3.8	61	286	11.4
800----	30	1,949	1.3	58	284	13.6
750----	30	2,467	- 1.1	53	274	16.7
700----	30	3,014	- 3.8	51	271	19.0
650----	30	3,591	- 7.4	47	269	20.7
600----	30	4,214	-11.5	45	271	25.6
550----	30	4,866	-15.7	43	272	28.9
500----	30	5,588	-20.2	40	271	32.0
450----	30	6,351	-25.7	41	268	35.5
400----	30	7,203	-31.4	38	265	39.6
350----	30	8,135	-38.3		260	45.0
300----	30	9,178	-45.9		262	48.9
250----	30	10,370	-53.7		265	51.4
200----	30	11,786	-58.3		268	57.5
175----	29	12,634	-57.2		271	53.8
150----	29	13,613	-56.1		270	48.9
125----	29	14,771	-56.5		270	40.8
100----	28	16,184	-57.4		270	34.7
80-----	28	17,591	-57.7		269	25.2
60-----	27	19,411	-56.8		270	14.3
50-----	27	20,568	-56.2		268	8.5
40-----	26	21,989	-55.1		327	2.5
30-----	23	23,835	-53.6		60	1.1
25-----	22	25,011	-52.3		100	3.1
20-----	12	26,466	-50.2		105	8.7
15-----	8	28,399	-46.3			
10-----	5	31,108	-42.6			

PITTSBURGH, PA. (974 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	353	6.9	71	287	1.5
1,000--	30	133				
950----	30	559	8.3	62	263	4.8
900----	30	1,002	6.7	61	267	10.8
850----	30	1,470	4.4	62	273	15.3
800----	30	1,961	1.4	66	272	17.4
750----	30	2,477	- 1.5	65	270	18.0
700----	30	3,027	- 4.3	62	271	22.3
650----	30	3,604	- 7.1	59	268	26.8
600----	30	4,228	-10.9	[illegible]	268	28.9
550----	30	4,889	-14.7	51	268	32.2
500----	30	5,609	-19.3	45	268	35.7
450----	30	6,379	-24.8	44	266	38.2
400----	30	7,231	-31.1	42	268	42.3
350----	30	8,165	-37.9		266	47.6
300----	30	9,210	-45.9		267	52.0
250----	30	10,404	-53.2		273	55.5
200----	30	11,823	-57.9		274	59.6
175----	30	12,667	-57.2		271	55.7
150----	30	13,645	-56.3		271	47.7
125----	30	14,802	-57.0		270	41.7
100----	30	16,211	-58.1		269	31.0
80-----	29	17,615	-57.7		268	21.3
60-----	28	19,435	-57.0		271	12.0
50-----	27	20,588	-56.9		264	5.6
40-----	26	22,002	-56.5		46	.5
30-----	26	23,835	-55.1		74	7.1
25-----	26	25,002	-54.2		73	5.6
20-----	25	26,435	-52.5		68	4.2
15-----	21	28,300	-49.7		48	2.1
10-----	10	30,940	-46.7			

PORTLAND, ME. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	20	3.4	79	317	2.3
1,000--	30	125	4.4	66	331	2.7
950----	30	543	3.9	57	296	5.0
900----	30	982	2.8	57	277	8.1
850----	30	1,443	.7	58	277	11.2
800----	30	1,928	- .9	57	275	15.7
750----	30	2,441	- 2.8	51	272	21.5
700----	30	2,987	- 5.5	50	269	24.6
650----	30	3,563	- 8.3	48	268	27.3
600----	30	4,184	-11.7	46	266	29.7
550----	30	4,840	-15.7	46	266	34.9
500----	30	5,559	-20.3	48	267	38.0
450----	30	6,324	-25.7	46	267	41.5
400----	30	7,176	-31.8	45	268	44.4
350----	30	8,107	-38.6		267	47.6
300----	30	9,149	-46.3		264	51.2
250----	30	10,342	-53.0		268	58.8
200----	30	11,768	-56.0		262	53.4
175----	30	12,619	-54.4		260	46.4
150----	30	13,608	-53.9		260	44.4
125----	30	14,777	-54.6		261	32.4
100----	30	16,204	-55.2		265	28.9
80-----	30	17,631	-55.1		261	19.4
60-----	29	19,471	-55.2		268	10.6
50-----	29	20,638	-54.5		271	6.0
40-----	25	22,075	-53.6		229	.3
30-----	23	23,940	-52.4		68	2.1
25-----	20	25,115	-52.1		78	5.8
20-----	17	26,561	-51.0		88	3.6
15-----	10	28,455	-48.0			

RAPID CITY, S. DAK (904 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	966	0.9	68	338	3.1
1,000--	30	141				
950----	30	560				
900----	30	998			337	4.8
850----	30	1,461	3.1	54	312	9.7
800----	30	1,950	.4	56	313	11.4
750----	30	2,463	- 2.2	55	305	13.7
700----	30	3,011	- 5.4	55	301	16.9
650----	30	3,584	- 9.1	54	296	17.4
600----	30	4,205	-13.1	50	289	19.2
550----	30	4,856	-17.3	47	287	21.5
500----	30	5,571	-22.1	43	284	25.2
450----	30	6,331	-27.8	40	283	26.2
400----	30	7,174	-34.3	38	284	28.7
350----	30	8,095	-41.1		283	32.6
300----	30	9,126	-48.4		281	35.7
250----	29	10,305	-54.8		280	42.1
200----	28	11,726	-57.0		283	43.5
175----	28	12,574	-55.7		284	38.2
150----	27	13,560	-54.9		277	29.9
125----	27	14,723	-55.5		275	27.9
100----	26	16,140	-56.9		276	25.0
80-----	26	17,555	-56.3		281	16.9
60-----	26	19,382	-56.2		282	8.9
50-----	25	20,542	-55.5		282	4.2
40-----	24	21,967	-54.4		350	2.9
30-----	23	23,815	-53.4		53	3.8
25-----	22	24,990	-52.7		48	5.2
20-----	15	26,442	-51.4		66	11.6
15-----	6	28,273	-51.5			

ST. CLOUD, MINN. (977 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	316	0.7	74	313	2.5
1,000--	30	129				
950----	30	547	2.7	58	345	3.6
900----	30	981	1.6	50	326	6.4
850----	30	1,440	- .5	[illegible]	314	10.1
800----	30	1,923	- 2.4	46	305	13.0
750----	30	2,434	- 5.1	48	299	15.1
700----	30	2,972	- 8.0	46	293	19.2
650----	30	3,543	-11.3	45	285	21.5
600----	30	4,154	-14.9	47	284	23.5
550----	30	4,804	-19.0	43	287	25.6
500----	30	5,511	-23.4	39	283	27.9
450----	30	6,268	-29.1	36	278	25.6
400----	30	7,105	-35.3		281	28.3
350----	30	8,023	-41.9		289	26.6
300----	30	9,051	-48.9		283	31.6
250----	30	10,232	-54.9		275	23.8
200----	29	11,651	-56.2		275	28.1
175----	29	12,504	-54.1		272	27.5
150----	29	13,496	-53.1		274	25.8
125----	29	14,670	-53.8		[illegible]	22.7
100----	29	16,101	-54.4		277	19.4
80-----	29	17,530	-54.7		268	17.4
60-----	29	19,374	-54.1		291	12.0
50-----	28	20,546	-53.6		307	6.2
40-----	28	21,982	-53.1		281	3.3
30-----	25	23,850	-52.1		32	2.3
25-----	21	25,035	-51.8			
20-----	12	26,485	-52.1			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

ST. PAUL IS., ALASKA (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	- 2.7	90	322	2.5
1,000	30	87			262	3.4
950	30	489	- 4.7	83	280	7.1
900	30	916	- 6.4	78	282	7.9
850	30	1,362	- 7.7	70	279	9.3
800	30	1,833	- 9.5	66	277	11.2
750	30	2,329	-11.7	60	263	11.6
700	30	2,856	-14.0	56	266	12.8
650	30	3,415	-16.9	49	263	13.7
600	30	4,014	-20.1	47	256	15.1
550	30	4,650	-24.2	47	256	16.5
500	30	5,344	-28.4	45	275	17.6
450	30	6,083	-33.2	44	262	18.0
400	30	6,912	-38.5		258	18.8
350	30	7,819	-44.1		252	25.8
300	30	8,842	-49.5		269	19.6
250	30	10,028	-52.5		252	24.2
200	30	11,472	-51.1		246	22.9
175	30	12,343	-50.0		250	19.6
150	30	13,351	-50.1		249	20.4
125	30	14,540	-50.6		240	17.6
100	30	15,994	-51.0		237	10.4
80	30	17,446	-50.8		230	13.0
60	30	19,319	-50.9		214	10.8
50	29	20,503	-51.1		224	11.2
40	25	21,960	-51.6			
30	19	23,836	-52.0			
25	15	25,020	-52.4			
20	7	26,483	-52.6			
15						
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SALEM, OREG. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	61	5.7	87	191	2.9
1,000	30	165	7.3	76	201	1.1
950	30	587	6.2	72	214	1.3
900	30	1,029	4.2	70	238	3.6
850	30	1,492	1.9	67	256	7.9
800	30	1,980	.3	58	270	10.2
750	30	2,497	- 1.8	48	281	12.0
700	30	3,043	- 4.5	47	283	15.7
650	30	3,620	- 7.6	44	283	19.0
600	30	4,244	-11.0	39	284	23.3
550	30	4,902	-15.1		286	26.6
500	30	5,622	-19.8		285	29.5
450	30	6,392	-25.3		288	31.4
400	30	7,241	-31.6		286	34.3
350	30	8,172	-38.9		288	35.9
300	30	9,212	-47.1		288	40.8
250	30	10,396	-55.5		288	47.4
200	30	11,802	-58.8		285	42.1
175	30	12,641	-57.8		281	35.7
150	30	13,616	-57.6		282	28.5
125	30	14,766	-58.5		279	26.4
100	30	16,168	-58.6		282	21.1
80	29	17,575	-57.3		289	13.0
60	29	19,394	-57.4		297	6.8
50	29	20,549	-56.7		303	1.9
40	28	21,966	-55.7		59	2.3
30	27	23,799	-55.2		92	4.6
25	25	24,962	-54.6		79	5.6
20	23	26,397	-53.5		79	7.9
15	15	28,241	-52.1		66	8.3
10						

SALT LAKE CITY, UTAH (871 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,288	6.0	59	151	5.0
1,000	30	135				
950	30	561				
900	30	1,009				
850	30	1,486	8.8	42	171	6.8
800	30	1,986	6.4	39	216	6.4
750	30	2,511	2.7	41	257	7.7
700	30	3,067	- 1.5	45	276	13.2
650	30	3,649	- 6.0	48	281	16.1
600	30	4,275	-10.3	48	279	20.0
550	30	4,937	-14.7	47	279	24.6
500	30	5,655	-20.1	44	279	24.8
450	30	6,421	-25.7	42	278	27.3
400	30	7,270	-31.9	37	278	31.8
350	30	8,201	-38.6		280	36.7
300	30	9,243	-46.0		281	41.3
250	30	10,436	-53.2		281	45.4
200	29	11,857	-59.0		286	45.4
175	29	12,696	-58.3		286	43.5
150	28	13,664	-58.0		287	39.4
125	27	14,813	-58.9		284	32.6
100	27	16,211	-59.9		282	27.9
80	27	17,611	-59.2		284	19.2
60	25	19,415	-58.5		284	8.9
50	25	20,563	-57.9		273	4.0
40	24	21,973	-57.0		340	1.1
30	23	23,801	-55.9		47	2.9
25	22	24,960	-55.2		44	3.4
20	22	26,388	-54.0		22	5.2
15	16	28,257	-51.4		20	3.3
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SAN ANTONIO, TEX. (988 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	243	14.2	83	43	1.5
1,000	30	135				
950	30	568	14.0	74	110	4.0
900	30	1,027	13.7	67	165	7.1
850	30	1,508	13.3	54	193	6.9
800	30	2,018	12.0	43	250	6.0
750	30	2,556	9.3	39	262	8.1
700	30	3,125	5.6	37	268	10.2
650	30	3,723	1.5	35	269	13.9
600	30	4,366	- 3.0	36	270	18.2
550	30	5,044	- 7.9	34	267	22.1
500	30	5,784	-13.1		270	25.8
450	30	6,571	-18.6		270	30.8
400	30	7,449	-24.7		265	33.8
350	30	8,408	-31.3		266	38.0
300	30	9,483	-39.4		269	40.6
250	30	10,708	-48.4		275	49.3
200	29	12,148	-57.5		288	56.3
175	27	12,994	-61.2			
150	26	13,947	-63.7			
125	24	15,060	-65.9			
100	24	16,406	-68.9			
80	23	17,738	-69.8			
60	23	19,473	-64.5			
50	23	20,598	-60.6			
40	22	21,990	-58.5			
30	21	23,807	-55.3			
25	21	24,974	-53.8			
20	21	26,414	-52.0			
15	17	28,295	-49.4			
10	8	30,967	-45.6			

SAN DIEGO, CALIF. (999 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	124	13.6	91	138	0.1
1,000	30	117			87	.5
950	30	546	13.7	70	305	.9
900	30	1,007	13.7	50	342	2.9
850	30	1,487	12.6	40	318	3.3
800	30	1,994	10.6	31	290	5.4
750	30	2,523	7.6		283	6.2
700	30	3,094	4.3		279	5.6
650	30	3,687	.5		265	6.6
600	30	4,332	- 3.8		266	8.3
550	30	5,003	- 8.7		258	10.1
500	30	5,745	-14.4		264	14.5
450	30	6,523	-20.5		268	17.2
400	30	7,397	-27.5		269	20.4
350	30	8,345	-34.5		270	24.0
300	30	9,405	-42.6		269	27.9
250	30	10,613	-51.5		270	35.1
200	30	12,035	-58.9		269	47.9
175	30	12,870	-60.4		269	49.3
150	30	13,829	-61.2		266	49.5
125	30	14,957	-63.3		269	37.8
100	29	16,317	-65.5		272	30.5
80	28	17,674	-65.5		276	24.2
60	27	19,433	-62.6		280	11.0
50	24	20,564	-60.0		271	5.0
40	24	21,964	-58.3		234	4.6
30	21	23,787	-55.9		67	3.1
25	20	24,949	-54.5		38	1.5
20	18	26,390	-52.2		359	.5
15	7	28,314	-47.5			
10						

SAN JUAN, P. R. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	23.6	81	117	2.3
1,000	30	135	23.4	77	103	7.5
950	30	584	20.7	77	94	12.0
900	30	1,048	17.9	77	98	11.4
850	30	1,536	14.9	78	89	10.6
800	30	2,048	12.3	70	86	7.9
750	30	2,590	10.1	56	87	6.4
700	30	3,160	7.6	48	76	5.0
650	30	3,769	4.5	44	67	2.5
600	30	4,417	1.1	39	337	2.9
550	30	5,109	- 2.6	33	326	6.0
500	30	5,863	- 6.9	31	306	9.7
450	30	6,672	-12.1		296	13.6
400	30	7,570	-18.3		296	18.4
350	30	8,553	-25.8		290	22.9
300	30	9,651	-34.5		288	27.9
250	29	10,898	-44.1		281	36.9
200	29	12,359	-55.3		279	46.6
175	28	13,198	-61.4		275	47.0
150	28	14,139	-68.2		277	47.0
125	28	15,221	-72.8		276	39.8
100	28	16,517	-76.9		285	28.5
80	28	17,797	-76.2		303	14.5
60	28	19,493	-66.5		355	4.8
50	26	20,611	-61.5		68	9.7
40	26	22,003	-58.7		78	14.1
30	24	23,828	-54.2		97	15.5
25	24	25,004	-51.6		101	[illegible]
20	19	26,453	-47.6		92	8.7
15	13	28,386	-41.3			
10						

SANTA MARIA, CALIF. (1005 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	74	11.5	83	301	0.7
1,000	30	116	11.9	80	344	1.1
950	30	543	12.2	70	25	3.8
900	30	1,000	14.0	45	48	5.2
850	30	1,482	13.0	30	7	2.9
800	30	1,988	10.2	27	315	2.7
750	30	2,520	7.4		304	5.8
700	30	3,086	3.8		294	9.3
650	30	3,678	- .2		290	9.5
600	30	4,319	- 4.7		300	12.4
550	30	4,990	- 9.7		284	12.0
500	30	5,727	-15.1		282	13.0
450	30	6,505	-21.1		288	16.5
400	30	7,373	-27.8		297	19.4
350	30	8,318	-35.3		297	23.3
300	30	9,374	-43.5		282	23.7
250	30	10,575	-52.7		291	29.1
200	30	11,988	-60.6		289	34.1
175	30	12,816	-61.9		286	36.3
150	30	13,773	-60.7		277	36.7
125	30	14,904	-62.2		277	31.8
100	30	16,277	-64.0		275	28.3
80	30	17,641	-64.7		282	25.4
60	29	19,407	-62.1		287	11.0
50	27	20,541	-60.4		310	5.2
40	26	21,937	-58.5		313	3.1
30	26	23,753	-56.6		357	3.6
25	24	24,912	-55.5		43	3.8
20	22	26,343	-53.6		12	4.4
15	16	28,183	-51.7			
10						

SANTA MONICA, CALIF. (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	38	14.2	84	24	1.9
1,000	30	119	14.4	79	37	1.5
950	30	553	13.8	66	72	1.7
900	30	1,008	13.6	48	8	1.1
850	30	1,488	12.1	37	315	.9
800	30	1,994	10.3	26	288	4.0
750	30	2,527	7.4		290	5.2
700	30	3,093	3.8	22	287	6.8
650	30	3,685	- .2		278	7.3
600	30	4,326	- 4.7		271	8.7
550	30	4,999	- 9.5		274	10.1
500	30	5,735	-15.0		271	13.7
450	30	6,516	-21.0		270	16.7
400	30	7,383	-27.9		270	19.6
350	30	8,328	-35.2		276	22.7
300	30	9,385	-43.3		275	26.6
250	30	10,589	-52.2		271	32.2
200	30	12,005	-59.9		267	39.2
175	30	12,836	-61.2		267	42.9
150	30	13,794	-60.9		271	40.6
125	29	14,919	-62.5		269	34.7
100	29	16,286	-64.5		273	30.1
80	29	17,648	-64.7		277	22.3
60	28	19,412	-62.7		278	10.6
50	28	20,540	-61.1		289	6.8
40	28	21,935	-59.0		282	2.3
30	25	23,747	-56.9		310	1.3
25	25	24,905	-55.7		325	2.3
20	24	26,327	-54.4		293	3.3
15	21	28,177	-51.8		291	6.2
10	16	30,849	-46.6		281	13.6

SAULT STE. MARIE, MICH. (988 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	221	- 0.5	83	316	0.7
1,000	30	121				
950	30	533	.4	66	302	2.7
900	30	965	- .5	64	294	7.5
850	30	1,421	- 2.7	63	295	11.4
800	30	1,900	- 4.4	57	289	14.7
750	30	2,405	- 6.8	47	280	17.0
700	30	2,942	- 9.5	44	283	20.9
650	30	3,507	-12.3	42	285	26.2
600	30	4,120	-15.6	41	281	29.5
550	30	4,772	-19.3	42	276	32.2
500	30	5,475	-23.7	43	276	35.7
450	30	6,228	-29.2	46	274	39.0
400	30	7,068	-35.5	49	274	42.1
350	29	7,985	-41.8		273	48.3
300	29	9,015	-48.7		270	53.4
250	29	10,197	-54.2		270	56.9
200	29	11,625	-54.2		272	49.3
175	28	12,484	-52.0		268	43.3
150	26	13,479	-52.2		270	36.1
125	26	14,657	-52.7		272	30.5
100	25	16,098	-53.1		273	25.2
80	25	17,534	-53.9		274	18.4
60	25	19,380	-54.2		272	10.8
50	25	20,548	-54.4		273	6.6
40	25	21,978	-54.0		52	.9
30	24	23,826	-53.6		86	5.4
25	22	25,005	-52.9		90	6.9
20	22	26,447	-51.8		92	8.5
15	17	28,332	-49.3		99	10.8
10	9	31,001	-43.7			

SEATTLE, WASH. (1004 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	125	6.7	86	175	2.7
1,000	30	154			160	2.7
950	30	571	5.7	75	200	5.6
900	30	1,016	3.6	73	220	7.9
850	30	1,478	1.1	71	227	8.3
800	30	1,964	- 1.7	67	249	8.1
750	30	2,474	- 4.3	62	270	9.1
700	30	3,017	- 6.8	56	262	13.4
650	30	3,588	- 9.7	46	278	16.1
600	30	4,207	-13.2	43	277	20.4
550	30	4,856	-17.2	38	281	22.9
500	30	5,574	-22.1	38	286	25.8
450	30	6,330	-27.3		289	30.5
400	30	7,179	-33.4		291	36.5
350	30	8,104	-40.1		293	41.7
300	30	9,139	-48.0		290	44.3
250	30	10,322	-54.8		288	44.3
200	30	11,738	-56.9		282	38.6
175	30	12,587	-55.5		281	32.4
150	30	13,570	-55.8		281	27.5
125	30	14,728	-56.7		280	24.2
100	30	16,142	-56.7		286	21.3
80	30	17,560	-56.3		283	13.6
60	30	19,388	-56.3		304	7.5
50	30	20,547	-56.0		297	3.8
40	28	21,971	-55.0		320	1.9
30	25	23,813	-54.6		52	4.8
25	23	24,982	-54.0		61	6.6
20	16	26,421	-53.4		73	8.7
15	13	28,266	-52.7		70	9.1

SHREVEPORT LA. (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	76	12.5	84	169	2.3
1,000	30	138	12.9	79	187	1.7
950	30	574	13.1	67	215	6.4
900	30	1,025	11.8	60	225	9.9
850	30	1,504	10.8	51	242	11.4
800	30	2,007	8.9	39	258	13.2
750	30	2,539	6.2	39	266	15.1
700	30	3,102	2.8	37	270	16.3
650	30	3,695	- 1.6	37	271	19.4
600	30	4,331	- 5.5	36	267	23.1
550	30	5,004	- 9.9		266	27.5
500	30	5,737	-14.9		263	33.2
450	30	6,520	-20.4		263	35.9
400	30	7,390	-26.5		263	39.8
350	30	8,341	-33.4		264	45.6
300	30	9,406	-41.3		264	53.2
250	30	10,621	-50.0		263	63.3
200	29	12,054	-58.4		266	76.3
175	29	12,889	-60.9		268	73.6
150	29	13,844	-62.1		268	68.7
125	27	14,969	-63.3		267	57.7
100	24	16,340	-64.9		264	43.5
80	24	17,697	-65.4		263	30.5
60	23	19,459	-61.4		263	17.0
50	23	20,598	-58.9		251	4.6
40	23	22,003	-57.0		268	4.4
30	22	23,830	-54.8		292	3.4
25	22	25,003	-53.0		284	4.2
20	22	26,453	-50.2		281	8.1
15	17	28,349	-47.0		269	6.8
10	15	31,071	-42.2			
7	5	33,453	-41.1			

SPOKANE, WASH. (932 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	722	4.2	72	192	5.2
1,000	30	138				
950	30	560				
900	30	1,004	5.6	56	212	8.5
850	30	1,469	3.3	51	232	9.5
800	30	1,958	- .2	55	246	9.7
750	30	2,468	- 3.6	54	261	9.9
700	30	3,013	- 6.7	49	269	12.6
650	30	3,585	-10.0	45	267	14.7
600	30	4,201	-13.9	43	273	16.5
550	30	4,851	-18.0	43	278	16.9
500	30	5,562	-22.9	43	274	20.2
450	30	6,319	-28.5	43	276	23.3
400	30	7,160	-34.5	41	280	23.8
350	30	8,082	-40.9		281	29.7
300	30	9,114	-48.3		280	34.7
250	30	10,297	-55.0		285	37.1
200	30	11,714	-56.5		288	37.8
175	30	12,565	-54.9		286	33.6
150	30	13,551	-55.2		288	27.2
125	30	14,713	-56.0		287	23.3
100	30	16,132	-56.6		288	18.0
80	29	17,554	-56.0		296	12.2
60	26	19,385	-55.7		303	6.8
50	26	20,546	-55.4		338	3.3
40	25	21,971	-54.8		50	3.8
30	24	23,812	-54.2		75	6.6
25	23	24,979	-53.8		71	6.9
20	20	26,421	-52.6		71	10.4
15	10	28,323	-49.3			

SWAN ISLAND, W. I. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	26.1	84	83	9.1
1,000	30	118	25.3	84	82	10.8
950	30	566	21.7	84	92	13.7
900	30	1,037	18.7	78	97	13.4
850	30	1,527	16.2	70	98	12.4
800	30	2,042	14.0	60	93	11.6
750	30	2,581	11.5	53	90	7.7
700	30	3,161	8.6	48	95	6.6
650	30	3,765	5.9	34	37	4.0
600	30	4,422	2.8	25	84	1.9
550	30	5,116	- 1.4		75	.7
500	30	5,874	- 6.3		293	1.7
450	30	6,680	-12.0		286	4.0
400	30	7,582	-18.0		270	8.1
350	30	8,566	-25.2		270	12.0
300	30	9,667	-33.7		275	17.6
250	30	10,920	-43.6		273	22.7
200	28	12,379	-55.3		268	31.0
175	28	13,219	-61.6		265	31.0
150	27	14,162	-67.4		266	32.0
125	24	15,249	-73.3		267	28.7
100	23	16,538	-77.2		278	17.2
80	22	17,818	-77.2		283	4.2
60	22	19,502	-67.9		75	5.8
50	22	20,613	-62.6		78	9.1
40	22	21,998	-59.2		83	13.9
30	20	23,811	-54.4		77	19.2
25	19	24,986	-51.5		87	20.4
20	17	26,446	-47.1		93	12.2
15	9	28,339	-44.2			
10	5	31,123	-37.9			

TAMPA, FLA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	8	18.2	88	73	1.9
1,000	30	157	18.7	80	106	3.6
950	30	599	16.6	74	153	3.6
900	29	1,058	14.1	65	176	1.9
850	29	1,539	12.2	54	221	3.3
800	29	2,046	10.5	42	222	4.6
750	28	2,585	8.1	37	259	8.3
700	28	3,147	4.9	33	287	9.5
650	28	3,748	1.1	36	286	13.7
600	28	4,387	- 2.9	35	278	17.2
550	28	5,069	- 7.1	39	270	21.1
500	28	5,809	-11.8		272	23.8
450	28	6,605	-17.2		274	28.3
400	28	7,483	-23.4		273	33.2
350	28	8,447	-30.4		274	37.3
300	28	9,525	-38.6		276	41.1
250	28	10,753	-48.0		286	48.5
200	28	12,190	-58.4		285	54.0
175	28	13,022	-62.0		286	53.8
150	28	13,969	-65.0		287	43.3
125	28	15,072	-68.4		281	37.3
100	28	16,400	-71.0		278	31.2
80	28	17,720	-70.5		279	17.2
60	28	19,449	-65.0		273	1.9
50	27	20,567	-62.2		336	.9
40	27	21,955	-59.2		81	3.8
30	26	23,768	-55.7		61	3.1
25	22	24,937	-53.5		10	.9
20	21	26,381	-50.3		353	4.4
15	13	28,256	-46.4			

TATOOSH IS., WASH. (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	31	7.9	84	173	5.6
1,000	30	145	7.3	80	178	6.0
950	30	563	5.4	75	211	6.6
900	30	1,006	3.0	72	222	6.2
850	30	1,467	.5	69	239	7.3
800	30	1,951	- 2.1	62	250	8.7
750	30	2,460	- 4.4	54	264	11.6
700	30	3,004	- 6.8	47	267	14.7
650	30	3,575	- 9.9	45	276	18.4
600	30	4,192	-13.6	44	271	22.9
550	30	4,841	-17.5	40	278	24.6
500	30	5,557	-22.2		273	30.8
450	30	6,314	-27.7		274	31.4
400	30	7,160	-33.5	38	278	36.7
350	30	8,083	-40.8		277	37.8
300	30	9,114	-48.7		278	39.4
250	30	10,292	-56.0		279	42.5
200	30	11,704	-56.7		272	33.8
175	29	12,548	-54.7		272	30.1
150	29	13,534	-54.8		269	25.2
125	29	14,698	-55.5		273	20.2
100	29	16,116	-57.0		289	15.5
80	29	17,529	-56.7		285	12.6
60	29	19,358	-56.2		286	7.1
50	29	20,517	-55.7		284	5.0
40	28	21,940	-55.1		311	2.3
30	24	23,785	-54.5		59	2.9
25	20	24,951	-54.0		90	5.0
20	9	26,380	-54.1			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

Standard pressure surface (mb)	TOPEKA, KANS. (984 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	269	7.5	79	292	1.1
1,000--	30	134				
950----	30	558	8.8	64	260	2.3
900----	30	1,006	8.2	59	273	6.0
850----	30	1,477	5.9	56	286	9.1
800----	30	1,972	3.9	50	289	10.2
750----	30	2,489	1.3	44	283	12.8
700----	30	3,047	- 1.9	43	282	18.2
650----	30	3,626	- 5.9	45	281	22.1
600----	30	4,255	-10.1	43	279	24.6
550----	30	4,914	-14.7	40	277	26.4
500----	30	5,636	-19.5	38	275	29.3
450----	30	6,402	-25.2		273	32.6
400----	30	7,256	-31.6		268	33.0
350----	30	8,189	-37.9		266	38.0
300----	30	9,235	-45.1		265	45.0
250----	30	10,432	-52.8		262	52.2
200----	30	11,852	-57.6		270	58.2
175----	30	12,694	-57.7		273	54.2
150----	30	13.670	-57.1		274	47.2
125----	30	14,823	-57.5		270	37.1
100----	30	16,229	-58.4		268	29.1
80-----	30	17,632	-58.7		269	19.0
60-----	29	19,440	-57.5		271	11.4
50-----	29	20,593	-57.0		267	6.9
40-----	29	22,011	-55.7		277	2.9
30-----	28	23,850	-54.3		43	1.5
25-----	27	25,022	-53.1		35	1.5
20-----	23	26,461	-51.5		63	3.8
15-----	16	28,330	-49.0		43	4.2
10-----						

Standard pressure surface (mb)	WASHINGTON, D. C. (1006 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	88	9.7	75	244	1.9
1,000--	30	135			245	3.1
950----	30	561	10.2	62	286	6.9
900----	30	1,011	8 3	59	294	10.4
850----	30	1.482	5.8	57	289	12.6
800----	30	1,976	2.8	60	279	14.3
750----	30	2,497	2	56	269	16.3
700----	30	3,047	- 2.4	55	268	21.1
650----	30	3,631	- 5.8	54	268	25.6
600----	30	4,256	- 9.5	50	266	28.7
550----	30	4,919	-13.6	42	265	32.2
500----	30	5,642	-18.3	39	264	35.9
450----	30	6,412	-23.7	37	264	39.0
400----	30	7,273	-29.9	36	264	40.2
350----	30	8,210	-36.9		268	43.1
300----	30	9,260	-44.5		266	48.5
250----	30	10,460	-52.3		269	54.5
200----	30	11,880	-58.1		269	60.0
175----	30	12,721	-58.1		271	55.5
150----	30	13,694	-57.7		269	45.6
125----	30	14,842	-58.7		269	39.0
100----	30	16,241	-59.4		269	31.0
80-----	30	17,641	-58.4		272	21.3
60-----	30	19,452	-58.0		268	9.5
50-----	30	20,603	-57.3		279	3.8
40-----	29	22,017	-56.0		325	1.1
30-----	28	23,858	-53.6		72	4.4
25-----	25	25,035	-52.7		74	5.0
20-----	24	26,480	-51.1		79	3.3
15-----	17	28,350	-48.3		28	1.1
10-----	8	31,042	-42.0			

Standard pressure surface (mb)	WINNEMUCCA, NEV. (869 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,310	1.6	46	161	0.7
1,000--	30	157				
950----	30	578				
900----	30	1,027				
850----	30	1,494	9.0	36	126	.7
800----	30	1,994	6.6	35	283	4.4
750----	30	2,516	2.7	39	279	8.5
700----	30	3,075	- 1.0	40	276	11.8
650----	30	3,656	- 4.9	37	274	14.5
600----	30	4,287	- 9.0	37	277	18.2
550----	30	4,946	-13.7	36	277	21.9
500----	30	5,673	-18.3	31	282	26.8
450----	30	6,441	-24.0		290	29.1
400----	30	7,300	-30.5	33	287	31.6
350----	30	8,235	-38.0		291	32.4
300----	30	9,279	-46.0		289	36.7
250----	30	10,470	-54.2		289	38.4
200----	30	11,879	-59.7		280	38.0
175----	30	12,713	-59.5		281	37.4
150----	30	13.680	-58.9		281	34.0
125----	29	14,824	-59.4		281	32.6
100----	28	16,214	-59.8		284	24.8
80-----	27	17,605	-59.8		285	18.0
60-----	24	19,407	-59.0		293	7.5
50-----	24	20,551	-58.4		280	4.4
40-----	24	21,958	-57.1		321	2.7
30-----	20	23,786	-55.9		359	2.1
25-----	17	24,954	-55.4		45	1.5
20-----	9	26,396	-54.1			
15-----						
10-----						

Standard pressure surface (mb)	YAKUTAT, ALASKA (1011 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	12	1.2	90	92	5.2
1,000--	30	102			105	4.2
950----	30	511	.7	78	144	2.1
900----	30	948	- 1.8	75	142	2.9
850----	30	1,401	- 4.6	72	160	2.7
800----	30	1,876	- 7.2	68	203	3.3
750----	30	2,376	-10.1	65	271	7.1
700----	30	2,906	-12.7	63	282	8.7
650----	30	3,465	-16.0	62	270	15.1
600----	30	4,068	-19.6	62	281	13.6
550----	30	4,704	-23.9	58	280	12.4
500----	30	5,399	-28.4	57	268	12.2
450----	30	6,138	-33.8	52	272	11.2
400----	30	6,963	-39.8		267	13.9
350----	30	7,864	-45.8		243	9.1
300----	30	8,878	-51.4			
250----	30	10,055	-53.4			
200----	29	11,506	-50.9			
175----	29	12,378	-49.7			
150----	29	13,387	-50.3			
125----	29	14,576	-50.4			
100----	29	16,031	-51.0			
80-----	29	17,484	-50.4			
60-----	27	19,356	-50.7			
50-----	27	20,543	-50.9			
40-----	27	21,996	-51.2			
30-----	26	23,868	-51.1			
25-----	24	25,050	-51.1			
20-----	24	26,502	-51.2			
15-----	20	28,364	-50.9			
10-----	13	30,999	-50.6			

Standard pressure surface (mb)	YUCCA FLAT, NEV. (880 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,196	5.4	33	318	1.9
1,000--	28	126				
950----	28	554				
900----	28	1,009				
850----	28	1,483	12 8	21	335	2.9
800----	28	1,989	10.1	22	243	2.5
750----	28	2,518	6.5	23	261	5.0
700----	28	3,081	2.4	26	264	7.3
650----	28	3,670	- 2.2	30	272	8.3
600----	28	4,306	- 6.8	32	272	12.0
550----	28	4,969	-11.3		279	15.5
500----	28	5,704	-16.6		274	18.6
450----	28	6,476	-22.5		280	24.2
400----	28	7,343	-28.7		277	30.3
350----	28	8,285	-36.1		276	31.4
300----	28	9,338	-44.4		278	36.5
250----	27	10,540	-53.0		273	42.7
200----	27	11,955	-60.0		275	43.1
175----	27	12,787	-60.1		273	43.7
150----	27	13,751	-59.5		275	40.4
125----	27	14,891	-60.6		274	34.7
100----	27	16,275	-61.8		275	29.9
80-----	25	17,650	-62.1		272	22.1
60-----	24	19,440	-59.7			
50-----						
40-----						
30-----						
25-----						
20-----						
15-----						
10-----						

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun. APRIL 1959

ALBUQUERQUE, N. MEX.

Date	Sun's zenith distance								
	A.M.					P.M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
April									
1------	----	----	----	----	----	1.29	1.15	1.01	0.93
2------	0.79	0.95	1.01	1.32	1.44	1.11	----	----	----
9------	.90	1.01	1.13	1.29	1.42	----	1.07	.95	.83
10-----	.99	1.08	1.20	1.32	1.41	1.22	.87	----	----
11-----	1.03	1.13	1.23	1.36	1.47	1.35	1.23	1.12	1.05
12-----	----	----	----	----	1.46	1.27	----	----	----
13-----	----	----	----	----	H 1.41	H 1.27	H .95	H .70	H .57
14-----	.87	.98	1.12	1.27	1.46	1.26	----	----	----
15-----	.72	.81	.97	1.14	----	----	----	----	----
17-----	H .72	H .87	H 1.01	H 1.21	1.37	----	----	----	----
19-----	----	----	----	H 1.01	----	----	----	----	----
21-----	.81	----	----	----	1.42	1.13	----	----	----
22-----	----	----	----	1.23	1.46	1.33	1.13	1.01	.93
23-----	.98	1.07	1.18	H 1.24	1.43	----	----	----	----
27-----	----	----	----	----	----	1.22	1.05	.96	.84
28-----	.99	1.08	1.17	1.30	1.45	1.23	1.09	.97	.87
29-----	.95	1.03	1.15	1.31	1.40	1.23	1.09	----	.88
30-----	.94	.99	1.11	1.25	1.43	----	----	----	----
Averages	0.93	1.03	1.14	1.25	1.44	1.28	1.09	0.95	0.85

MADISON, WIS.

Date	Air mass								
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
April									
13-----	----	----	M 1.06	S 1.11	----	----	S 1.04	S 0.93	S 0.79
14-----	S 0.86	S 0.96	S 1.10	S 1.29	M 1.39	S 1.30	S 1.12	S 1.04	S .91
15-----	----	----	----	----	S 1.34	M 1.10	----	----	----
Averages	0.86	0.96	1.08	1.20	1.37	1.20	1.08	0.99	0.85

WASHINGTON, D. C. (WBCO)

Date	Air mass								
	5.00	4.00	3.00	2.00	*	2.00	3.00	4.00	5.00
April									
4------	0.81	0.91	1.04	1.19	----	----	----	----	----
15-----	----	----	----	1.11	----	----	----	----	----
17-----	H .52	H .63	.81	1.01	1.27	0.97	0.76	0.60	0.50
24-----	H .52	H .61	75	.98	1.22	.94	.68	----	----
Averages	0.62	0.72	0.87	1.07	1.25	0.96	0.72	0.60	0.50

GUAM, M. I.

Date	Air mass								
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
April									
24-----	----	S 0.84	S 1.00	S 1.08	----	----	----	----	----

LINCOLN, NEBR.

Date	Sun's zenith distance								
	A.M.					P.M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	Air mass								
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
April									
1-----	----	----	----	----	----	----	----	0.93	0.81
3-----	0.83	0.98	1.13	1.29	1.45	1.29	1.14	1.02	.91
4-----	----	----	1.06	1.22	1.41	1.22	1.08	.93	.85
5-----	.77	.87	1.01	----	----	----	----	----	----
6-----	.74	.89	1.02	1.19	----	----	----	----	----
13----	.81	.92	1.05	1.23	1.41	1.27	1.08	.95	.87
14----	.89	.99	1.10	1.24	1.39	----	----	----	----
22----	.70	.82	.95	1.14	1.40	1.21	1.03	.90	.77
23----	.76	.89	1.01	----	----	----	.97	.83	.73
25----	----	----	----	----	1.18	----	----	----	----
28----	.76	.85	----	1.10	----	----	----	----	----
29----	----	----	.92	1.04	S 1.15	----	----	----	----
Averages	0.78	0.90	0.93	1.18	1.34	1.25	1.06	0.99	0.82

TUCSON, ARIZ.

Date	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
April									
9-----	0.77	0.89	1.01	1.17	1.47	1.15	0.98	0.87	0.76
11----	.73	.83	.99	1.16	1.38	1.11	.95	.86	.74
12----	.73	.83	.96	----	1.37	----	----	----	----
18----	.83	.93	1.07	1.22	----	1.13	.95	.81	.72
19----	.72	.85	1.00	1.18	1.39	----	----	----	----
20----	.66	.78	.95	1.12	1.39	1.20	.97	.84	.75
22----	.83	.95	1.07	1.25	1.45	1.25	1.08	.93	.82
27----	.78	.91	1.03	1.20	1.42	1.28	1.10	.95	.84
28----	.87	.98	1.09	1.24	----	----	----	----	----
29----	.86	.97	1.14	----	1.46	1.26	1.09	.96	.86
Averages	0.78	0.89	1.03	1.09	1.42	1.20	1.02	0.89	0.78

OMAHA, NEBR.

Date	Air mass								
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
April									
1-----	----	I 0.63	I 0.82	I 1.03	----	----	----	----	----
3-----	0.71	.83	----	----	----	----	----	----	----
4-----	----	----	----	I 1.05	I 1.22	----	----	----	----
9-----	----	----	----	I 1.05	----	----	----	----	----
13----	S .71	M .79	M .89	I .97	I 1.11	M 0.98	I 0.84	I 0.74	I 0.65
14----	S .72	S .81	S .94	S 1.08	S 1.20	----	----	----	----
22----	I .52	I .64	I .79	I .99	M 1.21	M 1.07	I .86	I .73	I .58
23----	----	----	----	----	----	M .98	M .77	M .63	M .50
Averages	0.67	0.74	0.86	1.03	1.19	1.01	0.82	0.70	0.58

* Values Corresponding to true solar noon.
H Haze.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.
I Intense haze - indeterminable.

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	*173	*53	262	336	347	289	278	274	328	368		271

* Estimated values owing to occurrence of rain during period. While rain is falling, radiation is assumed to be zero.

Note Radiometer inoperative from February 12 to April 21.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N.Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area
Apr. 2	647	30	589	553	513	211	420	288	494	88	634	569
Apr. 3	572	224	677	537	608	212	524	560	526	536	633	649
Apr. 4	494	186	679	415	655	301	437	499	558	195	594	632
Apr. 5	545	212	658	212	614	275	606	576	566	579	621	663
Apr. 6	556	300	643	552	604	371	569	(336)	620	226	460	---
Apr. 7	243	436	614	584	569	298	576	410	600	573	401	626
Apr. 8	370	507	656	590	590	307	546	291	605	303	406	654
Average	489	271	645	492	593	282	525	(423)	567	357	536	632
Apr. 9	686	523	644	593	605	237	362	434	622	360	---	588
Apr. 10	707	404	580	189	213	348	451	324	602	106	150	609
Apr. 11	727	79	205	578	190	394	606	418	609	100	170	477
Apr. 12	693	496	221	398	188	253	533	635	527	304	135	644
Apr. 13	---	209	592	369	97	419	415	641	544	658	319	623
Apr. 14	698	414	634	187	651	435	514	583	539	616	154	610
Apr. 15	481	464	454	325	510	447	500	(576)	392	623	353	650
Average	665	370	476	377	351	362	483	(516)	548	395	214	600
Apr. 16	672	151	656	295	634	414	552	---	500	487	151	567
Apr. 17	561	390	422	276	570	394	636	326	157	580	419	629
Apr. 18	464	283	127	326	120	464	598	654	394	474	648	622
Apr. 19	659	371	300	602	188	483	724	315	577	257	635	220
Apr. 20	286	554	281	607	359	477	650	648	564	84	592	594
Apr. 21	717	545	81	591	160	500	348	697	604	604	233	462
Apr. 22	735	600	397	348	345	497	537	644	450	652	181	637
Average	585	414	323	435	340	461	578	547	464	448	409	533
Apr. 23	727	578	688	307	673	429	464	539	384	645	---	630
Apr. 24	587	490	705	357	657	355	412	272	603	613	356	639
Apr. 25	558	256	697	218	599	290	601	657	344	594	526	491
Apr. 26	287	322	685	246	544	457	783	252	203	209	580	485
Apr. 27	737	443	553	142	487	346	623	(367)	453	58	623	534
Apr. 28	758	418	447	189	207	428	474	608	508	640	499	592
Apr. 29	767	161	642	153	653	418	534	(403)	518	159	356	625
Average	632	381	631	230	546	389	556	(443)	431	417	490	571
Apr. 30	752	266	650	528	674	391	476	(558)	113	194	292	534
May 1	386	526	725	544	621	459	290	529	184	239	390	570
May 2	637	535	662	584	649	435	516	324	577	653	423	617
May 3	719	259	---	631	651	328	631	528	---	722	567	608
May 4	473	564	709	502	667	437	647	166	---	691	---	605
May 5	794	586	705	341	605	603	250	(277)	---	665	601	---
May 6	759	71	651	640	574	617	512	215	685	670	475	---
Average	646	401	684	539	634	467	475	(371)	390	548	458	587

1959	Cape Hatteras, N.C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.	El Paso, Tex.	Ely, Nev.	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.
Apr. 2	87	365	209	225	569	583	366	668	590	646	459	349
Apr. 3	737	320	628	89	559	572	---	590	626	592	416	703
Apr. 4	689	88	648	378	598	560	---	470	617	649	477	711
Apr. 5	748	371	636	301	---	226	560	447	546	605	479	697
Apr. 6	632	87	612	527	592	605	601	463	591	544	517	585
Apr. 7	736	383	581	450	145	600	622	506	664	372	540	670
Apr. 8	711	354	610	174	72	616	575	688	684	116	543	651
Average	620	281	560	306	422	537	545	547	617	503	490	624
Apr. 9	711	456	---	201	646	609	572	667	696	321	(545)	700
Apr. 10	703	590	524	133	201	350	584	(610)	693	444	(559)	672
Apr. 11	638	98	294	294	539	427	613	511	689	61	(555)	433
Apr. 12	197	421	251	266	531	495	599	629	669	679	558	318
Apr. 13	236	636	163	572	548	353	610	660	556	680	553	376
Apr. 14	385	329	547	577	651	359	602	449	540	656	544	726
Apr. 15	770	279	538	592	636	364	618	684	699	128	600	507
Average	520	401	386	376	536	422	600	(601)	649	424	(559)	533
Apr. 16	646	109	649	576	463	393	638	354	721	307	595	480
Apr. 17	747	162	521	522	169	396	592	609	483	497	569	425
Apr. 18	711	496	286	196	173	324	601	663	456	152	586	158
Apr. 19	257	434	241	319	130	646	599	723	486	529	603	249
Apr. 20	676	541	591	118	94	636	631	705	718	270	602	382
Apr. 21	565	558	437	660	602	607	595	690	643	658	558	174
Apr. 22	188	664	---	503	676	640	533	712	578	712	546	537
Average	541	424	454	413	330	520	598	637	584	446	580	344
Apr. 23	566	609	---	630	639	638	449	702	553	722	521	734
Apr. 24	804	628	---	549	621	529	625	673	582	699	562	731
Apr. 25	760	691	---	314	461	277	352	681	605	593	283	699
Apr. 26	671	191	---	86	131	259	508	495	426	586	393	686
Apr. 27	515	705	---	99	230	209	649	728	654	286	632	637
Apr. 28	444	679	---	174	663	111	630	746	637	(721)	611	551
Apr. 29	206	148	---	554	607	258	640	749	721	650	614	470
Average	566	521	---	344	479	326	550	682	597	(608)	516	644
Apr. 30	704	103	676	174	638	440	324	642	578	662	536	593
May 1	749	113	(666)	649	606	444	630	404	595	(390)	332	735
May 2	783	340	(657)	552	531	452	639	712	250	(387)	650	687
May 3	751	212	641	507	576	454	673	755	285	485	608	728
May 4	511	349	543	444	574	425	685	719	671	515	661	664
May 5	(823)	687	490	599	607	183	640	785	579	---	613	625
May 6	802	678	637	582	610	646	690	774	650	(729)	641	578
Average	(732)	355	(616)	501	592	435	612	684	515	(528)	577	659

1959	Glasgow, Mont.	Grand Junction, Colo	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.
Apr. 2	388	604	267	234	485	413	673	48	637	497	416
Apr. 3	535	554	360	578	580	275	436	172	614	608	607
Apr. 4	515	631	350	635	612	608	650	272	630	576	383
Apr. 5	432	607	510	610	588	425	706	421	409	577	605
Apr. 6	378	620	546	500	572	588	726	257	416	602	432
Apr. 7	331	173	361	616	564	468	714	419	491	342	133
Apr. 8	347	565	342	545	571	---	766	97	154	264	387
Average	418	536	391	531	568	463	667	241	479	495	423
Apr. 9	482	469	607	549	569	194	779	123	282	417	403
Apr. 10	507	653	579	340	175	99	766	150	303	322	405
Apr. 11	626	697	622	149	267	301	781	113	90	658	518
Apr. 12	633	703	604	30	216	541	768	255	550	656	691
Apr. 13	568	671	400	84	78	469	780	676	700	598	668
Apr. 14	457	494	605	605	603	634	646	626	517	495	552
Apr. 15	367	393	180	608	504	635	782	648	567	503	389
Average	520	583	514	338	345	410	757	370	430	521	518
Apr. 16	108	596	282	597	604	630	---	605	476	260	676
Apr. 17	477	488	373	621	528	402	755	596	246	480	449
Apr. 18	460	146	428	322	138	255	780	256	318	222	463
Apr. 19	410	507	275	191	243	81	776	384	---	506	519
Apr. 20	588	487	657	498	303	61	700	203	298	---	366
Apr. 21	652	649	673	330	155	587	646	705	281	---	655
Apr. 22	541	651	255	218	285	613	803	662	636	---	683
Average	462	503	420	397	322	375	743	487	376	367	516
Apr. 23	286	547	472	379	630	651	759	579	661	---	464
Apr. 24	590	477	303	647	608	514	714	615	685	---	295
Apr. 25	511	348	523	615	677	485	719	443	697	---	641
Apr. 26	546	279	523	547	582	436	686	94	604	500	525
Apr. 27	463	623	445	208	541	147	838	46	---	597	437
Apr. 28	447	708	279	216	319	116	826	64	359	658	581
Apr. 29	354	712	200	484	623	616	833	589	606	621	687
Average	457	528	392	442	568	424	768	347	602	594	519
Apr. 30	(452)	725	381	659	732	455	771	407	608	416	615
May 1	(436)	236	349	552	689	687	849	---	552	514	490
May 2	(405)	539	295	601	666	636	878	185	480	474	522
May 3	(563)	277	627	496	719	612	836	523	554	384	182
May 4	243	743	---	459	730	586	880	767	692	522	109
May 5	(436)	771	497	682	658	635	---	649	582	578	710
May 6	---	525	639	591	636	544	---	731	364	75	398
Average	(423)	545	465	577	690	594	843	544	547	423	432

Note.--**Langley** is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

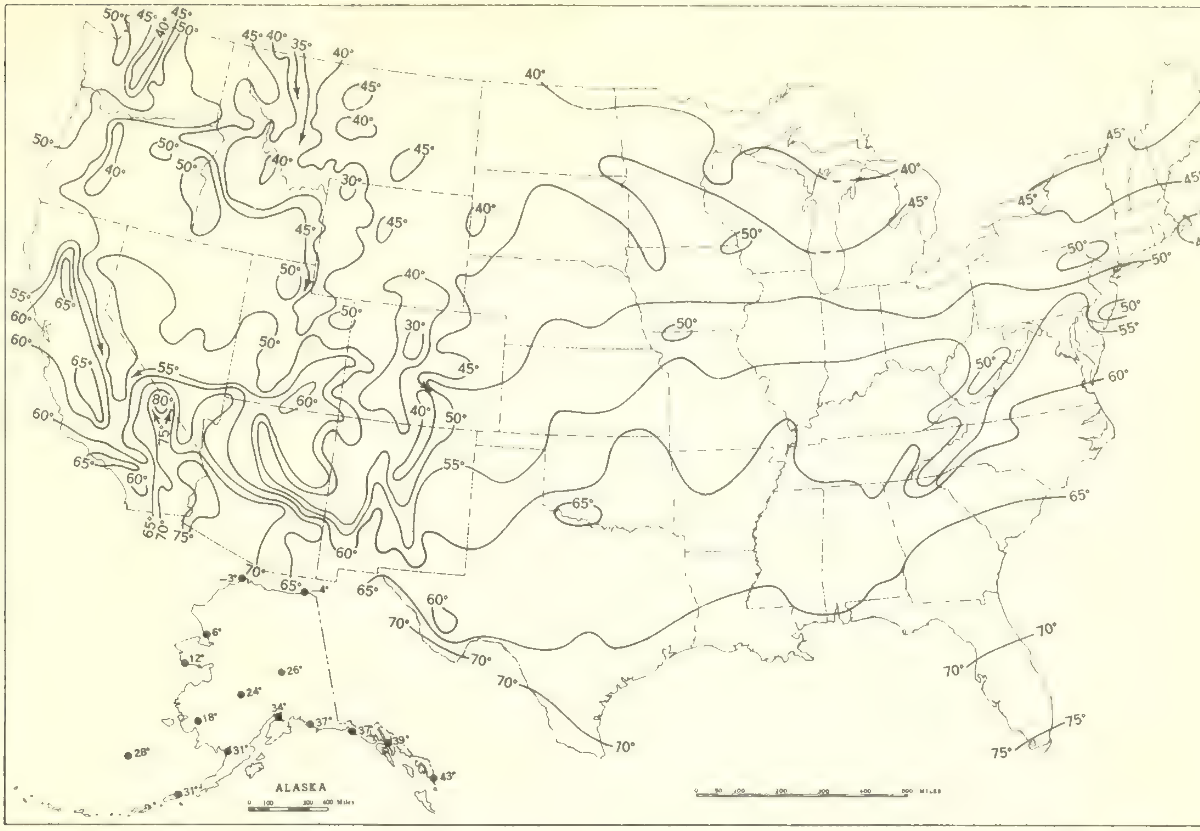
Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.
Apr. 2	576	405	575	614	596	580	226	408	430	607	605	146	33	---	429	613
Apr. 3	496	294	703	426	304	360	404	471	(652)	581	---	568	561	---	296	504
Apr. 4	604	709	670	671	468	476	398	539	652	526	660	236	298	---	639	---
Apr. 5	602	655	672	627	500	463	308	553	573	537	630	590	572	---	605	---
Apr. 6	654	706	604	581	310	165	300	582	585	422	632	249	309	---	600	---
Apr. 7	645	659	154	584	443	263	60	485	609	301	578	590	561	---	537	---
Apr. 8	661	533	460	200	612	574	191	499	654	276	472	336	436	---	530	---
Average	605	566	549	529	462	411	270	505	(594)	464	596	388	396	---	520	---
Apr. 9	696	73	568	169	552	560	322	564	526	323	78	451	411	---	327	---
Apr. 10	679	144	---	425	609	598	238	538	586	374	119	70	56	---	243	---
Apr. 11	718	181	(425)	140	628	638	214	353	617	178	183	154	84	---	214	453
Apr. 12	695	94	533	699	571	621	200	575	659	330	109	312	144	---	135	---
Apr. 13	643	352	739	504	573	555	---	547	495	700	---	643	625	---	103	---
Apr. 14	566	736	723	692	596	595	454	479	553	663	682	611	624	---	656	---
Apr. 15	653	702	700	458	564	543	323	614	---	671	623	637	675	---	556	---
Average	664	326	(615)	441	585	587	292	524	573	463	299	411	374	---	319	---
Apr. 16	720	755	199	365	414	(473)	270	484	---	561	624	584	591	---	627	---
Apr. 17	592	693	306	107	448	(315)	514	550	---	652	631	591	603	---	605	---
Apr. 18	700	124	188	587	570	441	530	570	459	593	161	354	371	---	82	315
Apr. 19	637	411	33	618	437	472	314	582	463	699	298	333	247	---	97	568
Apr. 20	711	273	152	625	634	619	543	564	550	693	686	98	128	---	624	137
Apr. 21	634	411	709	149	552	599	238	472	634	540	139	579	426	---	142	131
Apr. 22	686	593	771	557	606	616	252	477	650	559	---	647	675	---	132	708
Average	668	466	337	430	523	(505)	380	528	551	614	423	455	434	---	330	372
Apr. 23	587	768	552	714	598	626	160	561	624	696	705	520	315	515	676	675
Apr. 24	600	764	---	684	444	349	265	626	548	691	---	648	613	558	651	539
Apr. 25	528	617	648	513	258	327	461	182	563	634	607	594	478	654	544	533
Apr. 26	596	564	324	365	595	(623)	546	423	649	601	413	243	182	286	543	452
Apr. 27	752	121	49	---	691	641	370	245	668	616	258	82	63	85	348	479
Apr. 28	739	318	704	698	664	665	574	392	639	720	641	612	112	682	271	577
Apr. 29	735	778	696	675	682	670	585	511	508	690	672	168	578	672	563	568
Average	648	561	495	608	562	(557)	423	420	600	664	549	409	335	493	514	546
Apr. 30	710	649	631	682	559	(551)	604	199	477	668	603	336	167	647	558	626
May 1	670	628	596	658	559	369	556	315	545	203	484	287	565	613	545	556
May 2	691	742	335	528	669	699	605	405	662	686	---	574	151	373	575	345
May 3	652	725	650	515	722	720	---	575	697	684	662	681	617	578	637	528
May 4	732	(555)	299	608	725	706	541	533	705	468	588	690	724	356	662	373
May 5	734	702	127	635	700	712	261	330	637	748	651	669	556	156	658	123
May 6	712	511	695	560	685	685	591	609	570	732	576	660	608	622	573	709
Average	700	(645)	476	598	660	(635)	526	423	613	598	594	557	484	478	601	466

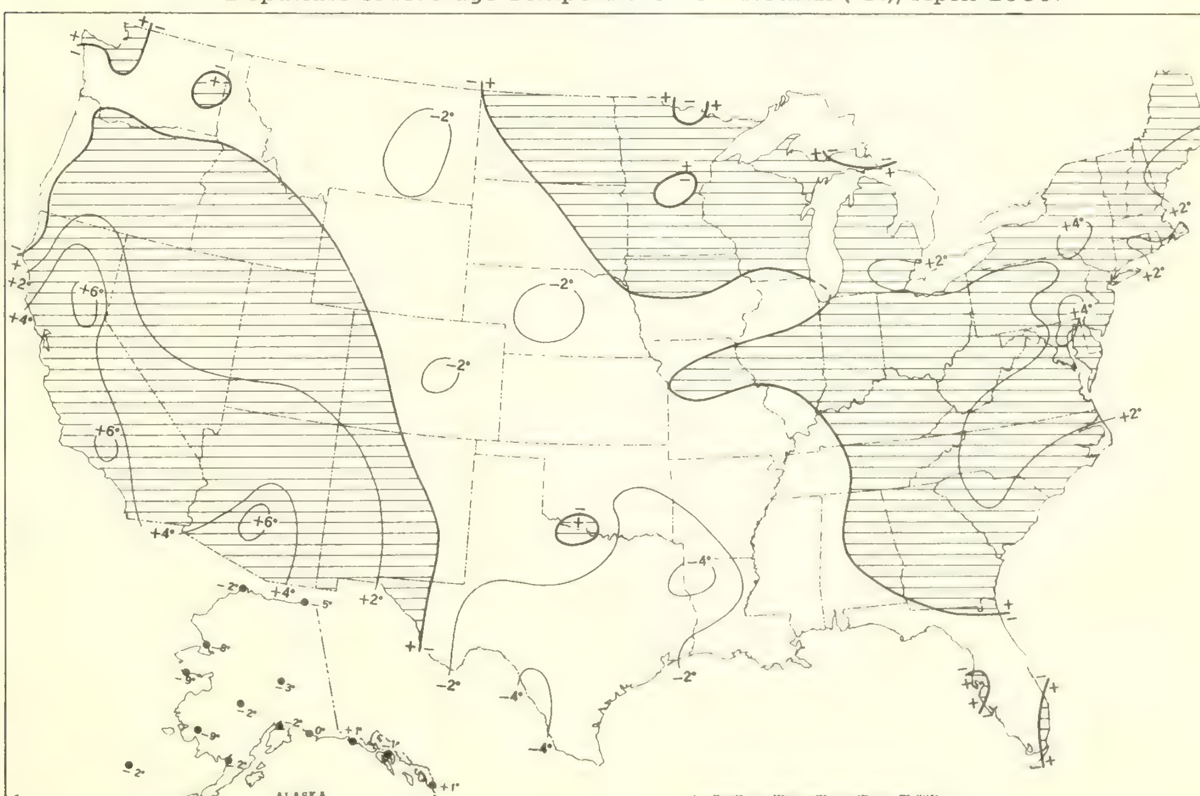
1959	Portland, Me.	Pullman, Wash.	Raleigh, N. C.	Rapid City, S. D.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste.Marie, Mich.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D.C. (Obs & Test Dev Ctr)
Apr. 2	45	587	---	326	627	130	658	566	443	52	---	583	576	81	361	657	---	55
Apr. 3	540	584	---	619	343	356	650	341	245	339	458	532	566	146	653	598	712	500
Apr. 4	171	423	---	521	404	483	610	570	504	228	250	650	417	442	547	477	704	432
Apr. 5	600	---	---	606	517	574	571	530	218	507	196	484	448	400	536	417	586	613
Apr. 6	178	626	---	266	201	524	529	240	647	311	441	409	549	587	608	---	636	529
Apr. 7	606	596	---	517	387	408	245	231	166	466	579	489	586	496	494	560	607	605
Apr. 8	248	620	579	509	563	106	182	(554)	454	178	590	107	601	367	632	656	690	530
Average	341	573	---	481	435	369	492	(433)	382	297	419	465	535	360	548	561	656	466
Apr. 9	97	604	583	491	635	400	83	568	397	143	594	181	599	193	609	688	698	427
Apr. 10	325	606	516	538	650	438	212	660	446	231	537	230	577	46	641	643	665	174
Apr. 11	89	---	234	392	684	198	116	681	555	209	197	112	585	167	595	687	(628)	79
Apr. 12	508	---	45	679	681	646	595	604	587	339	310	608	496	99	422	599	710	57
Apr. 13	666	---	66	676	665	650	711	---	577	631	377	598	328	632	355	697	648	346
Apr. 14	644	---	532	594	675	578	239	454	580	599	199	634	402	646	686	605	713	606
Apr. 15	654	---	618	555	676	334	107	648	436	606	328	398	229	665	331	464	725	635
Average	426	---	371	561	667	463	295	602	511	394	363	394	460	350	520	626	(684)	332
Apr. 16	102	---	614	510	607	267	167	644	579	495	267	377	577	631	362	521	516	638
Apr. 17	618	---	629	526	361	91	281	---	78	558	296	103	427	601	320	638	617	628
Apr. 18	510	339	453	214	422	176	353	---	278	292	373	431	390	216	95	724	568	486
Apr. 19	485	597	143	499	516	280	644	(546)	620	501	616	397	452	318	471	723	639	255
Apr. 20	97	---	557	557	645	484	574	642	667	174	615	366	---	112	437	720	631	140
Apr. 21	661	---	271	772	596	635	377	544	651	637	499	187	652	663	111	628	644	512
Apr. 22	679	455	170	711	623	657	703	(625)	569	647	395	594	339	660	590	735	708	639
Average	450	---	405	541	539	370	443	(600)	492	472	437	351	473	457	341	670	618	471
Apr. 23	633	654	425	561	630	447	699	645	368	615	125	716	635	442	637	691	665	293
Apr. 24	614	590	624	448	546	587	694	545	594	650	544	706	674	644	686	670	672	651
Apr. 25	441	506	620	345	439	554	248	359	257	560	293	491	634	572	689	644	695	586
Apr. 26	158	164	510	563	597	291	329	545	646	175	280	531	340	193	656	430	(745)	522
Apr. 27	181	---	464	329	711	294	269	751	655	150	179	468	337	37	648	749	735	238
Apr. 28	661	392	442	425	708	511	663	742	51	300	283	672	453	45	620	749	663	44
Apr. 29	122	391	563	629	704	647	400	729	228	564	109	---	244	578	431	744	701	567
Average	401	450	521	471	619	476	472	617	400	431	259	597	474	359	624	668	(697)	414
Apr. 30	138	314	662	648	643	585	607	661	269	341	442	680	395	516	564	563	730	612
May 1	94	199	599	624	286	498	324	639	299	441	560	502	382	748	656	599	705	591
May 2	695	465	648	370	606	483	72	742	267	295	486	408	347	388	609	646	491	602
May 3	607	---	594	457	673	344	343	774	386	666	614	476	677	398	675	756	742	512
May 4	607	---	404	110	761	425	572	770	278	656	614	689	370	756	671	756	780	546
May 5	675	753	700	491	750	216	170	728	397	577	686	577	745	635	645	774	684	630
May 6	---	741	655	210	723	363	441	748	364	644	671	478	815	687	619	---	(687)	682
Average	469	494	609	416	635	416	361	723	323	517	582	544	533	590	634	682	(688)	597

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

Chart I. A. Average Temperature (°F.) at Surface, April 1959.



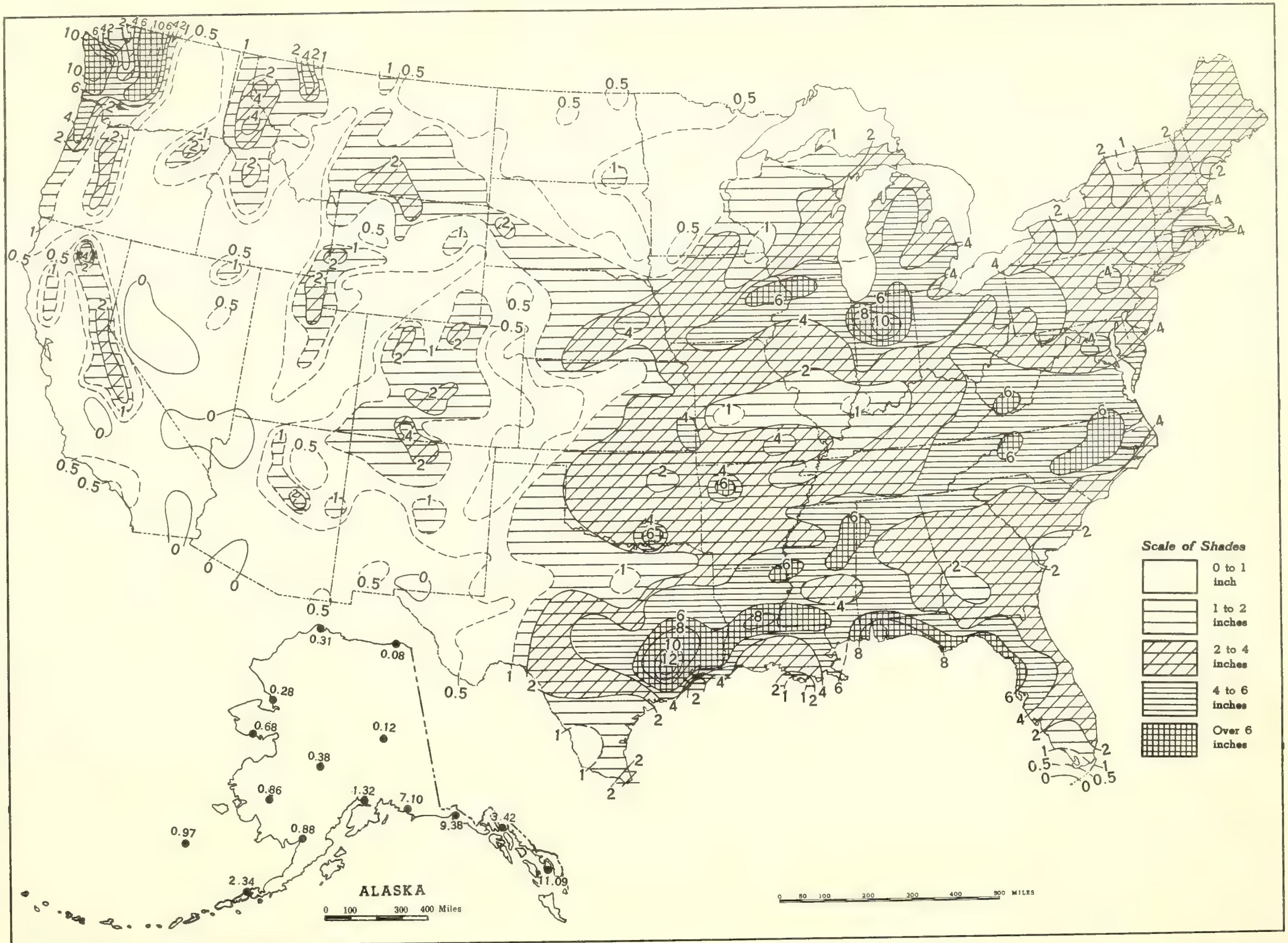
B. Departure of Average Temperature from Normal (°F.), April 1959.



A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

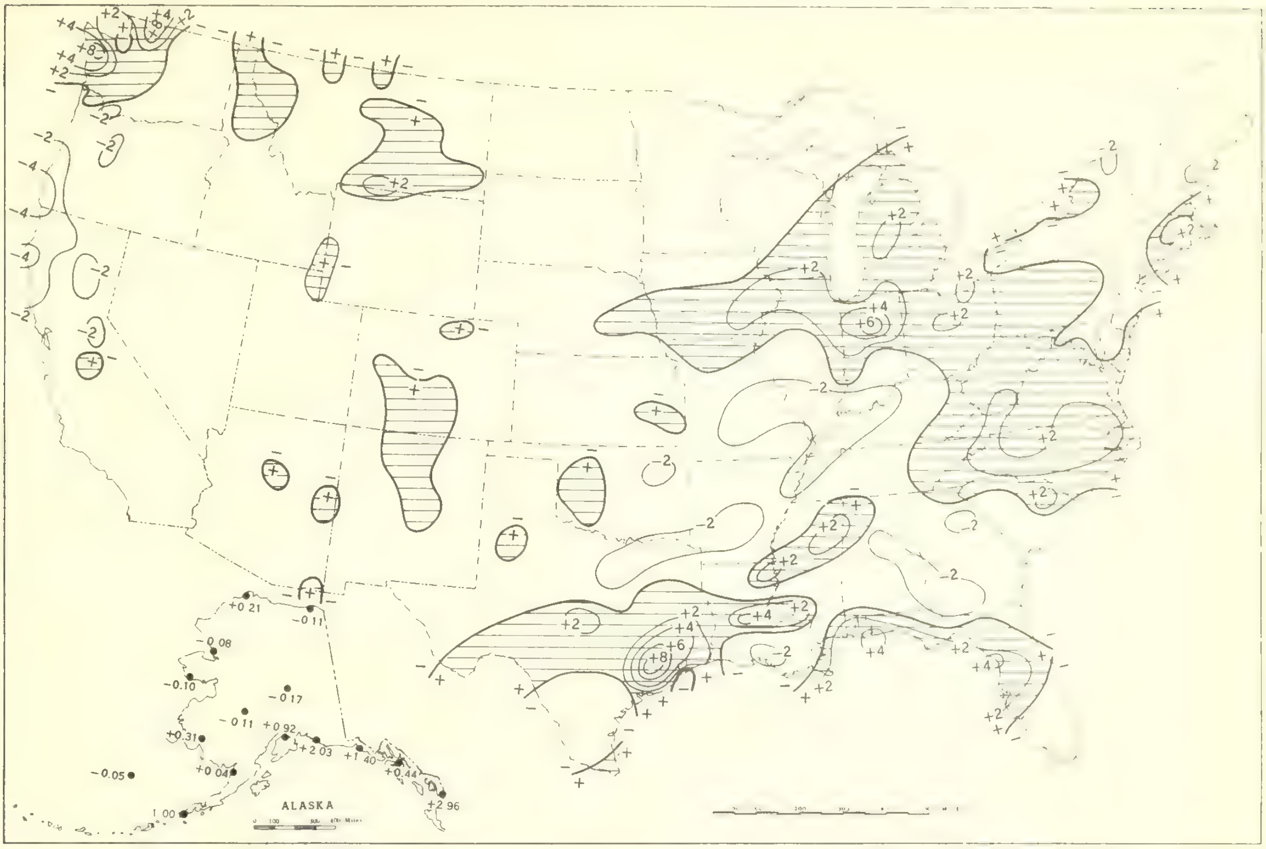
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), April 1959.

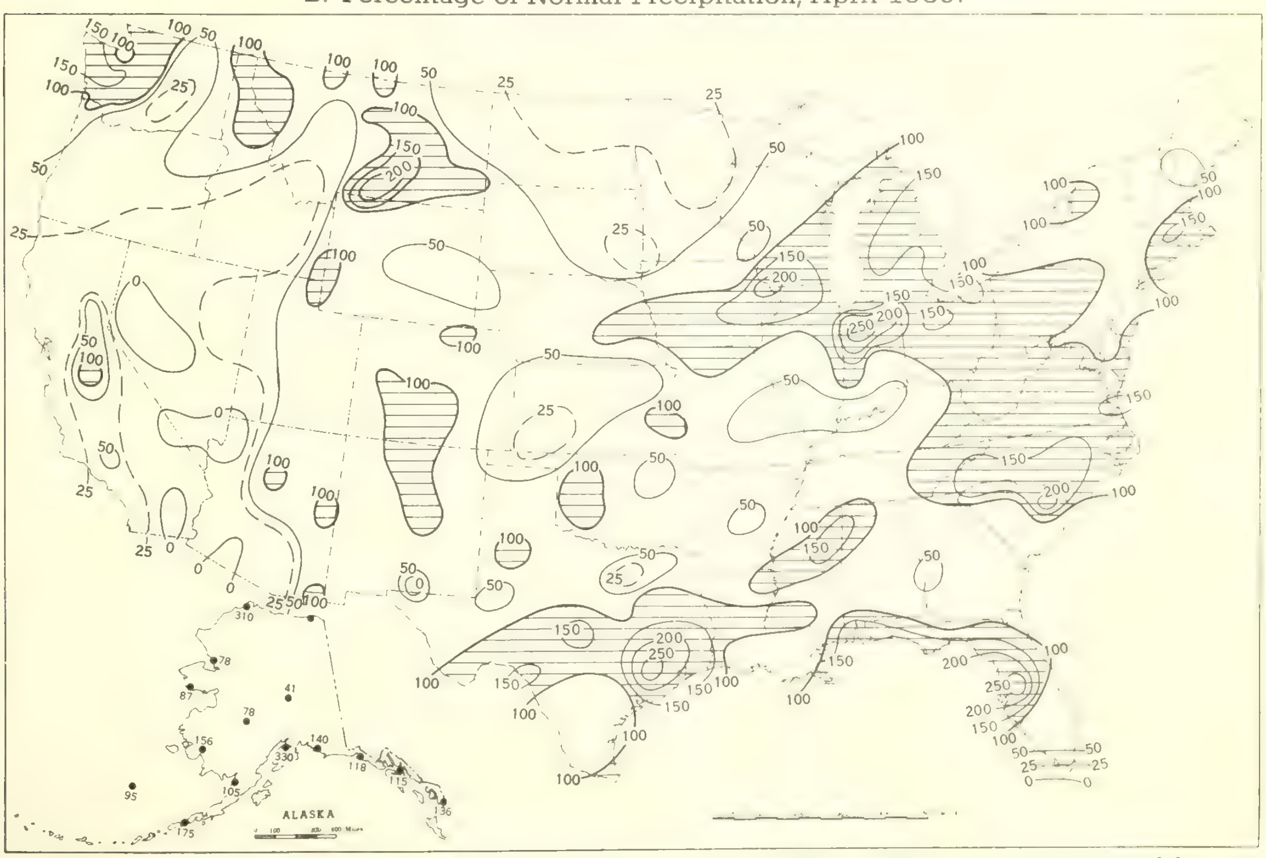


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), April 1959



B. Percentage of Normal Precipitation, April 1959.

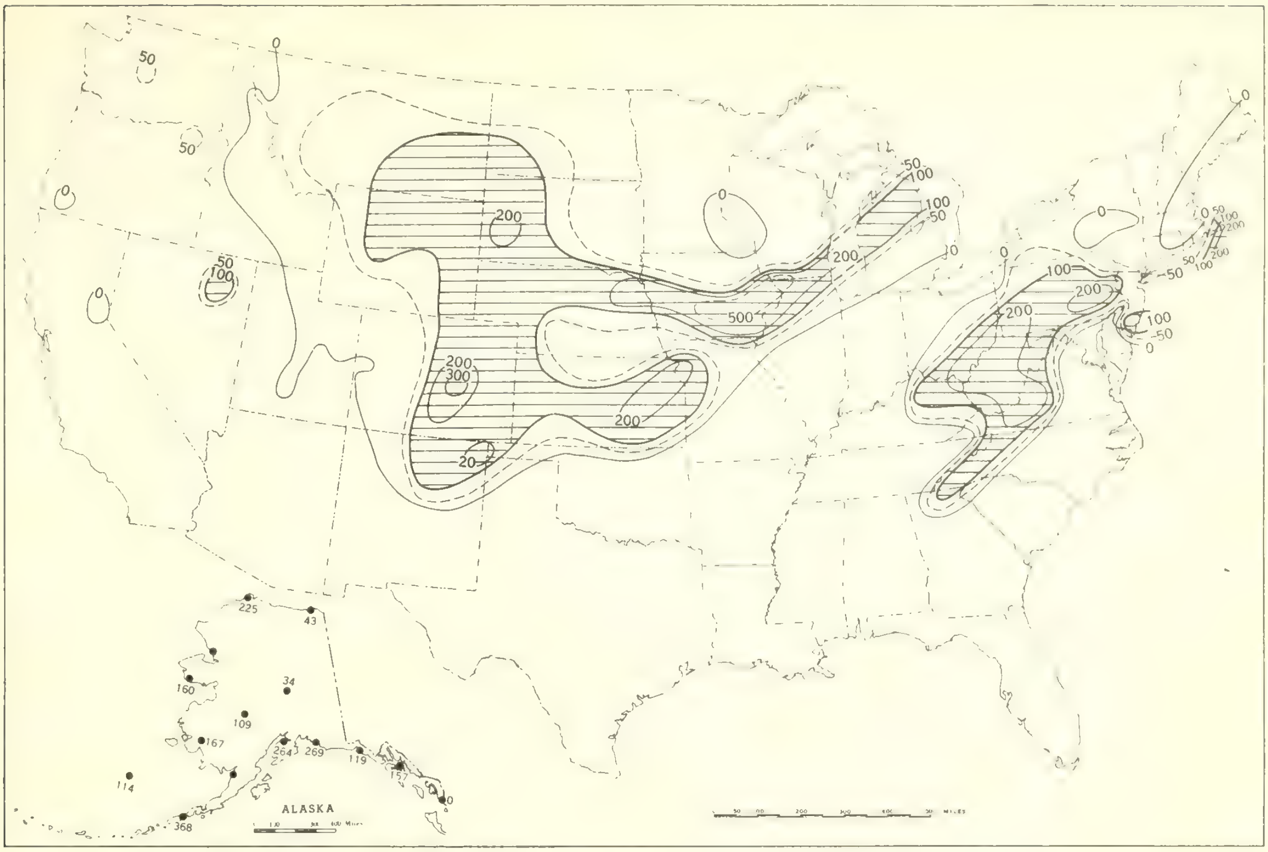


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

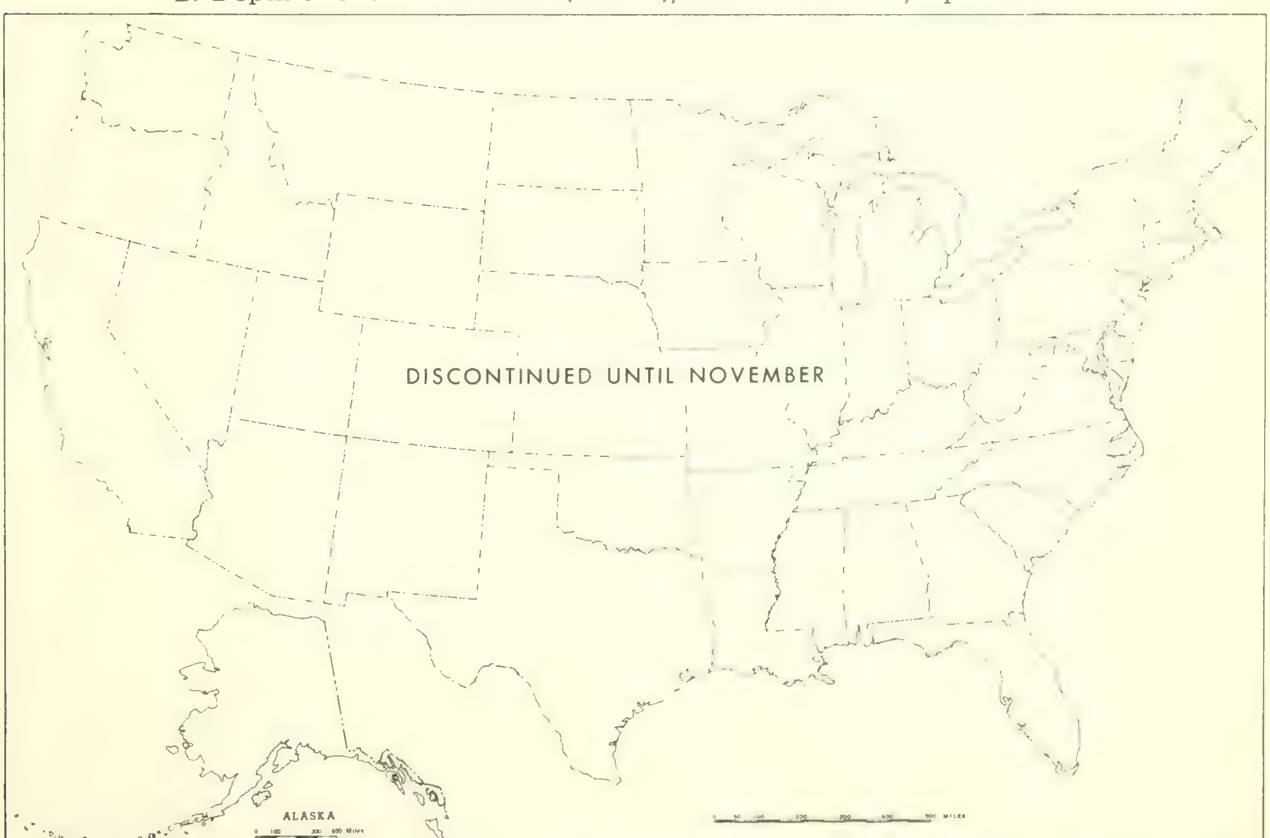
Chart IV. Total Snowfall (Inches), April 1959.

This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Normal Snowfall, April 1959.

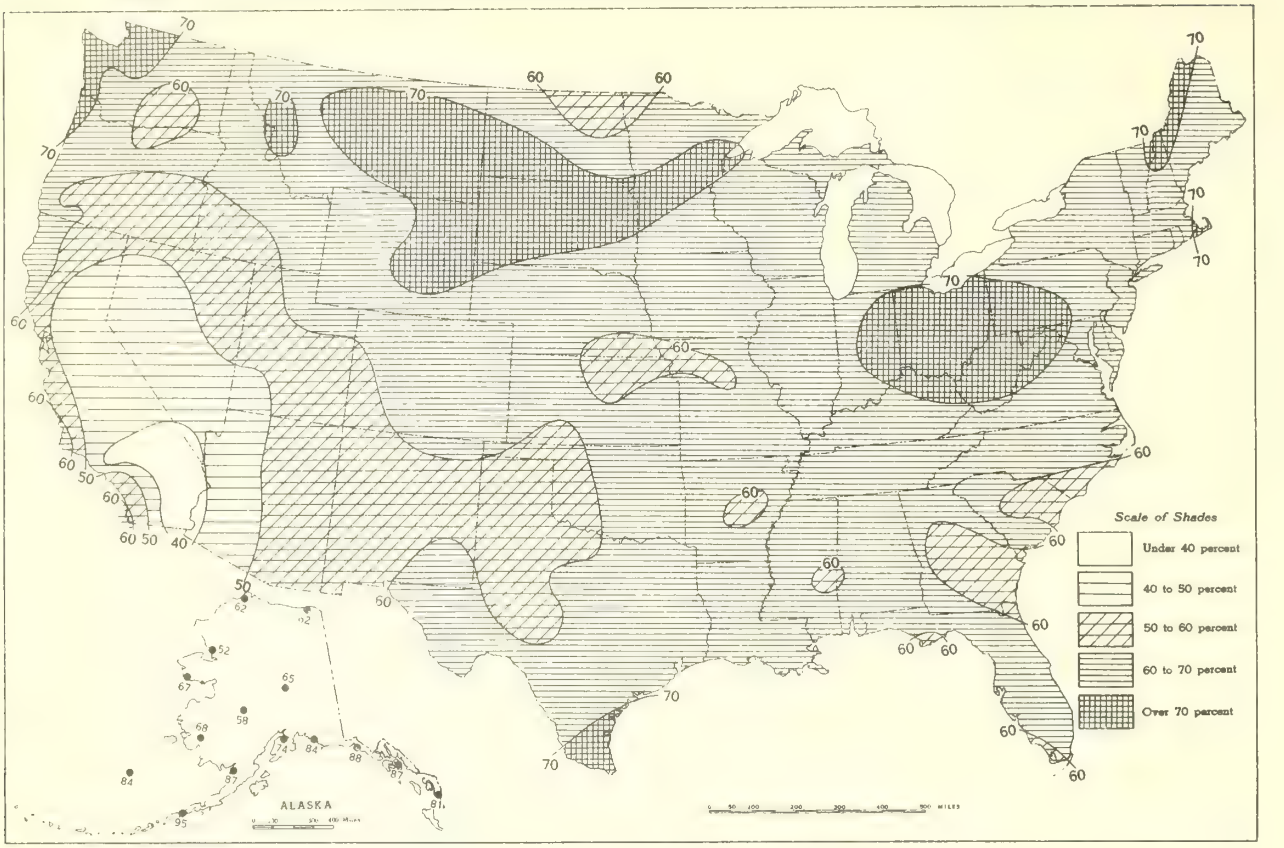


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., April 1959.

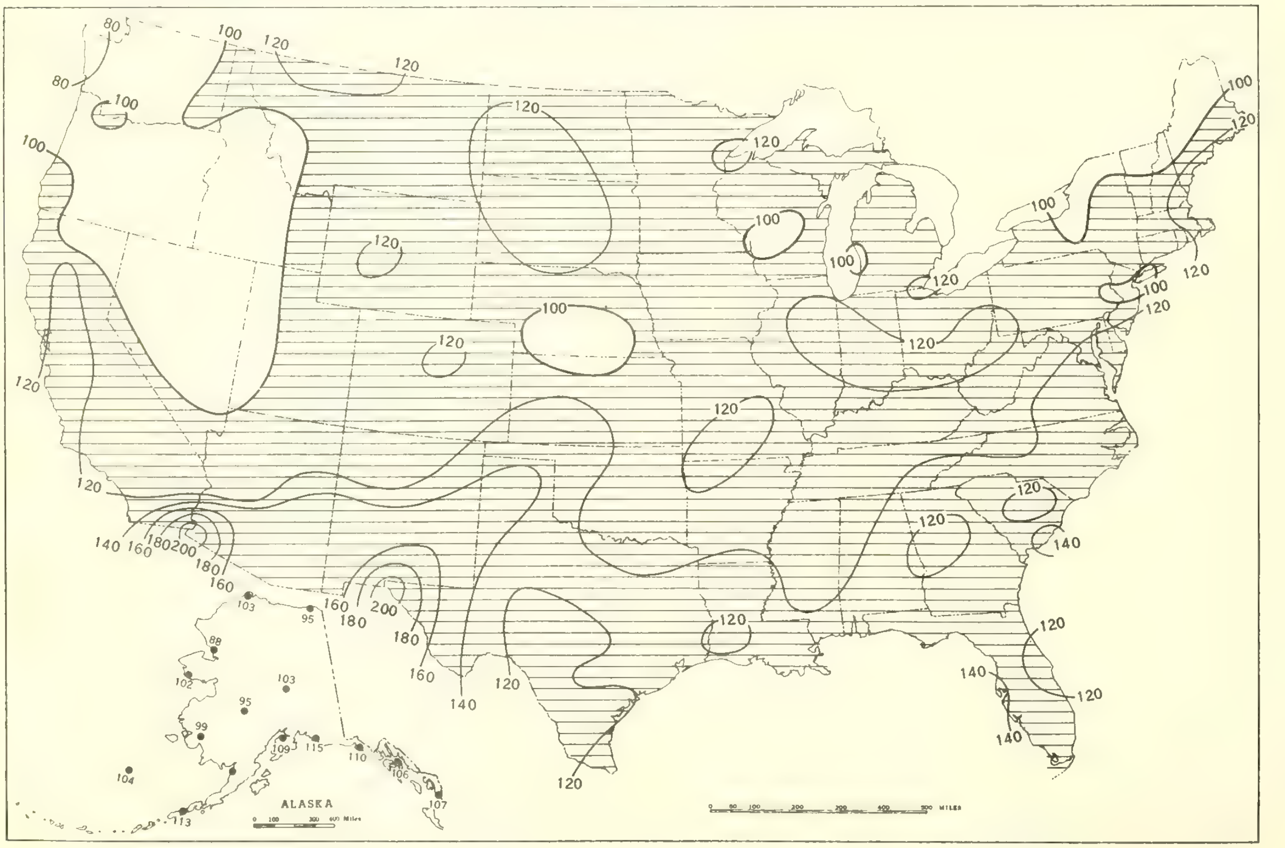


A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
B. Shows depth currently on ground at 7:00 a. m. E. S. T., of the Monday nearest the end of the month.
It is based on reports from Weather Bureau and cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, April 1959.

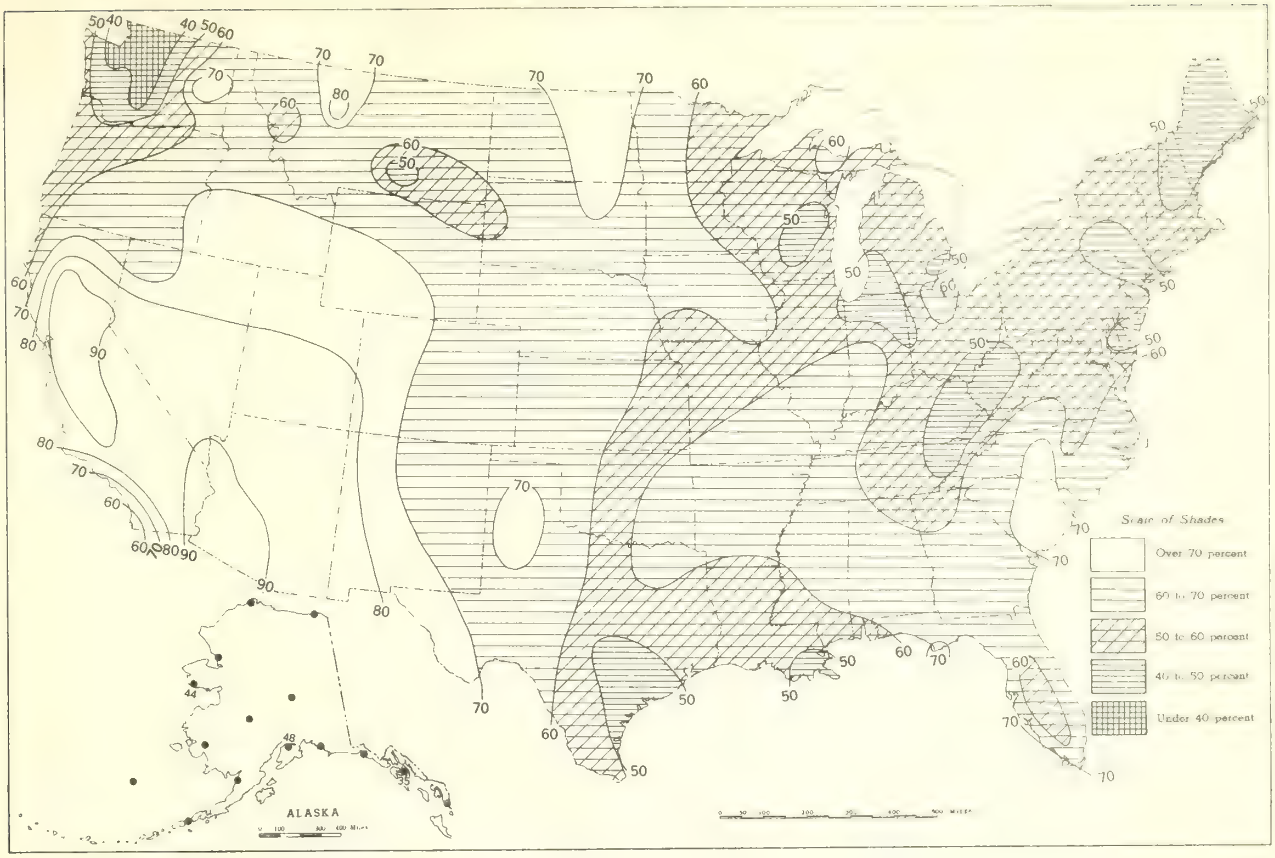


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, April 1959.

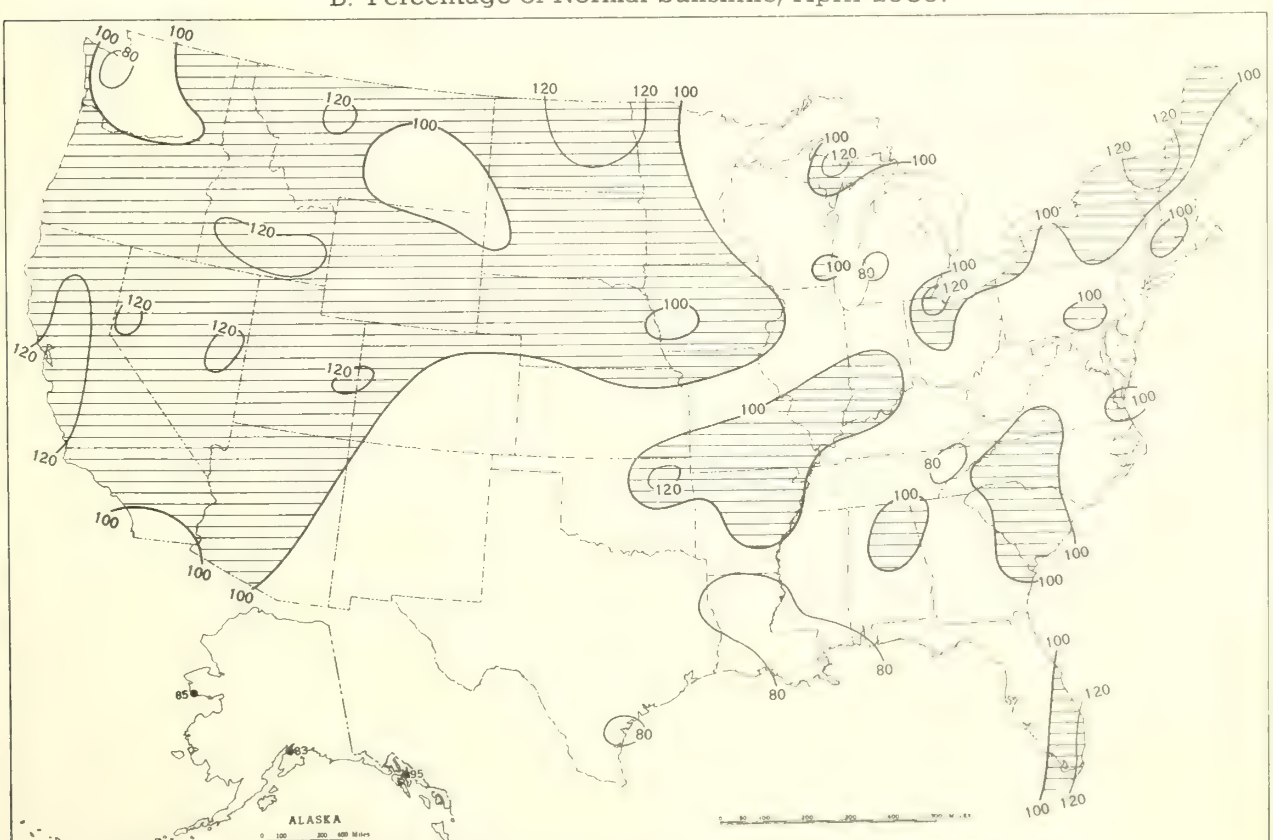


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, April 1959.

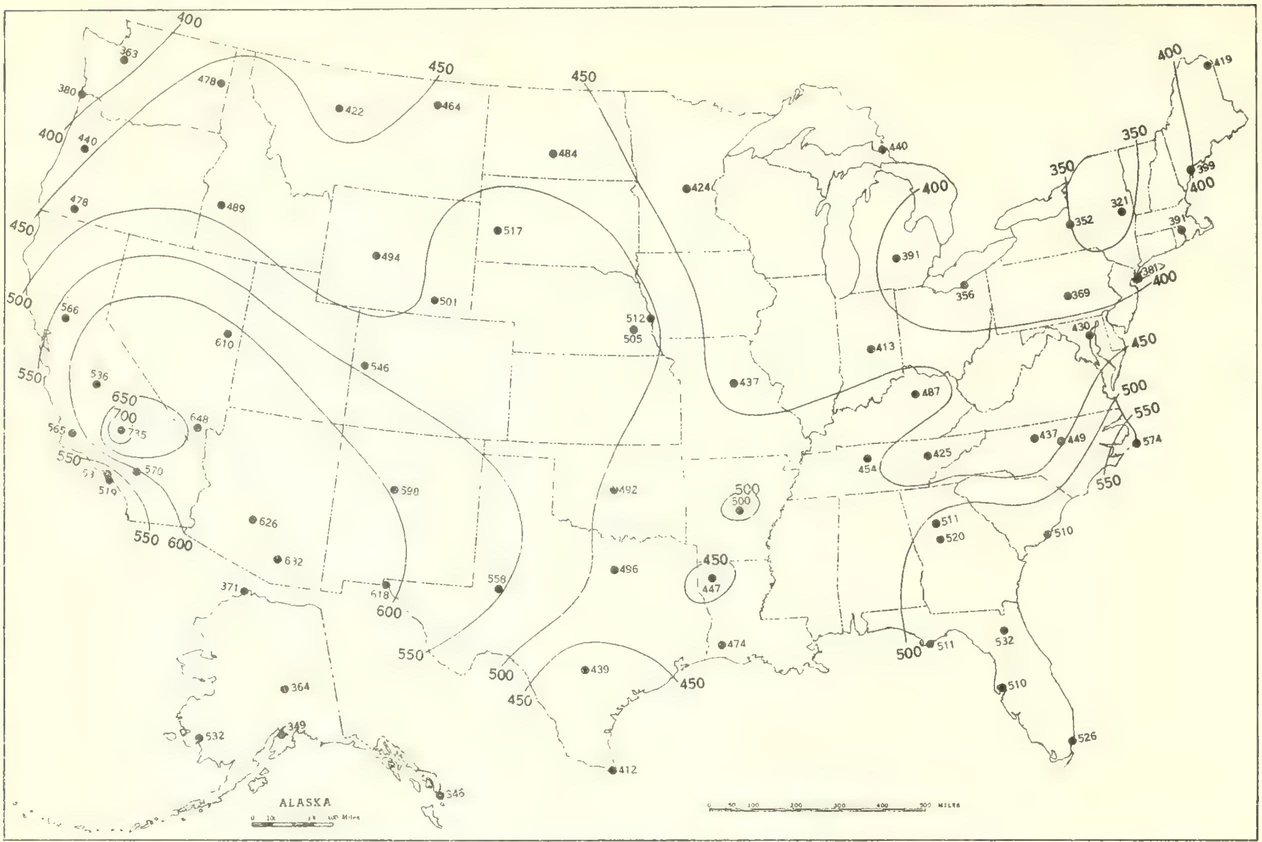


B. Percentage of Normal Sunshine, April 1959.

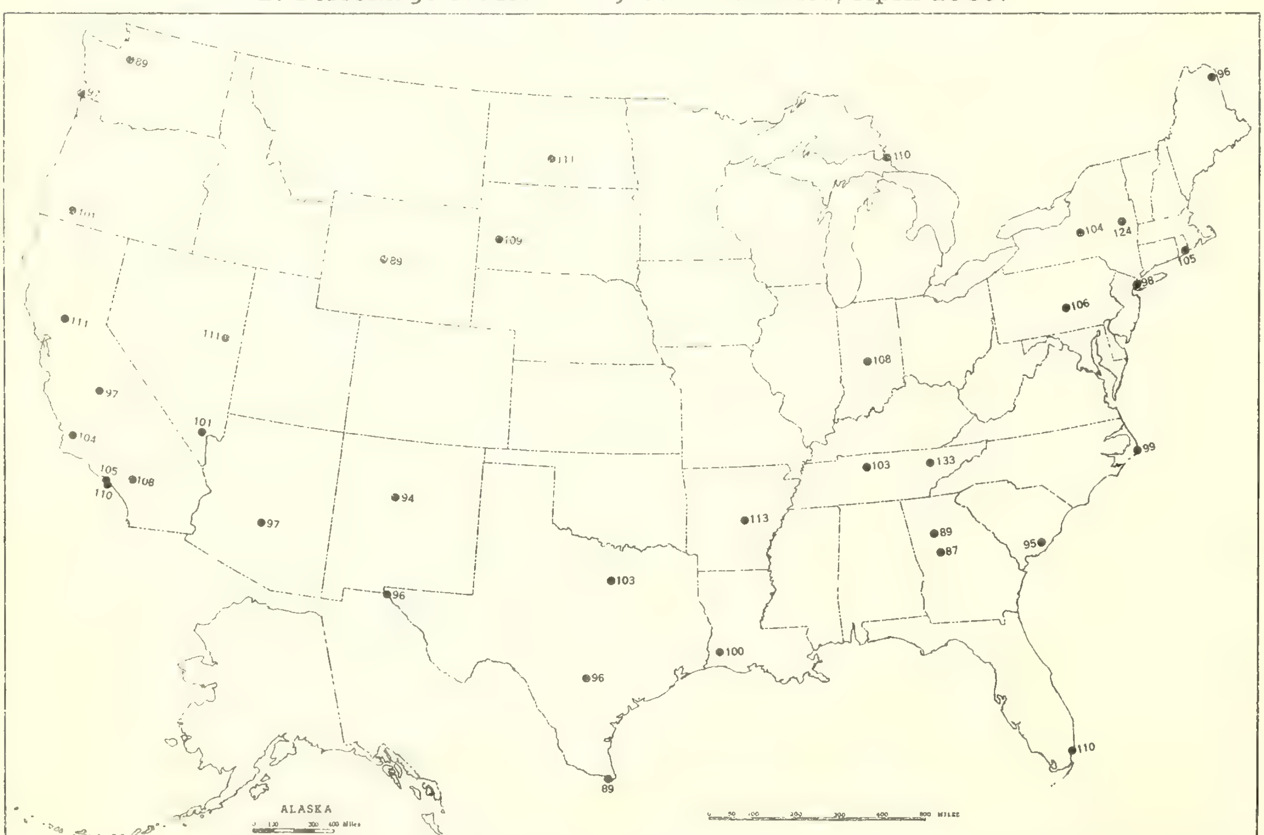


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, April 1959.



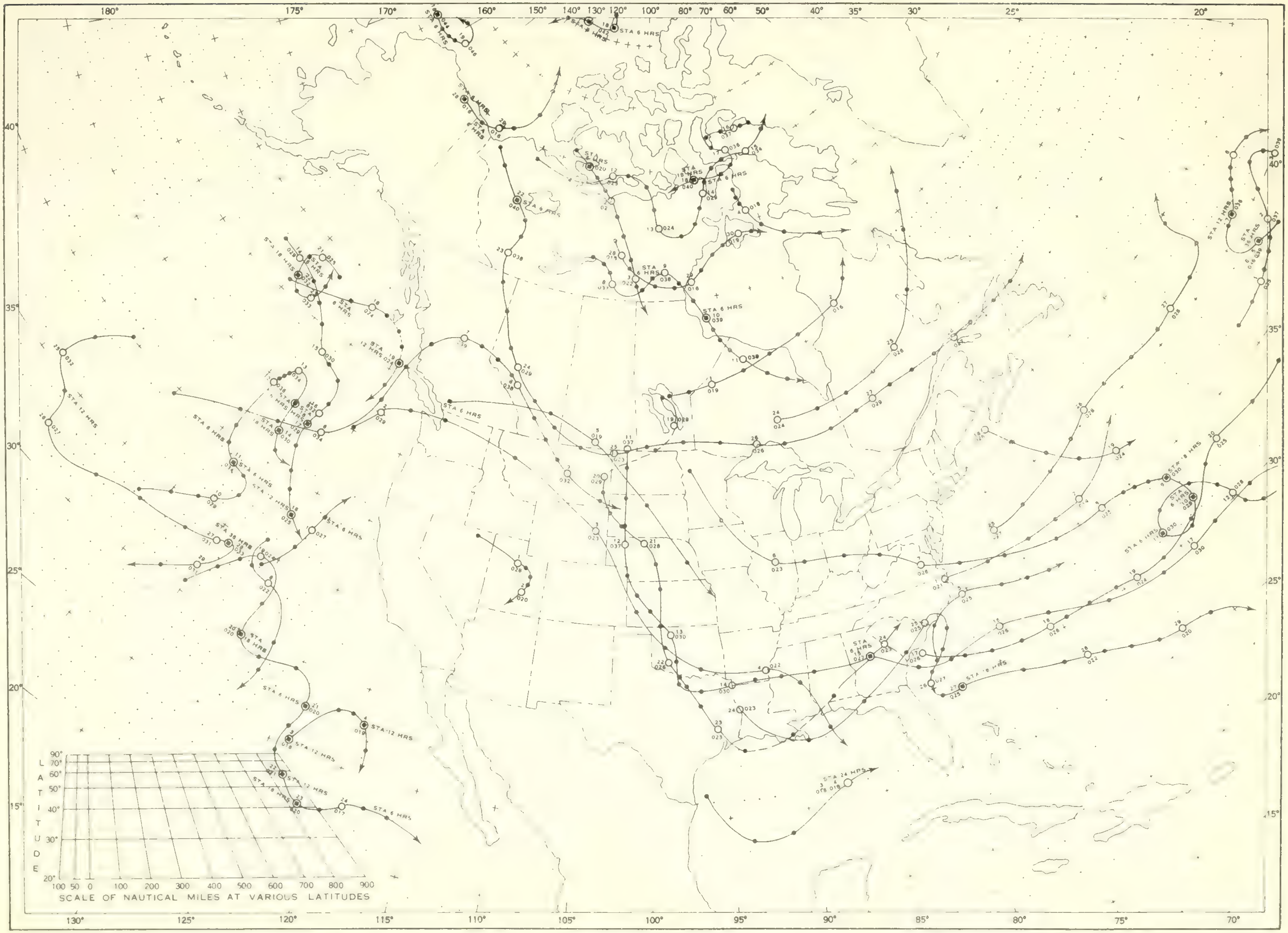
B. Percentage of Mean Daily Solar Radiation, April 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. $^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

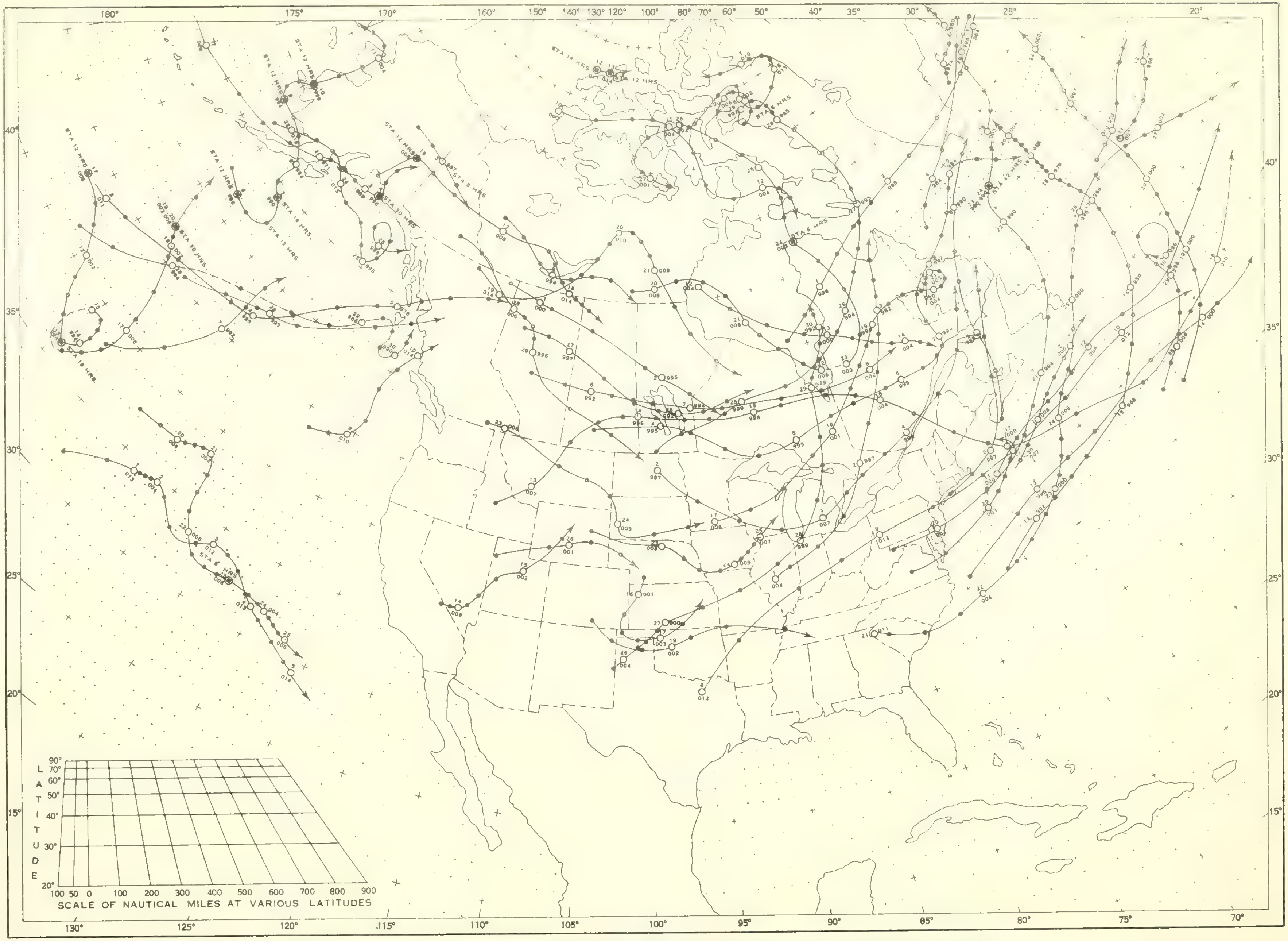
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, April 1959.



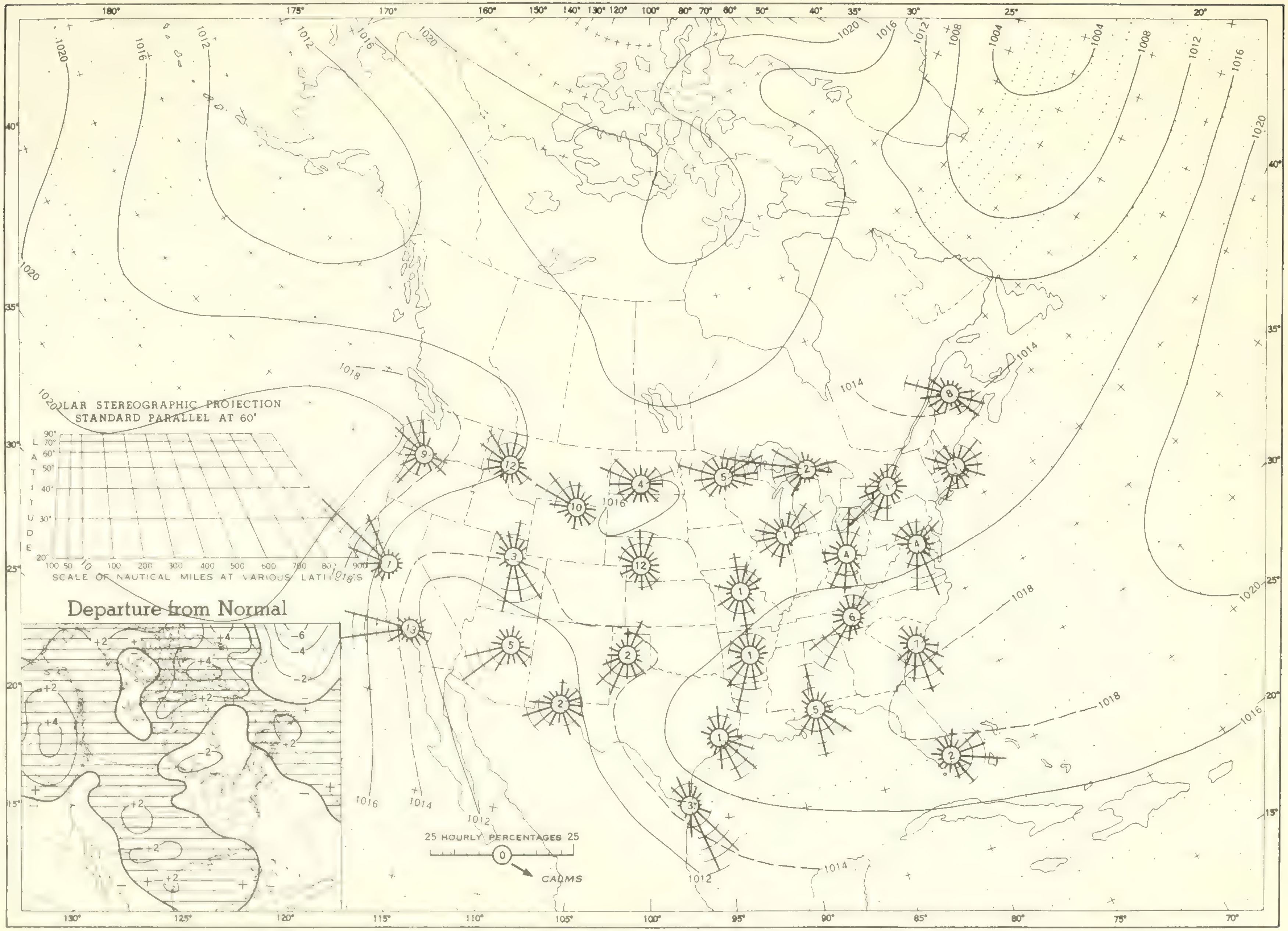
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, April 1959.



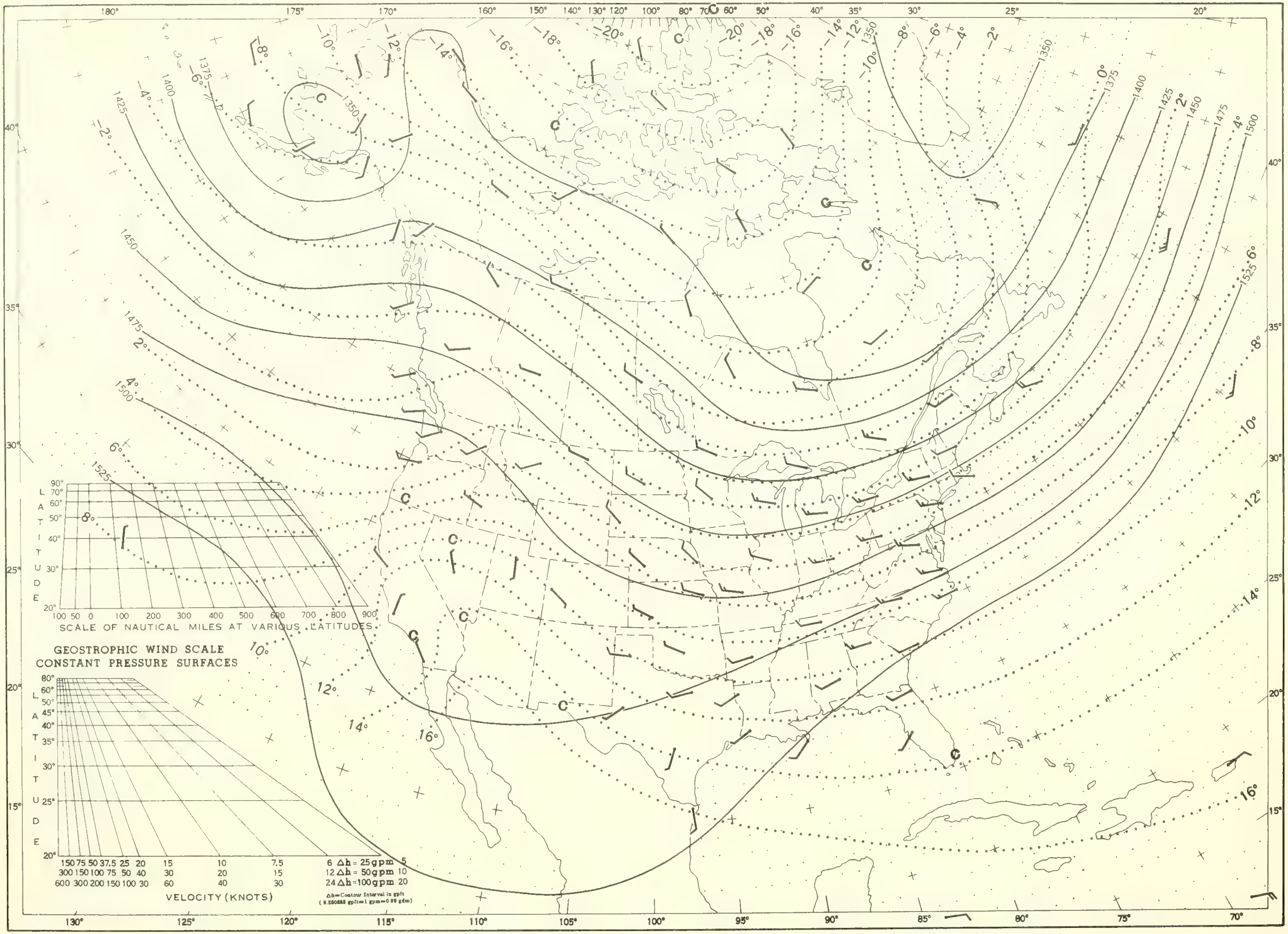
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, April 1959. Inset: Departure of Average Pressure (mb.) from Normal, April 1959.



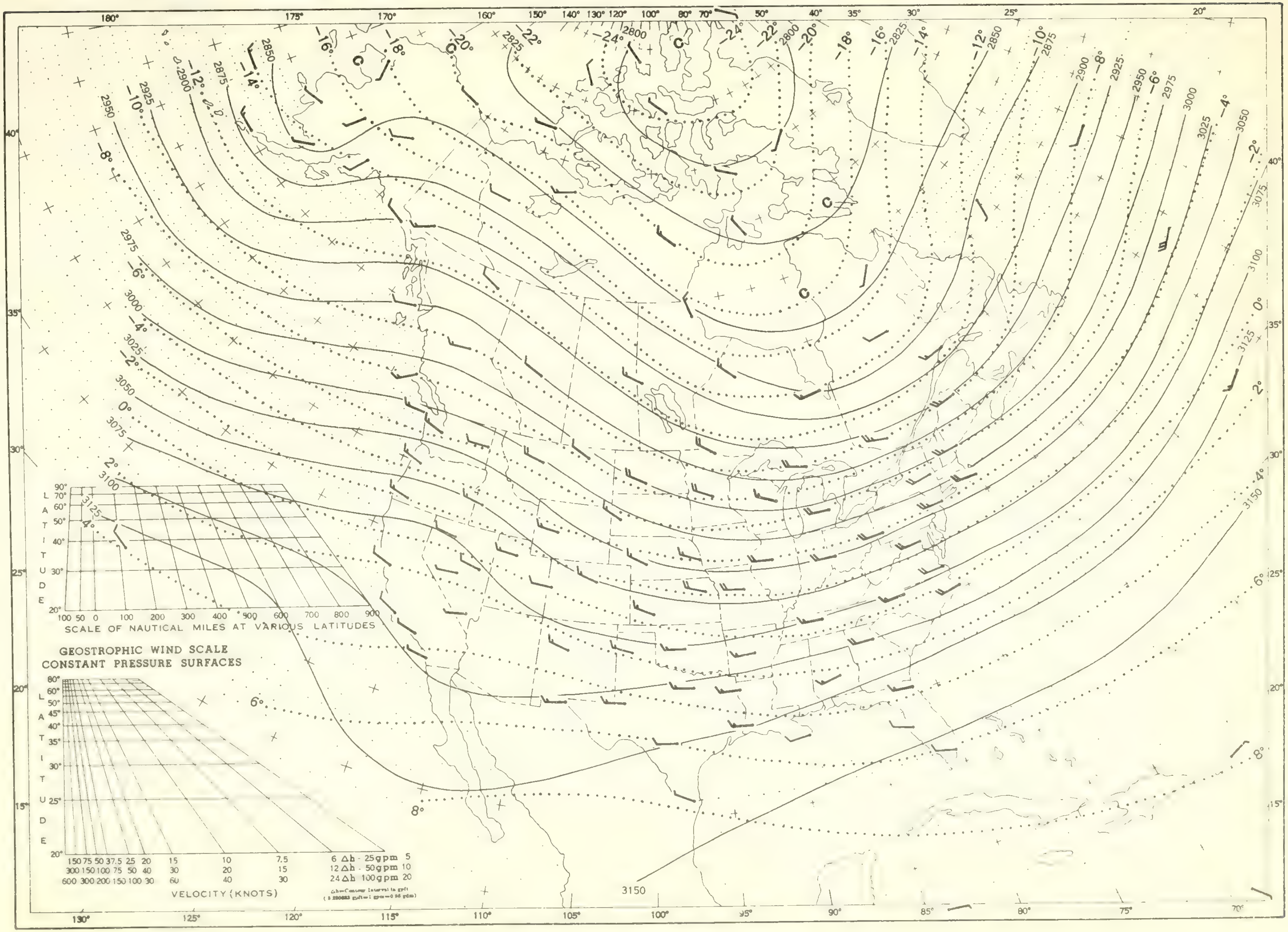
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, April 1959. Average Height and Temperature, and Resultant Winds.



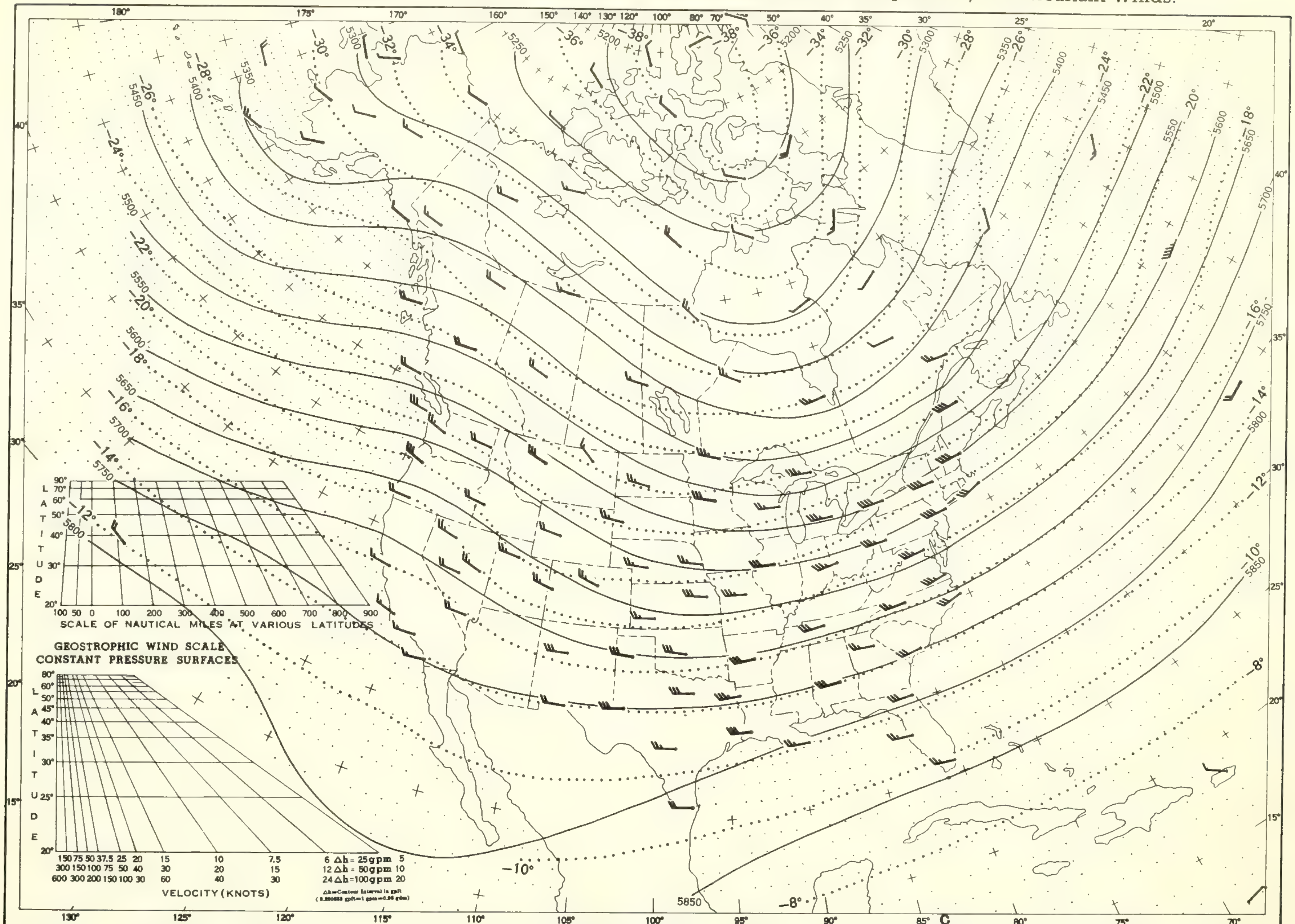
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, April 1959. Average Height and Temperature, and Resultant Winds.



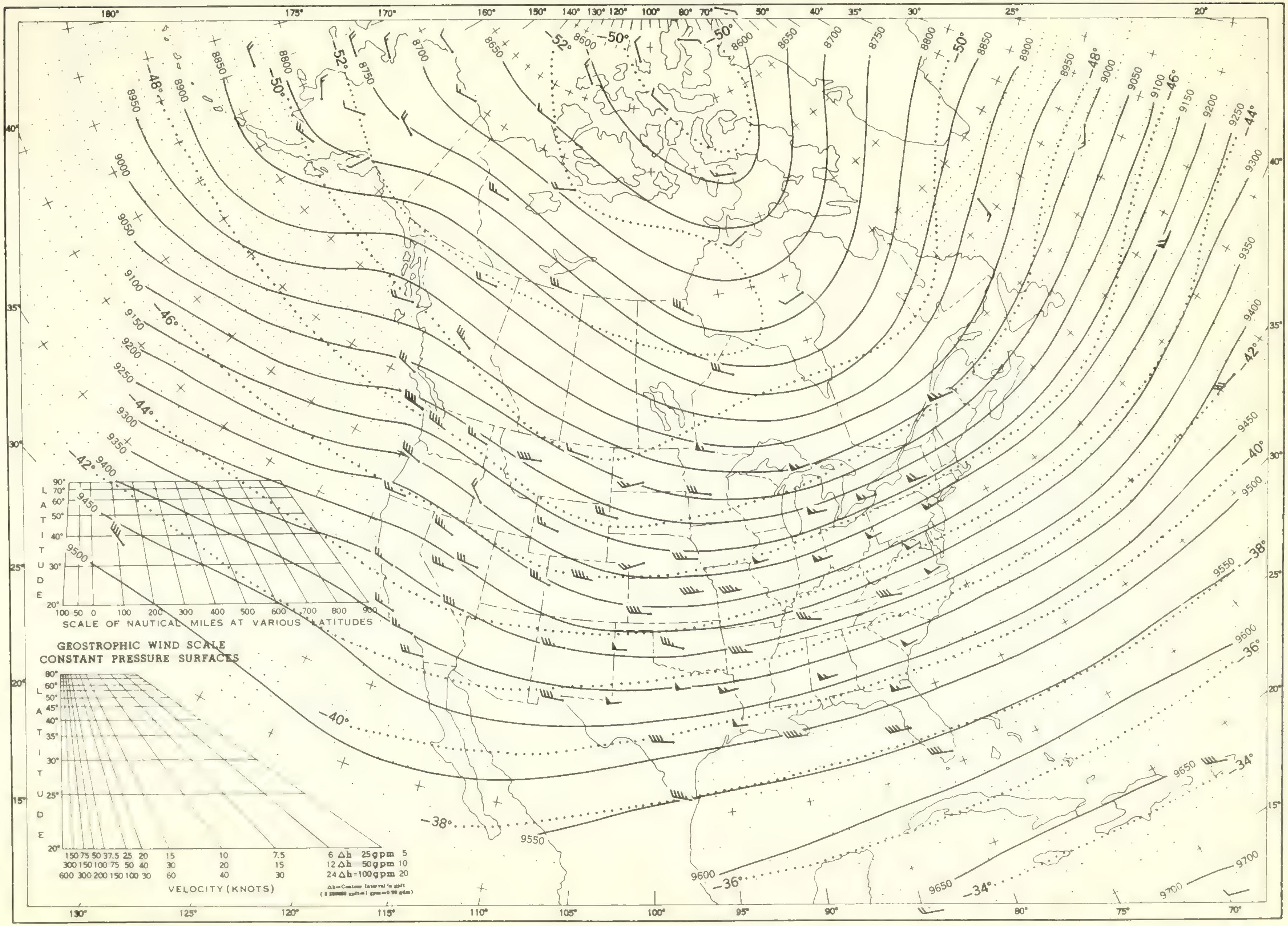
See Chart IX for explanation of symbols.

Chart XIV. 500-mb. Surface, 1200 GMT, April 1959. Average Height and Temperature, and Resultant Winds.



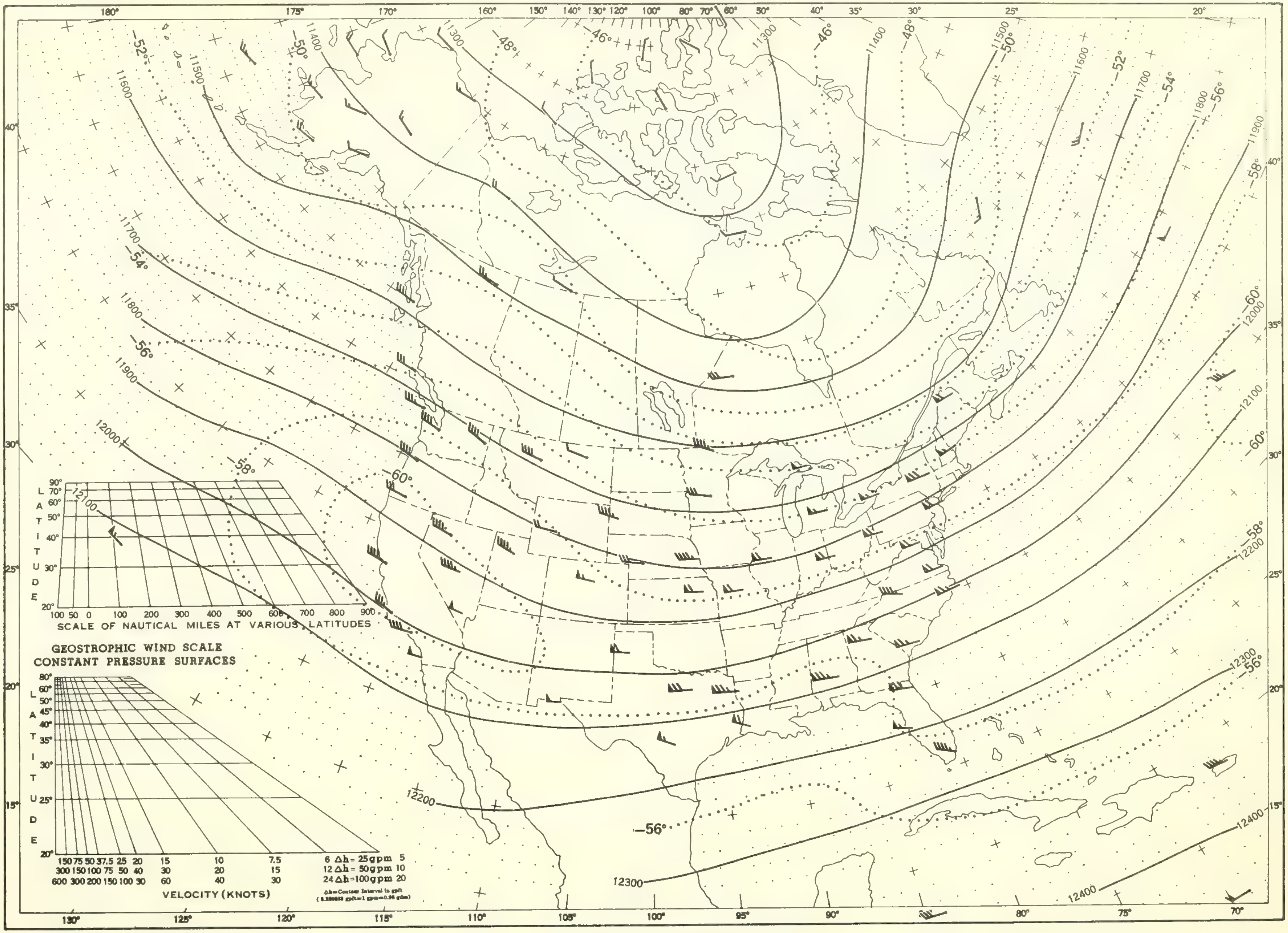
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, April 1959. Average Height and Temperature, and Resultant Winds.



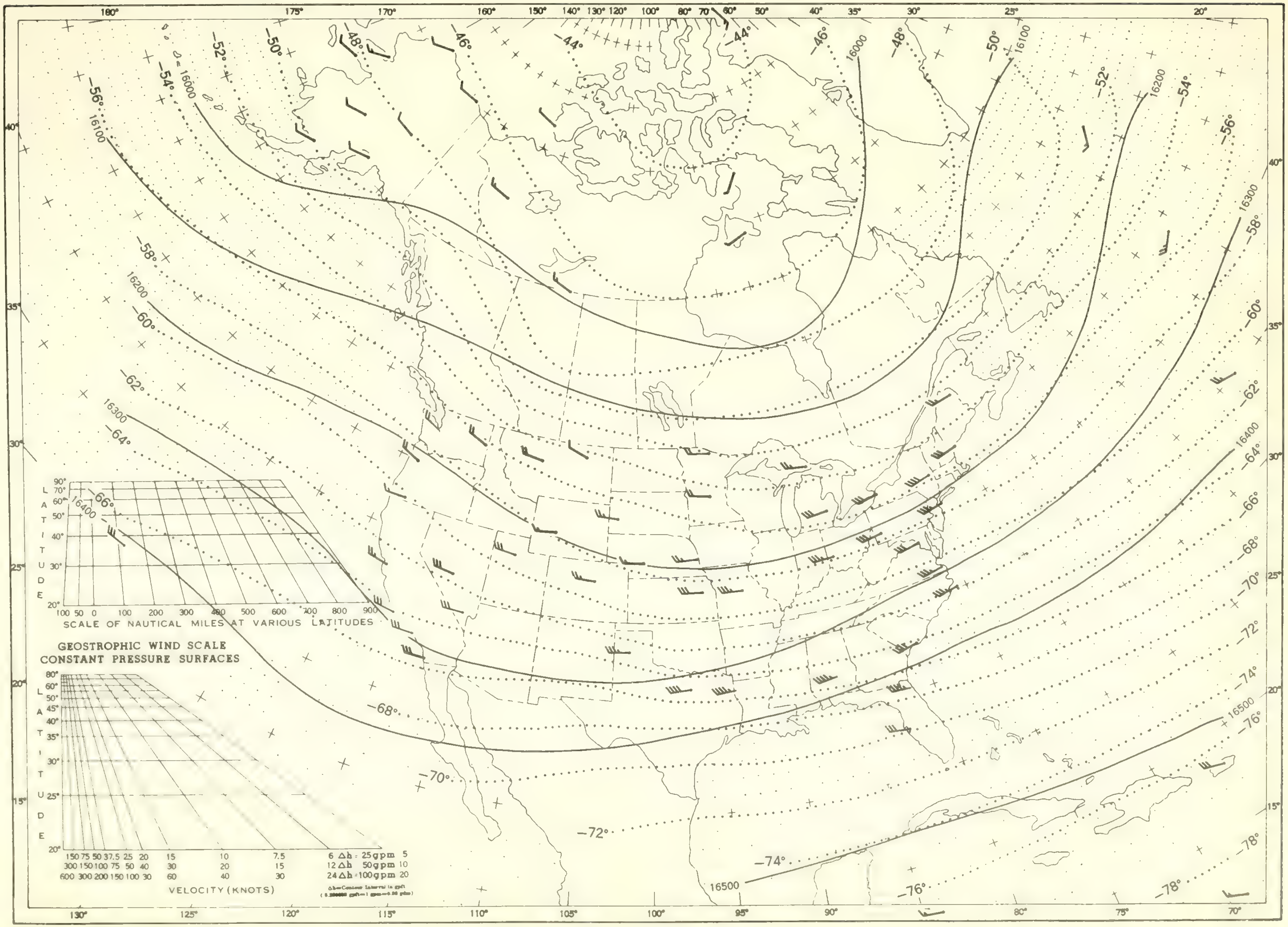
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, April 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, April 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

MAY 1959
Volume 10 No. 5

ASHEVILLE: 1959

CONTENTS

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 5 MAY 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

Widespread precipitation, numerous severe local storms, and alternate periods of above and below normal temperatures characterized the weather of May. Generous precipitation furnished much needed moisture in the Ohio Valley and helped replenish soil moisture in the northern Great Plains and upper Mississippi Valley where it had been depleted by a prolonged dry spell. Wind movement at many western stations, including Sacramento, Calif., Ely, Nev., Pocatello, Idaho, Grand Junction, Colo., and Corpus Christi, Tex., indicated an unusually windy month in the western half of the Nation.

TEMPERATURE.--Temperatures for the month averaged below normal in the Dakotas and most of the Far West, and above normal in the remainder of the Nation. Average departures from normal ranged from -6° in the Great Basin of the Far West to +6° in the lower Lake Michigan region. Yakima, Wash., had its lowest average (53.1°) for May since the beginning of records there in 1910, and freezes damaged some Bartlett pears and apples in the area. In contrast, Muskegon, Mich., reported its highest average (60.5°) for May on record.

The first week was unusually warm east of the Rockies and maxima in the 80's and 90's or higher set new date records in a broad belt extending from the eastern Dakotas to the Carolinas. Some of these new station records were: Fargo, N. Dak., 97° on the 1st; Chicago, Ill., 91° on the 2d; Louisville, Ky., 95° on the 4th; and Wilmington, N. C., 94° on the 3d.

In the Northeast maxima set new date records at several stations during the latter half of the month. Among these were Cleveland, Ohio, 91° on the 20th; Portland, Maine, 86° on the 20th and 88° on the 28th; Boston, Mass., 93° on the 22d; and Binghamton, N. Y., 90° on the 20th.

The coldest weather relative to normal and the sharpest temperature drop occurred east of the Rockies about midmonth. During this cold snap scattered freezing occurred as far south as northern Missouri, Ohio, central Pennsylvania, and the southern Appalachians. The mercury dropped to 22° at Clingman's Peak, N. C., into the teens in the Dakotas, the middle and high 20's in Iowa and Ohio, and the middle 20's in western New York State and northern New England. Record low temperatures for the 15th included 24° at Huron, S. Dak., 35° at Des Moines, Iowa, and 39° at St. Louis, Mo. A few of the many record date lows recorded on the 16th were 32° at Columbus, Ohio; 35° at Indianapolis, Ind.; 42° at New York City; and 46° at Cairo, Ill., and Augusta, Ga.

PRECIPITATION.--Although frequent and widespread, precipitation was still only 50 percent of normal for the month in New England and some adjoining areas of nearby states, and in some sections of the Far Southwest. In contrast, monthly totals ranged up to 200 percent of normal or more in the Southeast, in a belt extending from Kansas to the upper Mississippi Valley, and in several widely scattered areas elsewhere in the Nation.

In the northern Great Plains and upper Mississippi Valley where precipitation was short in 1958 and for the first 4 months of 1959, May rainfall was above normal except in eastern Montana, northeastern Wyoming, and extreme western North Dakota. Minneapolis, Minn., measured 5.03 inches for its wettest May since 1944; Sioux Falls, S. Dak., reported 7.28 inches for its wettest May since 1936; and Sioux City, Iowa, had 8.46 inches, the greatest amount there for May in over 50 years. Near record amounts for May fell at several points in western Iowa and eastern Nebraska. Omaha, Nebr., measured 10.33 inches, its second greatest amount for May since 1883; and Lincoln, Nebr., had 8.91 inches for its wettest May since 1903, and 17.65 inches for the period January through May, the wettest such period on record.

In the Southeast and South this May was also among the wettest of record. A total of 9.54 inches at Rome, Ga., was the most for May there since the beginning of records in 1856. Athens, Ga., had a record May total of 11.34 inches, and also a record May 24-hour total of 5.54 inches which fell on the 25th and 26th. St. Petersburg, Fla., recorded 10.64 inches for a new record May total. Many stations had near record May totals, among which were Tampa, Fla., (7.55 inches); Columbus, Ga., (8.45 inches); and Asheville, N. C., (7.33 inches).

Dry weather in the Northeast was not serious owing to plenty of precipitation in previous months. Nevertheless, this May was among the driest there. Scranton, Pa., measured only 0.77 inch, the least in 59 years; Burlington, Vt., 1.49 inches, the least there since 1903; and Philadelphia, Pa., 0.80 inch, the least since 1887.

DESTRUCTIVE STORMS.--Tropical storm Arlene, the earliest on record in Louisiana, moved into that State on May 30. Highest winds were 55 m.p.h. (gusts up to 75 m.p.h.) at Patterson, and tides were 3 feet or more above normal along the coast. Wind damage was confined to a small area near the center whose path ran through Franklin and Baton Rouge. Main damage occurred in Franklin and St. Mary Parishes where trees were uprooted, power and communication lines downed, shingles torn from roofs, and TV antennas bent or broken. Heaviest rains of 10 to 12 inches fell in an area including Houma and the Moisant Airport near New Orleans. Serious flooding occurred in Jefferson Parish where up to 11 inches of rain fell in 24 hours, and crops were damaged in Terrebonne and Lafourche Parishes.

Severe local storms and tornadoes apparently were most numerous and frequent in the area of heavy rainfall which extended from Kansas to the upper Mississippi Valley. The month was described as one of the worst in history for these storms in Iowa where 22 tornadoes, 6 severe hailstorms, and many damaging windstorms were responsible for losses totaling millions of dollars.

CONDENSED CLIMATOLOGICAL SUMMARY

MAY 1959

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	Ozark	98	9	Madison	35	13	Bay Minette	13.26	Wallace 3SW	2.30
Arizona	Gila Bend	105	17	2 Stations	14	6+	Walnut Canyon NM	1.48	119 Stations	.00
Arkansas	Marianna 2S	97	21	Eureka Springs	36	15	White Rock	8.16	Aplin 1W	1.04
California	Cow Creek	109	13+	White Mountain 2	0	4+	Salt Springs PH	3.60	144 Stations	.00
Colorado	Eversoll Ranch	97	30	Sugar Loaf Res	15	6	Holyoke	6.48	Mesa Verde NP	T
Connecticut	3 Stations	92	22+	Coventry	24	9	Torrington 2	2.66	Hartford WB Airport	.73
Delaware	Bridgeville 1NW	94	30	Newark University Farm	36	17	Selbyville	2.10	Wilmington Porter Res	1.12
Florida	DeFuniak Springs	99	9	3 Stations	50	5+	Starke	15.74	Hypoluxo	2.04
Georgia	Ashburn	104	8	Blairsville Exp Sta.	32	16	Tray Mountain	16.90	Brooklet	2.50
Idaho	2 Stations	95	13	Dixie	8	6	Grangeville	5.50	Obsidian 3SSE	.50
Illinois	Harrisburg	96	5	Charleston 2WNW	32	16	Elizabethtown	9.78	Paris Waterworks	1.49
Indiana	Henryville State For	95	6+	3 Stations	29	16	Tell City Pwr Plt	8.95	Kokomo Sewage Plant	2.05
Iowa	2 Stations	94	1	do	26	15	Britt	13.48	Clinton No. 2	3.59
Kansas	Webster Dam	99	2	2 Stations	32	15	Centralia	12.13	Achilles	.65
Kentucky	Irvington	96	4	Manchester 4SE	31	17	Addison Dam 45	12.73	Flemingsburg	1.38
Louisiana	2 Stations	95	22	Tallulah Delta Lab	47	15	Paradis 7S	18.00	Point Au Fer Reef	1.41
Maine	Belfast	92	28	Squa Pan Dam	21	9	Jackman	2.46	Sanford 2NNW	.26
Maryland	Denton	95	30	Oakland 1SE	28	9+	Westminster	5.04	Solomons	.62
Massachusetts	Framingham	95	22	2 Stations	26	18+	Hatchville	3.46	West Otis	.47
Michigan	2 Stations	92	5+	Vanderbilt Trout Sta.	16	1	Lupton 1SW	7.41	Montague	1.10
Minnesota	Beardsley	100	1	Detroit Lakes 1NNE	19	15	Fairmont	10.41	Crookston NW School	2.48
Mississippi	5 Stations	94	30+	2 Stations	40	16+	Carrollton 1SSW	13.98	Scott	1.61
Missouri	Kennett Radio KBOA	95	5+	Berryman 6NW	29	16+	King City	10.33	Alton	1.83
Montana	Yaak	91	15	Dell 12SSW	5	4+	Shonkin 7S	7.65	Whitewater	.53
Nebraska	Beaver City	99	1	3 Stations	24	15	Firth	12.06	Wilsonville	1.51
Nevada	Mesquite	103	12	2 Stations	13	20+	Jarbidge	4.12	4 Stations	.00
New Hampshire	2 Stations	95	27	do	21	9	Lebanon FAA Airport	2.79	South Weare 1SE	.42
New Jersey	4 Stations	93	31+	Layton 3NW	28	9	Atlantic City WB AP	5.03	Belvidere	.40
New Mexico	2 Stations	99	13	Eagle Nest	12	6	Potash Mine	6.24	30 Stations	.00
New York	Poughkeepsie	95	23	Indian Lake 2SW	21	4	Watertown	5.84	Cairo	.12
North Carolina	9 Stations	95	27+	2 Stations	28	17+	Haywood Gap	21.62	Bodie Island	.29
North Dakota	Forman	103	1	3 Stations	16	15+	Jamestown FAA Airport	5.52	Beach	.75
Ohio	7 Stations	93	6+	2 Stations	25	16	Greer	7.29	Warren Ohio Edison	1.38
Oklahoma	Tipton 4S	103	18	Boise City	35	6	Calvin	11.40	Regnier	2.50
Oregon	Modoc Orchard	98	12	Fremont	11	30+	Brightwood	8.05	Arlington	.10
Pennsylvania	Phil Drexel Inst. of Tech.	94	30+	Coudersport 3NW	21	16	Uniontown	6.17	Wilkes Barre	.69
Puerto Rico	3 Stations	93	20+	Garzas Dam	50	27+	Rio Blanco Upper	24.83	Santa Rita	1.20
Rhode Island	Providence WB AP	90	28	Kingston	31	17+	Kingston	2.90	Woonsocket	1.27
South Carolina	Bamberg	99	24	Long Creek 1N	37	15	Sassafras Mountain	17.16	Kingstree	1.34
South Dakota	5 Stations	102	1	2 Stations	18	15	Yankton 3NNW	8.75	Ludlow 2NW	1.69
Tennessee	Center Hill Dam	96	6	do	31	17+	Lock B Cumberland River	9.09	Paris	1.68
Texas	3 Stations	105	27+	do	35	6	Jacksonville	14.98	2 Stations	.00
Utah	2 Stations	98	13+	3 Stations	12	20	Silver Lake Brighton	3.83	3 Stations	.00
Vermont	Vernon	91	29	Cavendish	20	18	Bennington 2NW	3.32	St Albans Bay	.48
Virginia	3 Stations	95	28+	Burkes Garden	28	17	Monterey	5.46	Dahlgren Prov Ground	.70
Washington	2 Stations	93	13	Rainier Paradise RS	17	5	Palmer 3SE	7.60	Tieton Intake	.05
West Virginia	Ripley	96	21	Canaan Valley	25	10	Horner	6.92	Spencer	1.48
Wisconsin	4 Stations	95	[illegible]	Gordon 2ESE	17	15	Cashton 5SE	9.73	Milwaukee Mt. Mary C	1.04
Wyoming	Yoder	92	1	Big Piney	10	5	Hecla	5.35	Cody 23SW	T

+ And also on an earlier date or dates.

Note. Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths, sunrise to sunset	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F	°F.	°F	°F		°F		#		°F	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0-3	4-7	8-10	0-10	%
ALABAMA																																
Birmingham	610	993.2	1018.5	85	61	72.9	3.4	91	7	45	15	3	0	61	72	8.27	4.53	2.90	16	11	0.0	0	7.8	S	34	W	22	6	11	14	6.5	74
Huntsville	605	995.3	1018.3	84	61	72.6	---	94	5	44	15	6	0	61	72	5.53	----	1.18	13	9	.0	0	6.8	SE	*23	E	19	5	12	14	6.5	--
Mobile	211	1015.3	1017.6	84	66	75.3	1.9	91	8	57	15	3	0	66	76	7.40	2.76	1.92	11	10	.0	0	9.7	S	*26	S	30	4	15	12	6.5	--
Montgomery	195	1010.0	1018.1	87	63	75.3	2.8	93	9	50	15	11	0	62	69	6.53	3.07	2.41	12	10	.0	0	5.4	S	25	S	12	6	12	13	6.4	68
ALASKA																																
Anchorage	92	1007.8	1013.9	57	39	47.6	1.9	69	27	29	1	0	3	34	59	.49	-.02	.30	5	0	.0	T	8.0	S	*21	SSE	11+	3	9	19	7.2	54
Annette	110	1013.2	1017.5	55	43	48.9	-.1	68	25+	35	11	0	0	40	75	8.81	4.32	3.36	14	0	T	0	10.2	SSE	*30	SE	12+	5	5	21	7.7	-
Barrow	22	1020.7	1021.1	25	15	19.6	.8	35	25+	1	2	0	31	16	86	.17	.04	.10	6	0	1.8	16	11.4	NE	34	E	24+	4	4	23	8.1	--
Barter Island	39	1018.3	1020.2	27	15	20.6	.4	37	25	-5	2+	0	31	15	76	.17	-.05	.07	6	0	1.8	11	12.2	E	*35	WNW	29	5	4	22	7.7	--
Bethel	125	1010.2	1011.3	50	34	42.1	2.1	68	17	26	5	0	12	35	78	.61	-.28	.22	11	0	1.7	4	13.0	S	*35	ESE	7	4	7	20	7.7	--
Cold Bay	90	1006.8	1010.5	47	35	40.9	1.4	58	27	27	11+	0	4	36	84	2.56	.87	.72	15	0	1.4	T	14.6	SE	*53	SE	6	1	2	28	9.0	--
Cordova	40	1013.2	1015.0	54	36	45.2	2.3	72	25	27	3	1	9	38	74	4.56	-1.88	.92	19	0	T	0	5.4	ESE	*23	ESE	5	4	7	20	7.7	--
Fairbanks	436	997.0	1014.1	58	37	47.2	-.2	74	17	26	11	1	10	34	59	1.02	.28	.72	5	0	.0	2	7.6	N	*23	WSW	23+	7	7	17	6.7	-
Juneau	15	1015.2	1016.0	54	38	46.0	-1.0	68	26	26	4+	0	6	37	74	3.79	.60	.91	10	0	.0	0	8.7	E	*29	ESE	8	5	2	24	8.0	--
King Salmon	44	1009.8	1011.7	54	35	44.4	1.6	73	27	26	2	1	9	36	73	.99	-.27	.29	15	0	.3	T	10.9	E	*40	E	5	3	9	19	7.7	--
Kotzebue	10	1014.6	1015.0	41	28	34.3	4.7	60	30	15	11	0	27	29	82	.65	.32	.43	6	0	T	13	9.7	W	*32	E	5	8	7	16	6.2	--
McGrath	334	1000.3	1013.0	58	34	45.7	2.5	69	17	23	1	0	14	31	59	.35	-.59	.11	7	0	T	2	6.0	N	*23	ENE	31+	3	12	16	7.3	--
Nome	13	1012.9	1013.2	43	33	38.0	4.3	60	31+	22	5	0	15	32	78	.99	.40	.53	6	0	.8	18	12.0	E	*35	ENE	5	3	7	21	7.7	32
St. Paul Island	22	1008.8	1009.8	39	31	35.1	-.1	49	31+	27	21+	0	21	32	89	.98	-.20	.28	16	0	1.5	1	----	---	--	--	--	2	5	24	8.7	--
Yakutat	28	1014.9	1015.9	52	36	44.4	1.1	66	27+	25	3	0	8	38	77	6.91	-1.01	2.13	15	0	T	T	7.9	ENE	*24	ESE	15	4	7	20	7.8	--
ARIZONA																																
Flagstaff	6993	------	------	65	34	49.8	-.2	79	12	23	4	0	11	--	--	.64	.11	.45	3	2	T	T	----	---	--	--	--	14	9	8	4.6	--
Phoenix	1109	970.5	1008.9	90	62	76.3	.8	100	13	51	5	22	0	35	24	T	-.17	T	0	1	.0	0	7.3	SW	*21	SSW	7	19	6	6	3.3	97
Prescott	5014	844.9	1010.3	75	45	59.7	-1.2	90	12	29	5	1	2	27	--	.28	-.02	.19	4	3	T	T	12.2	S	38	SW	18	17	6	8	3.9	84
Tucson	2584	922.5	1008.8	89	56	72.5	-.6	99	14+	43	5	15	0	25	19	.00	-.21	.00	0	0	.0	0	10.5	SW	33	NW	9+	23	4	4	2.5	98
Winslow	4880	848.6	1008.1	80	46	63.1	1.1	95	13	33	4	3	0	19	23	.62	.30	.62	1	1	.0	0	12.9	SW	*41	SSW	13	14	8	9	4.6	--
Yuma	199	1004.4	1009.3	93	63	77.7	-2.7	100	14+	51	4	26	0	39	29	.03	.01	.03	1	1	.0	0	8.9	S	26	SE	22	26	4	1	1.5	99
ARKANSAS																																
Fort Smith	458	998.0	1014.7	84	63	73.3	3.7	93	29+	50	15+	5	0	63	74	4.84	-.22	2.20	8	7	.0	0	8.8	ENE	52	W	9	5	11	15	6.8	55
Little Rock	257	1003.1	1016.3	84	65	74.8	5.0	92	28	52	15	3	0	63	69	1.66	-3.19	.72	10	5	.0	0	9.8	S	54	W	22	2	15	14	7.0	69
Texarkana	361	------	1015.9	84	66	74.9	3.0	92	29	54	15	2	0	--	--	4.11	-1.02	1.85	8	4	.0	0	8.1	S	--	---	--	--	-	--	---	--
CALIFORNIA																																
Bakersfield	494	996.3	1014.2	80	54	67.1	-3.1	96	12	42	3	4	0	43	44	.03	-.32	.03	1	0	.0	0	9.2	NW	*31	NNW	15	21	6	4	2.6	--
Bishop	4108	870.6	1010.2	78	43	60.3	-2.3	91	10	33	23+	2	0	--	--	.18	-.02	.18	1	1	.0	0	----	---	--	---	--	15	10	6	3.8	--
Blue Canyon	5280	838.1	1014.2	58	39	48.5	-3.7	76	12	26	2	0	5	--	--	2.96	.48	.99	10	8	11.5	6	8.2	---	30	SSW	1	15	7	9	4.5	--
Burbank	699	988.5	1014.4	73	54	63.2	-.8	80	7	46	5+	0	0	49	64	T	-.27	T	0	0	.0	0	3.8	S	*15	S	22	11	14	6	4.5	--
Eureka (U)	43	1016.9	1019.3	58	47	52.3	-.6	67	13	40	3+	0	0	--	--	.91	-.91	.42	7	0	.0	0	7.4	---	31	N	20	8	14	9	6.1	72
Fresno	331	1001.7	1013.9	79	51	64.9	-4.0	95	12	42	4	3	0	41	46	.09	-.19	.09	1	0	.0	0	8.9	NW	24	NW	3	21	8	2	2.2	93
Long Beach	34	1013.9	1014.9	72	56	63.9	---	79	6	48	5+	0	0	52	66	T	----	T	0	0	.0	0	7.7	S	*28	W	3	11	15	5	4.5	--
Los Angeles (U)	312	------	------	73	57	65.0	.2	81	7	51	4	0	0	51	66	T	-.26	T	0	0	.0	0	6.3	---	28	NW	3	9	15	7	5.0	68
Los Angeles	99	1010.8	1014.4	73	58	65.6	3.5	79	7	52	4	0	0	54	71	T	-.30	T	0	0	.0	0	8.6	WSW	*32	W	3	11	14	6	4.4	--
Mt. Shasta (U)	3544	892.0	1015.9	64	37	50.5	-3.0	85	12	28	4	0	5	--	--	.63	-1.04	.16	7	3	1.4	1	----	---	--	---	--	13	7	11	4.7	--
Oakland	3	1015.9	1016.3	68	51	59.5	1.1	84	7	43	4	0	0	47	67	T	.61	T	0	0	.0	0	12.1	WNW	*30	W	17+	18	10	3	3.4	--
Red Bluff	341	1001.7	1014.3	80	53	66.2	-1.8	96	11	40	3	4	0	36	37	.28	-.78	.18	4	2	.0	0	12.4	NNW	29	W	[illegible]	19	6	6	3.4	86
Sacramento	17	1013.2	1014.3	79	51	64.6	.6	92	11	41	4	2	0	44	53	T	-.54	T	0	0	.0	0	11.9	SW	31	S	12	18	10	3	3.1	96
Sandberg (R)	4517	861.2	1012.5	63	43	53.0	-3.7	79	10	30	3	0	3	--	--	.01	-.24	.01	1	0	T	0	16.3	---	*51	NNW	18	18	11	2	2.8	--
San Diego	19	1011.2	1014.5	70	59	64.3	1.1	76	6	51	5	0	0	52	68	T	-.26	T	0	0	.0	0	8.1	WSW	24	SW	3	10	14	7	5.3	57
San Francisco (U)	52	------	------	63	51	56.8	-.3	80	7	48	4+	0	0	--	--	.02	-.57	.02	1	0	.0	0	10.7	--	31	W	3	--	--	--	---	81
San Francisco	[illegible]	1015.9	1016.6	68	50	59.2	2.6	85	11+	47	10	0	0	47	70	.04	-.36	.04	1	0	.0	0	14.3	WNW	40	WNW	18	18	10	3	3.2	-
Santa Maria	238	1006.4	1015.2	66	46	56.1	-1.6	83	7	35	4+	0	0	47	73	T	-.32	T	0	0	.0	0	10.3	WNW	*33	WNW	3+	18	7	6	3.5	--
COLORADO																																
Alamosa	7536	769.7	1013.0	67	34	50.7	-.1	75	29	23	6	0	11	--	--	1.15	.58	.85	7	9	1.3	T	----	- -	-	---	--	6	15	10	6.0	-
Colorado Springs	6173	808.7	1011.2	70	43	56.5	1.1	83	30	33	6	0	0	33	52	3.48	1.42	1.43	10	6	.0	0	12.2	NNW	*32	NNW	7+	4	16	11	6.5	
Denver	5292	835.4	1011.5	68	45	56.2	-.1	81	1	34	7	0	0	36	55	3.33	1.13	1.26	12	7	T	T	10.3	SSW	34	NW	10	5	8	18	7.3	55
Grand Junction	4849	855.1	1008.3	75	51	62.9	.8	89	13	38	20	0	0	22	25	.39	-.29	.38	2	4	.0	0	11.5	ESE	42	W	25	10	12	9	5.6	79
Pueblo	4639	853.4	1010.2	76	46	61.0	1.8	87	30+	36	6	0	0	37	50	2.09	.36	1.01	8	7	.0	0	10.0	SE	50	N	30	4	12	15	6.6	73
CONNECTICUT																																
Bridgeport	7	1017.9	------	72	51	61.3	4.1	88	21	43	16+	0	0	--	--	1.18	-2.42	.47	8	3	.0	0	----	---	--	-	--	6	13	12	6.1	--
Hartford	169	1011.6	1017.5	75	49	61.8	2.1	92	22+	35	9	3	0	47	63	.73	-2.93	.25	9	4	.0	0	7.9	S	25	NW	24+	6	14	11	6.2	69
New Haven	6	1017.8	1018.3	70	50	59.8	3.1	83	30+	39	10+	0	0	--	--	1.18	-2.69	.62	8	5	.0	0	7.8	---	29	NW	24	6	15	10	5.7	71
DELAWARE																																
Wilmington	78	1015.4	1018.7	77	54	65.6	2.8	91	30	38	16	4	0	53	68	1.34	-2.47	1.01	6	3	.0	0	8.5	SW	*25	W	15	4	12	15	6.5	--
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	79	59	69.1	3.9	92	7	45	17	5	0	--	--	2.34	-1.57	1.05	9	6	--	--	6.7	---	30	NW	12	--	--	--	---	-
Wash. Nat'l. AP	14	1014.4	1019.0	79	60	69.8	5.1	91	12+	47	17+	4	0	55	62	2.89	-1.09	1.82	7	6	.0	0	8.7	S	25	NNW	8	3	16	12	6.6	61
FLORIDA																																
Apalachicola (U)	13	1016.4	------	83	70	76.4	2.0	89	8+	63	16+	[illegible]	0	--	--	7.82	4.99	7.07	7	4	.0	0	8.2	---	38	E	28	4	15	12	6.5	85
Daytona Beach	31	1012.2	1019.5	85	68	76.7	2.3	92	[illegible]	58	2	2	0	67	78	2.40	-.87	.92	8	8	.0	0	9.8	SE	*29	[illegible]	13	10	13	8	5.5	--
Fort Myers	15	1017.2	------	89	68	78.1	1.2	93	11	57	4	10	0	--	--	4.74	.45	1.52	16	13	.0	0	7.8	---	*29	SW	23	7	16	8	5.9	--
Jacksonville	24	1017.8	1019.2	88	68	78.0	3.1	96	8	60	3+	9	0	66	73	9.20	5.77	5.09	8	7	.0	0	10.1	SE	32	N	21+	7	11	13	6.1	66
Key West	4	1016.1	1016.5	85	75	80.1	.3	90	17	71	27+	1	0	--	--	2.32	-.50	1.06	10	5	.0	0	----	---	36	SE	20	8	14	9	5.5	71
Lakeland (U)	214	------	------	87	69	78.1	1.6	92	5	64	7	4	0	--	--	4.23	-.36	1.75	14	11	.0	0	6.7	---	--	---	--	4	14	13	6.6	63
Miami	7	1016.6	1017.9	84	72	77.8	-.2	89	5	63	4	0	0	68	75	6.16	.61	1.99	15	8	.0	0	7.9	ESE	*21	SSE	27	5	13	13	6.3	--
Miami Beach	9	------	------	82	76	78.9	.5	87	5	71	28	0	0	--	--	3.60	-.33	1.20	11	--	.0	0	----	---	31	SE	27	--	--	--	--	-
Orlando	106	1014.5	1019.0	88	68	78.0	1.5	94	5	60	2	[illegible]	0	67	75	4.44	.42	1.91	8	7	.0	0	8.7	SE	*31	SSE	20	7	14	10	5.8	--
Pensacola (U)	13	------	------	83	70	76.2	2.4	91	14	61	16	2	0	--	--	4.25	-.11	1.46	10	4	.0	0	†9.5	---	28	SE	11	--	--	--	---	60
Tallahassee	64	1015.7	1018.3	86	65	75.7	1.5	95	9	55	2	6	0	64	75	9.73	5.97	4.16	14	11	.0	0	5.5	SE	--	---	--	8	8	15	6.4	--
Tampa	19	1017.0	1018.6	88	69	78.6	2.1	93	25	62	7+	9	0	68	97	7.55	4.26	3.45	12	9	.0	0	9.2	ESE	*43	ENE	22	4	14	13	6.8	61
West Palm Beach	15	1017.6	1018.7	86	72	78.9	1.8	90	14+	62	4	2	0	68	73	2.92	-2.14	1.12	12	6	.0	0	11.3	ESE	*32	E	27	8	10	13	6.2	--
GEORGIA																																
Athens	798	990.7	1019.7	82	60	71.1	.7	92	7	43	16+	5	0	61	75	11.34	7.51	5.54	11	8	.0	0	8.7	SE	*30	WNW	14	7	6	18	6.6	--
Atlanta	975	977.6	1018.7	82	63	72.2	2.2	90	2	47	15	1	0	60	72	5.35	1.53	2.90	10	5	.0	0	8.9	SE	30	ESE	19	10	3	18	6.4	58
Augusta	143	1011.8	1018.5	86	61	73.8	2.3	95	7+	46	16	8	0	63	74	5.70	2.42	1.66	9	5	.0	0	5.6	SE	*22	NE	9	8	9	14	6.3	--
Columbus	385	1004.8	------	87	62	74.3	2.3	94	[illegible]	46	16	10	0	--	--	8.45	5.37	1.87	13	10	.0	0	6.6	---	38	WNW	22	8	8	15	6.3	--
Macon	356	1005.0	1018.5	88	64	76.0	2.4	95	8	48	16	12	0	61	69	4.84	1.62	1.66	11	9	.0	0	8.0	SE	31	E	9	10	7	14	6.0	67
Rome	637	995.8	------	84	58	71.0	1.8	92	5	41	15	5	0	--	--	9.54	5.47	3.44	14	5	.0	0	4.4	--	--	---	--	9	9	13	6.0	--
Savannah	48	1016.6	1019.3	86	65	75.4	2.5	95	8	55	16	8	0	65	75	7.53	4.62	3.30	9	8	.0	0	6.8	SE	31	S	20	10	11	10	5.8	69
Thomasville	283	------	------	88	66	77.0	2.8	95	9+	57	16	12	0	--	--	6.62	3.00	1.37	14	13	.0	0	----	--	--	---	--	--	--	--	---	--
HAWAII																																
Hilo	31	1015.6	1016.9	81	66	73.4	.3	84	27+	63	12	0	0	66	79	6.70	-2.30	1.47	27	0	.0	0	9.2	WSW	*28	NNE	11	1	10	20	7.9	29
Honolulu	7	1016.6	1017.1	84	70	76.7	.6	88	20	65	24	[illegible]	0	64	67	.69	.29	.62	4	0	.0	0	15.3	NE	33	E	16	6	11	14	6.4	85
Lihue	115	1012.2	1017.3	81	68	74.7	.6	85	20	61	23	0	0	65	75	2.80	.29	1.44	13	0	.0	0	12.0	NE	26	NE	9+	3	15	13	6.9	56

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation of ground	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Date	Temperature: Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days: Partly cloudy	No. of days: Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb	°F	°F	°F	°F	°F		°F				°F	%	In	In.	In			In.	In.	M. p. h.		M p. h.			0–3	4–7	8–10	0–10	%
IDAHO																																
Boise	2842	918.7	1014.9	65	40	52.7	-5.4	94	13	28	4+	1	2	35	56	1.68	0.59	0.75	8	5	0.0	0	8.5	WNW	31	SE	1	9	10	12	5.7	72
Idaho Falls 46W (R)	4933	846.3	1013.5	60	33	46.7	-5.9	82	13	23	3	0	15	--	--	1.82	.80	.83	8	1	1.2	T	11.4	---	a41	SW	9	--	--	--	---	--
Idaho Falls 42NW (R)	4790	---	------	61	32	46.5	-5.5	83	13	22	8	0	18	--	--	2.06	1.02	.63	11	--	---	--	11.0	---	a43	SW	9	--	--	--	---	--
Lewiston	1413	964.1	1015.9	66	43	54.4	-4.5	88	13	33	6+	0	0	--	--	1.03	-.39	.68	5	2	.0	0	----	---	--	---	--	10	3	18	6.2	--
Pocatello	4444	860.8	1013.8	62	37	49.5	-5.8	87	13	28	21	0	3	34	59	1.11	-.10	.35	12	5	T	0	13.3	SW	47	W	10+	7	10	14	6.1	62
ILLINOIS																																
Cairo (U)	314	1003.7	-	81	64	72.4	[illegible]	91	5	46	16	3	0	--		6.42	2.33	1.91	12	9	.0	0	9.0	S	45	SW	26	4	14	13	6.9	56
Chicago (O'Hare)	656	991.[illegible]	1016.1	75	54	64.8	----	92	5	39	15	2	0	53	68	3.44	----	.64	13	10	.0	0	13.8	S	*35	NW	6+	0	13	18	7.9	--
Chicago (Midway)	610	993.6	1016.5	76	56	65.8	6.6	91	5+	40	15	3	0	53	66	3.87	.21	1.09	16	12	.0	0	11.3	SSW	51	W	28	3	11	17	7.6	57
Moline	589	993.2	1015.3	75	55	65.3	4.4	91	5	42	16+	1	0	53	68	5.31	1.87	1.51	13	9	.0	0	10.0	S	42	W	18	3	8	20	7.8	53
Peoria	654	993.9	1016.0	77	56	66.1	5.1	91	5	36	16	2	0	54	69	5.09	1.15	2.40	12	11	.0	0	10.7	S	42	NW	18	2	7	22	8.0	55
Rockford	728	988.5	1015.7	75	53	64.2	5.5	91	5	39	15	2	0	52	68	2.61	-.81	.85	14	11	.0	0	11.4	S	*35	SSW	9	3	9	19	7.3	--
Springfield	589	992.9	1015.8	77	57	67.1	5.1	91	5	38	16	1	0	56	69	3.15	-1.04	.71	11	10	.0	0	11.3	SSW	46	SW	10	2	10	19	7.6	60
INDIANA																																
Evansville	383	1002.0	1017.9	79	59	69.0	3.5	93	5	39	16	3	0	58	72	7.80	3.90	3.21	13	9	.0	0	8.8	S	35	NW	21	4	7	20	7.7	65
Fort Wayne	801	986.5	1017.5	75	54	64.3	5.3	88	6+	33	16	0	0	54	71	4.00	.56	1.22	11	6	.0	0	12.0	SSW	37	S	22+	0	11	20	7.5	52
Indianapolis	793	987.8	1017.6	75	56	65.7	4.3	90	5	35	16	1	0	57	76	3.67	-.18	1.23	12	13	.0	0	9.7	SSE	43	SW	26	1	6	24	8.3	63
South Bend	768	988.5	1016.5	75	53	63.6	5.2	89	5+	35	1	0	0	53	71	2.28	-1.56	.40	12	6	.0	0	11.7	S	*35	WNW	28	2	9	20	7.6	--
IOWA																																
Burlington	694	990.5	1016.1	76	55	65.2	3.3	90	5	37	16+	1	0	55	73	3.81	-.01	.94	17	11	.0	0	10.8	SSW	42	SW	26	2	10	19	7.2	64
Des Moines	948	983.7	1014.9	72	53	62.9	1.7	86	4+	35	15	0	0	54	76	6.63	3.03	1.30	16	13	.0	0	12.4	SSE	54	NE	18	3	9	19	7.6	51
Dubuque	1065	989.8	1015.7	72	52	61.8	3.9	86	4	38	15	0	0	51	67	6.74	3.27	1.50	16	11	.0	0	----	---	--	---	--	3	5	23	7.6	--
Sioux City	1094	972.2	1013.2	72	52	61.6	1.2	93	1	33	15	1	0	51	72	8.46	5.12	2.16	14	9	.0	0	13.7	SSE	54	S	2	4	11	16	7.3	53
Waterloo	870	------	--- -	72	53	62.2	2.7	86	2	36	14	0	0	--	75	4.59	1.05	.60	16	11	.0	0	12.0	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	963.1	------	71	59	65.2	2.0	92	1	39	15	2	0	--	74	6.24	2.63	1.89	14	11	.0	0	8.7	SE	40	NW	29	6	11	14	6.7	57
Dodge City	2594	924.8	1011.5	76	54	65.1	2.1	93	1	44	6	6	0	52	68	4.36	1.45	1.63	11	11	.0	0	17.3	S	71	W	20	7	11	13	6.2	61
Goodland	3645	885.3	1011.4	72	46	59.3	1.2	94	1	36	14	1	0	45	68	1.36	-1.33	.49	11	7	.0	0	13.1	SSE	*38	SSW	1	4	12	15	6.7	--
Topeka	877	978.3	1014.1	76	56	65.8	2.0	88	28+	38	15	0	0	57	74	4.70	.38	1.21	12	10	.0	0	14.0	S	59	S	29	4	9	18	7.3	52
Wichita	1321	964.4	1012.3	77	59	67.7	2.8	90	20	44	15+	1	0	57	72	5.53	1.74	2.19	10	10	.0	0	15.6	S	47	SW	10	4	9	18	7.1	50
KENTUCKY																																
Lexington	979	983.0	1018.7	79	59	68.5	4.4	88	5+	39	16	0	0	58	74	3.20	-.36	1.33	14	4	.0	0	9.5	S	--	---	--	3	13	15	7.1	--
Louisville	474	998.4	1017.7	82	60	70.8	5.5	95	4	39	16	7	0	59	70	4.42	.49	1.63	13	9	.0	0	9.0	S	44	W	13	2	13	16	7.2	56
LOUISIANA																																
Baton Rouge	64	1013.9	1016.9	87	67	76.8	3.2	92	27+	59	16+	6	0	67	76	8.91	3.99	3.51	12	12	.0	0	8.5	SE	--	---	--	3	11	17	7.2	--
Lake Charles	12	1014.2	1015.5	85	68	76.8	2.3	90	28	62	16+	1	0	66	74	5.85	1.12	2.98	9	8	.0	0	9.8	SE	*30	SSE	10	5	12	14	6.8	--
New Orleans (U)	9	------	------	85	70	77.8	1.7	90	8+	64	15	2	0	--	75	12.99	7.56	4.11	13	9	.0	0	6.0	---	23	S	11	8	15	8	5.6	57
New Orleans	3	1014.6	1016.5	85	69	77.1	2.5	89	22+	61	16	0	0	67	77	14.33	8.79	9.86	9	9	.0	0	9.7	SSE	*29	SSE	31	7	12	12	5.9	--
Shreveport	252	1006.1	1015.4	85	66	75.5	1.8	91	29+	55	15	2	0	65	74	3.23	-1.32	1.14	9	8	.0	0	9.6	SSE	--	---	--	3	9	19	7.4	70
MAINE																																
Caribou	624	991.2	1014.5	66	42	53.6	5.1	89	27	30	17+	0	3	39	60	.64	-2.50	.26	8	0	T	0	11.5	NW	*35	NW	22	3	11	17	7.3	--
Portland	61	1012.5	1016.6	70	43	56.2	3.9	89	22	31	18+	0	4	46	70	1.57	-1.79	.72	11	2	.0	0	9.5	S	29	NW	8	7	11	13	6.0	61
MARYLAND																																
Baltimore (U)	14	------	------	79	61	70.3	5.0	93	30+	48	16+	3	0	--	--	2.09	-1.92	1.25	8	--	---	--	----	---	--	---	--	--	--	--	---	--
Baltimore	146	1014.4	1019.4	78	57	67.3	4.4	91	30+	42	16	5	0	55	67	2.82	-1.19	1.85	8	6	.0	0	11.4	SSW	36	NW	15	1	17	13	6.8	62
Frederick	294	------	------	77	52	64.8	.9	90	12	35	17	1	0	--	--	3.65	.05	1.67	14	--	.0	0	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs. (R)	629	993.9	1017.2	72	49	59.4	4.3	89	22	36	17	0	0	--	63	1.20	-2.30	.42	10	4	.0	0	13.7	NW	34	NW	24+	--	--	--	---	64
Boston	15	1011.8	1016.4	73	53	62.6	4.8	93	22	42	1	3	0	47	61	1.24	-1.67	.42	13	3	.0	0	11.3	WNW	33	N	12	6	13	12	6.0	76
Nantucket	43	1017.3	1018.0	61	47	54.0	1.7	77	28	39	7+	0	0	47	80	1.02	-1.89	.51	5	3	.0	0	12.7	WSW	30	N	8	7	10	14	6.4	73
Pittsfield	1153	975.1	------	70	44	57.2	2.9	85	20+	30	17	0	2	--	--	1.51	-2.25	.74	13	5	.0	0	----	---	--	---	--	--	--	--	---	--
Worcester	986	980.8	------	71	49	59.9	3.9	88	12	36	17+	0	0	--	--	.86	-2.50	.33	8	3	.0	0	13.6	---	*34	NW	8	8	11	12	5.8	--
MICHIGAN																																
Alpena (U)	587	994.2	------	63	45	54.0	3.1	85	27	31	1	0	2	--	71	2.22	-.41	.64	10	8	.0	0	11.8	SE	33	SW	12	7	13	11	6.0	58
Detroit	619	990.9	1017.8	73	52	62.2	4.4	88	6	36	1	0	0	49	65	3.62	.01	1.59	13	7	.0	0	9.8	S	41	NW	29	5	11	15	6.8	60
Detroit (Willow Run)	722	988.8	1017.4	74	52	62.9	4.7	88	6	35	16	0	0	50	67	2.68	-.76	1.02	10	5	.0	0	11.2	SW	*60	W	29	3	11	17	7.2	--
Escanaba (U)	594	992.6	---- -	60	44	52.2	2.4	79	27	29	15	0	1	--	77	3.37	.77	.66	12	10	.0	0	10.1	---	30	SW	12	4	11	16	6.9	49
Flint	761	989.2	1017.3	72	49	60.9	5.1	87	6	31	16+	0	2	49	67	4.32	.93	1.28	10	7	.0	0	9.0	S	*29	SSW	6	5	8	18	7.3	--
Grand Rapids	681	991.2	1016.6	74	51	62.8	6.5	90	6	35	1	1	0	50	65	2.97	-.48	.66	10	6	.0	0	11.4	S	28	SW	19	3	14	14	7.0	57
Inkster (Wayne Co.)	630	993.2	1017.4	72	51	61.5	----	85	19+	33	16	0	0	51	69	3.20	----	1.26	14	7	.0	0	10.2	S	--	---	--	2	11	18	7.4	--
Lansing	852	------	------	74	50	62.2	5.7	88	3	31	16	0	1	52	72	2.22	-1.53	.81	9	5	.0	0	12.6	S	35	N	2	5	15	11	6.7	66
Marquette (U)	677	987.1	------	65	44	54.6	5.0	82	25	32	15	0	1	--	67	2.23	-.41	1.01	14	7	T	T	9.9	S	36	SW	12	5	8	18	7.1	61
Muskegon	627	993.2	1016.6	71	50	60.5	6.2	88	5	35	15+	0	0	50	66	1.84	-.98	.59	10	5	.0	0	----	---	--	---	--	5	12	14	6.6	--
Sault Ste. Marie	721	993.9	1017.0	61	40	50.7	1.8	76	26	24	1	0	6	41	74	3.11	.56	1.33	12	8	T	0	11.8	ESE	*32	WSW	12	4	9	18	7.1	49
MINNESOTA																																
Duluth	1409	971.9	1013.7	61	40	50.7	1.0	86	1	28	15	0	3	40	73	5.63	2.46	1.83	18	7	T	0	14.2	E	61	W	12	2	8	21	7.8	44
Intern'l Falls	1179	970.9	1012.1	64	40	51.9	1.0	87	25	27	15	0	6	40	68	4.48	1.95	.86	16	8	1.2	1	10.8	WNW	*52	SSW	11	1	8	22	8.0	--
Minneapolis	830	979.7	1013.4	71	51	60.6	2.1	91	2+	35	15	2	0	48	66	5.03	1.91	1.09	17	10	.0	0	13.3	S	42	SW	5	3	7	21	7.5	49
Rochester	1017	977.0	1014.2	71	50	60.3	3.5	90	2	31	8	1	1	50	71	5.80	2.42	1.37	14	11	.0	0	11.3	S	--	---	--	2	10	19	7.4	--
St. Cloud	1034	974.9	1012.9	69	46	57.6	2.4	94	2+	27	15	2	2	45	68	5.70	2.60	1.59	14	9	T	0	----	---	--	---	--	2	9	20	7.7	--
MISSISSIPPI																																
Jackson	305	1004.7	1016.7	85	65	74.9	2.6	91	28	49	15	2	0	64	75	4.69	.60	2.60	11	9	.0	0	5.4	S	31	N	22	4	17	10	6.3	64
Meridian	294	1003.8	------	86	63	74.4	2.9	91	4+	49	15	9	0	--	--	6.46	2.47	1.84	13	6	.0	0	----	---	--	---	--	7	13	11	5.9	--
Vicksburg (U)	234	1007.7	------	84	66	75.1	2.2	89	28+	55	15	0	0	--	--	2.03	-2.19	.95	8	8	.0	0	7.4	---	29	NW	22	2	16	13	6.8	54
MISSOURI																																
Columbia	778	987.1	1015.6	79	57	68.2	4.6	90	5	36	15	1	0	58	72	4.35	-.49	1.09	13	12	.0	0	10.8	SSE	34	N	29	0	17	14	7.0	45
Kansas City	741	979.3	1013.8	78	60	69.0	3.5	90	27+	41	15	3	0	56	66	5.14	.73	2.17	13	8	.0	0	11.7	S	52	W	30	2	13	16	7.6	49
St. Joseph	809	979.0	------	76	57	66.4	1.9	90	1	38	15	1	0	--	--	8.28	4.21	2.12	13	12	.0	0	13.4	S	*46	N	18+	4	10	17	7.2	--
St. Louis RFC	465	------	----	78	61	69.4	3.2	90	2	43	15	1	0	--	--	4.65	.55	1.84	11	--	.0	0	----	---	--	---	--	--	--	--	---	--
St. Louis	552	995.6	1016.1	79	60	69.6	4.2	92	5	39	15	4	0	56	71	3.56	-.46	1.01	14	7	.0	0	8.9	S	28	SE	9	0	13	18	7.7	67
Springfield	1265	968.2	1015.3	78	58	67.8	4.2	89	1	38	15	0	0	59	77	6.49	1.47	2.32	9	8	.0	0	14.5	SSE	46	SE	9	3	13	15	6.9	64
MONTANA																																
Billings	3567	889.3	1013.6	62	40	50.7	-5.3	78	25	35	29+	0	0	37	62	1.07	-.73	.29	11	1	.0	0	11.0	SW	49	NW	9	9	9	13	5.7	53
Butte	5530	828.0	1016.1	54	29	41.5	-5.4	72	15	17	6	0	24	27	--	1.85	.05	.58	15	4	1.8	T	8.5	NW	*32	WNW	9	7	5	19	6.8	--
Glasgow	2277	939.4	1014.1	63	38	50.7	-4.8	83	16	31	13+	0	5	--	55	1.18	-.37	.38	12	3	T	T	----	---	--	---	--	9	8	14	5.6	--
Great Falls	3664	886.9	1014.1	60	37	48.5	-5.3	79	15	32	20+	0	4	30	55	2.34	1.01	1.66	10	2	T	T	9.3	SW	34	W	11	9	8	14	5.8	79

See footnotes at end of table.

CLIMATOLOGICAL DATA

MAY 19[illegible]9

State and station	Elevation (ground) Ft.	Pressure: Station Mb	Pressure: Sea level Mb.	Temperature: Average maximum °F	Average minimum °F	Average °F	Departure from normal °F	Highest °F	Date	Lowest °F	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point °F	Average relative humidity %	Precipitation: Total In.	Departure from normal In.	Greatest in 24 hours In	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total In	Max depth on ground In.	Wind: Average hourly speed M.p.h.	Prevailing direction	Fastest mile: Speed M.p.h.	Direction	Date	No. of days (sunrise to sunset): Clear 0-3	Partly cloudy 4-7	Cloudy 8-10	Sky cover sunrise to sunset 0-10	Possible sunshine %
MONTANA (Cont'd.)																																
Havre (U)	2488	925.2	1014.2	64	39	51.6	-4.1	85	16	31	13	0	3	--	--	1.50	0.02	0.74	8	1	T	T	8.5	---	33	W	9	10	11	1	5.0	72
Helena	3893	872.0	1014.7	59	36	47.4	-4.9	80	15	26	12+	0	10	30	55	1.93	.33	.60	12	1	T	T	9.4	WSW	42	W	9	9	8	14	6.1	54
Kalispell	2965	------	------	59	36	47.5	-4.9	80	14	25	12	0	5	--	--	3.08	1.45	.91	15	2	T	T	---	---	--	--	--	7	6	15	6.5	
Miles City	2629	929.6	1014.3	65	41	52.7	-4.4	81	25+	30	7	0	2	37	--	1.34	-.37	.32	11	3	.0	0	10.7	WNW	*35	WNW	9	9	8	11	5.8	
Missoula	3200	901.5	1016.4	61	36	48.5	-5.1	81	14	27	6+	0	7	34	62	2.43	.79	.98	17	3	1.3	1	6.8	NW	28	E	13	9	6	16	6.4	51
NEBRASKA																																
Grand Island	1841	946.8	1012.7	71	51	61.0	-.1	93	1	32	15	2	1	51	73	6.69	2.82	1.19	15	10	.0	0	15.4	S	--	--	--	6	8	1[illegible]	6.7	--
Lincoln (U)	1166	------	------	72	54	63.2	.7	93	1	37	15	1	0	--	--	8.91	5.81	2.47	13	12	.0	0	11.9	S	55	SW	4	3	9	1[illegible]	7.5	60
Norfolk	1544	957.7	1013.1	70	50	59.9	.8	91	1	30	15	1	1	49	69	7.50	3.87	1.76	14	10	.0	0	----	-	--			5	4	22	7.6	
North Platte	2779	913.3	1011.6	69	47	58.0	-.9	92	1	31	15	1	2	47	69	3.51	.84	1.36	15	10	.0	0	11.9	SSE	43	NW	30	4	1	17	7.2	51
Omaha	978	974.3	1014.0	73	54	63.1	.4	93	1	35	15	1	0	53	72	10.33	7.58	3.00	16	13	.0	0	12.5	SSE	65	W	20	2	11	18	6.5	51
Omaha N.Omaha AP	1323	965.8	------	70	52	60.9	.3	92	1	32	15	1	1	--	--	9.09	6.34	3.42	16	13	.0	0	--	--	--	-	--	1	8	22	7.9	-
Scottsbluff	3950	877.1	1012.0	68	43	55.4	-.8	90	1	32	7	1	1	41	65	2.52	-.12	.86	17	10	1.3	1	12.6	ESE	*32	W	24	4	9	18	7.4	
Valentine	2587	921.4	------	67	45	55.7	-1.3	97	1	26	15	1	3	--	69	2.89	.23	1.53	13	6	.0	0	12.2	N	54	NW	25	6	7	18	7.1	57
NEVADA																																
Elko	5075	842.5	1013.0	63	34	48.5	-4.5	89	13	22	4	0	14	27	45	.82	-.13	.38	10	3	.4	T	7.6	WNW	*29	WNW	1	7	13	11	5.9	-
Ely	6257	806.3	1011.1	63	32	47.4	-4.3	81	13+	17	20	0	15	26	48	1.07	-.11	.40	10	6	3.9	T	12.3	S	69	S	1	10	11	10	5.6	85
Las Vegas	2162	943.1	1007.4	87	58	72.2	-1.9	99	12	40	4	11	0	22	17	T	-.16	T	0	1	.0	0	12.5	SSW	*40	S	2+	15	15	1	3.5	89
Reno	4397	860.8	1014.4	68	35	51.3	-4.0	89	12	24	4	0	8	29	47	1.84	1.36	1.20	5	1	.1	T	7.5	WNW	45	W	14	13	11	7	4.4	91
Winnemucca	4299	866.6	1014.4	67	32	49.4	-6.5	90	12	14	4	1	17	28	47	.61	-.23	.32	8	3	.0	0	9.6	W	35	SE	13	6	11	14	6.2	51
NEW HAMPSHIRE																																
Concord	339	1006.4	1017.2	75	44	59.4	4.6	92	28	28	18	3	5	45	61	.60	-2.44	.17	10	2	.0	0	7.5	NW	24	NW	24+	7	13	11	5.7	69
Mt. Washington	6262	807.3	------	44	30	37.3	2.0	63	27	15	2	0	17	--	86	3.63	-1.69	1.18	15	1	4.5	2	28.3	W	‡82	W	22	2	11	18	7.7	45
NEW JERSEY																																
Atlantic City (U)	10	------	------	68	54	61.1	2.0	90	30	41	16	1	0	--	--	3.50	.52	1.40	7	--	---	--	10.8	---	28	NW	15+	-	-	--	-	51
Atlantic City	58	1016.1	1018.9	75	53	64.1	3.9	91	30	39	16+	3	0	51	66	5.03	2.05	4.15	6	3	.0	0	11.7	S	--	--	--	4	14	13	6.4	--
Newark	11	1017.0	1018.4	76	55	65.7	4.6	92	28+	42	16	5	0	50	60	1.47	-2.26	.53	9	2	.0	0	9.1	SSW	*23	WNW	17+	5	17	9	6.1	--
Trenton (U)	56	1011.0	1017.9	76	55	65.5	3.7	90	29+	41	16	4	0	--	--	2.41	-1.07	1.39	6	3	.0	0	8.9	---	35	N	7	5	17	9	5.8	73
NEW MEXICO																																
Albuquerque	5310	845.6	1007.9	79	51	65.1	-.2	89	12	39	6+	0	0	26	28	.80	-.07	.52	4	6	.0	0	11.4	S	50	SE	23	11	10	10	5.0	72
Clayton	4969	843.2	1010.3	74	47	60.5	.6	87	30+	35	6	0	0	--	--	2.57	-.02	1.36	8	7	.0	0	----	---	--	---	--	10	13	8	5.2	--
Raton	6379	803.9	1010.2	71	41	56.2	.5	82	30+	29	6	0	1	--	--	2.87	.70	1.04	9	8	T	0	----	---	--	---	--	4	15	12	6.5	--
Roswell	3612	889.6	1008.6	86	54	70.0	1.9	97	28	39	6	11	0	41	43	1.44	.16	.95	4	6	.0	0	14.0	---	59	SW	4	14	10	7	4.4	--
NEW YORK																																
Albany	277	1013.9	1017.7	73	48	60.7	3.2	90	21	30	17	1	2	47	62	2.09	-.71	1.16	10	8	.0	0	9.5	W	31	W	7	7	8	16	6.4	62
Binghamton	1590	959.2	1018.3	69	49	59.0	4.1	86	20	34	16	0	0	46	65	2.17	-1.70	.82	13	4	T	0	8.6	NNW	34	W	11	5	9	17	6.8	66
Buffalo	693	990.3	1018.6	71	49	60.2	4.8	88	6	33	16	0	0	48	68	2.10	-.37	.98	10	4	T	0	10.2	SW	36	SW	11	6	9	16	6.3	60
New York (U)	10	1017.0	------	73	56	64.1	3.3	88	30	42	16	0	0	--	--	1.69	-1.82	.85	8	2	.0	0	12.3	NW	55	NW	22	5	20	6	5.7	70
New York	19	1016.3	1018.5	74	56	65.1	3.8	91	30+	44	16	4	0	49	61	1.70	-1.63	.78	9	2	.0	0	12.5	S	38	NW	22	4	16	11	6.2	-
Rochester	543	998.9	1018.2	71	48	59.4	3.0	87	20	30	16	0	2	48	68	2.21	-.43	.81	12	6	T	0	10.5	WSW	34	W	11	8	8	15	6.3	64
Schenectady	217	------	------	74	50	62.0	3.9	90	21	35	17	1	0	--	--	1.99	-.99	.70	8	4	.0	0	----	---	--	-	-	19	12	0	2.7	-
Syracuse	424	996.4	1018.4	72	49	60.0	2.3	87	29+	36	16+	0	0	48	65	1.97	-.93	.59	13	6	.0	0	9.2	WNW	43	W	11	7	10	14	6.1	65
NORTH CAROLINA																																
Asheville (U)	2203	940.8	------	77	56	66.5	3.1	85	28+	39	15	0	0	--	--	7.33	4.30	2.69	19	5	.0	0	7.7	---	26	N	14	8	9	14	6.3	55
Cape Hatteras (R)	7	1019.3	1020.2	77	63	70.0	1.8	83	30	53	6+	0	0	61	74	1.28	-2.65	.70	8	4	.0	0	11.9	SW	-	-	-	5	20	6	5.9	--
Charlotte	725	991.4	1019.4	83	61	71.9	3.6	93	24+	43	15	6	0	60	71	3.25	.27	1.59	9	5	.0	0	9.2	SSE	27	NW	3	5	11	15	6.7	59
Greensboro	891	988.3	1020.2	80	59	69.6	3.3	92	3	38	15	2	0	58	71	3.07	-.57	1.02	8	4	.0	0	7.6	SW	26	NNE	3	1	16	14	7.0	70
Raleigh	433	1005.9	1019.8	81	59	70.1	2.8	93	3	42	15	2	0	60	72	2.53	-.87	1.00	8	6	.0	0	7.0	SSW	*21	NE	4	7	12	12	6.5	43
Wilmington	30	1018.4	------	82	63	72.4	2.4	94	3	47	16	1	0	--	--	1.36	-2.07	.68	9	4	.0	0	12.6	---	38	SW	13	9	14	8	5.8	77
Winston-Salem	967	984.5	1019.7	81	60	70.8	4.1	92	3	41	15	2	1	58	67	3.44	-.49	.92	8	3	.0	0	8.8	SSW	*24	NE	25	6	13	12	6.5	-
NORTH DAKOTA																																
Bismarck	1650	922.8	1013.8	65	40	52.4	-2.4	87	25+	25	15	0	4	37	61	2.21	.27	.95	12	5	T	0	12.8	NE	56	NW	11	6	8	17	6.8	51
Devils Lake (U)	1471	959.7	------	61	39	50.1	-2.9	85	25	28	20+	0	7	--	63	2.56	.43	.76	14	4	T	T	10.1	NE	42	NW	12	6	7	18	6.9	51
Fargo	895	978.3	1013.0	67	43	55.2	.2	97	1	27	15	3	5	41	66	1.88	-.29	.93	10	3	T	0	16.9	N	58	W	12	3	9	19	7.4	47
Williston (U)	1877	946.2	1014.0	63	41	51.9	-2.7	83	24	30	7	0	2	34	54	.78	-.88	.32	6	0	.2	T	7.9	NE	39	W	11	6	12	13	6.3	57
OHIO																																
Akron	1210	980.4	1018.7	74	52	62.8	4.3	87	20	32	16	0	1	52	72	4.51	.76	1.45	15	9	.0	0	10.1	S	--	---	--	2	10	19	7.6	--
Cincinnati Obs.	761	------	------	79	58	68.4	4.8	91	2	39	16	3	0	--	--	3.76	.22	.93	14	9	.0	0	5.1	---	21	W	13	--	--		--	34
Cincinnati	869	986.3	1018.3	78	58	67.9	5.4	92	5	36	16	2	0	56	69	2.92	-.53	.69	14	8	.0	0	8.9	SSW	*40	S	22	2	7	22	8.1	
Cleveland	787	990.0	1018.0	75	54	64.3	5.2	92	6	34	16	2	0	53	69	4.71	1.98	1.53	15	6	.0	0	11.0	S	43	NW	29	2	16	13	6.8	52
Columbus (U)	724	------	------	78	59	67.7	5.5	91	6	36	16	1	0	--	--	5.94	2.71	1.75	13	10	T	0	---	---	--	---					--	
Columbus	815	987.0	1018.8	78	56	66.8	6.0	91	6+	32	16	2	1	56	71	4.15	.18	1.65	12	9	.0	0	6.3	S	34	SW	19	0	11	20	7.8	60
Dayton	1002	981.7	1018.1	76	56	65.9	4.9	88	29	33	16	0	0	55	75	4.40	.86	1.20	10	8	.0	0	9.7	S	45	NW	29	0	7	24	8.3	65
Sandusky (U)	603	995.8	------	73	54	63.5	4.2	92	6	35	16	1	0	--	--	3.93	.61	1.07	11	8	.0	0	7.5	---	48	NW	29	11	13	7	5.0	78
Toledo	676	992.2	1017.7	75	52	63.7	5.5	89	6	33	16	0	0	53	72	3.95	1.00	1.07	11	7	.0	0	6.6	SW	35	W	29	3	10	18	7.3	70
Youngstown	1178	975.8	1018.5	74	50	61.9	3.6	87	6	32	16	0	1	51	72	2.45	-1.64	.49	15	6	.0	0	9.0	SSW	*36	SW	11	3	11	17	7.2	--
OKLAHOMA																																
Oklahoma City	1280	969.9	1013.0	79	61	70.4	2.4	90	31	48	14	1	0	62	78	7.60	3.35	3.09	8	8	.0	0	14.9	SSE	52	SW	8	7	11	13	6.6	54
Tulsa	672	989.5	1013.6	81	62	71.5	3.3	90	29	45	14	1	0	62	73	6.66	1.89	1.48	12	11	.0	0	10.3	SSE	40	NW	18	4	9	18	7.2	36
OREGON																																
Astoria	8	1018.3	1018.7	61	44	52.2	-1.3	86	12	35	11	0	0	45	78	3.45	-.08	.99	19	0	.0	0	9.8	SE	*23	NW	30	5	9	17	7.3	
Burns (U)	4140	872.3	1015.6	62	34	48.0	-6.1	86	13	25	2	0	11	31	51	1.37	.62	.59	8	4	1.5	1	----	---	--	--	-	8	9	14	6.3	--
Eugene	361	1005.4	1019.2	65	42	53.6	-2.8	83	12	35	3	0	0	--	--	2.16	.17	.73	11	1	.0	0	8.7	--	*25	WSW	12+	5	9	17	6.6	
Meacham	4050	------	------	52	35	43.8	-4.2	81	13	28	4	0	9	--	--	1.96	-.41	.47	14	1	8.7	4	----	---	--	---	--	8	5	18	6.8	
Medford	1312	970.2	1018.0	69	41	55.3	-3.4	96	12	35	20	1	0	42	66	1.40	.18	.48	10	1	.0	0	4.9	NW	*37	ENE	22	10	6	15	5.8	-
Pendleton	1492	962.4	1016.3	67	43	55.4	-4.4	86	13	36	6+	0	0	37	55	.79	-.18	.31	6	0	.0	0	12.4	W	*48	W	24	10	7	14	5.8	-
Portland	21	1012.9	1018.4	65	46	55.7	-1.9	83	31+	37	11	0	0	45	70	2.89	1.13	1.04	17	1	.0	0	7.2	WNW	30	SW	14	5	7	19	7.1	42
Roseburg	505	999.7	1018.3	67	41	54.3	-2.5	89	12	34	4	0	0	--	--	2.17	.44	.56	14	1	.0	0	4.7	---	20	N	22	8	10	13	6.2	49
Salem	195	1011.5	1019.0	66	42	54.0	-3.2	86	31	34	3	0	0	44	73	2.09	.16	.59	14	0	.0	0	6.9	S	*20	NNE	22	6	5	20	7.2	
Sexton Summit (R)	3836	884.2	1017.3	56	36	46.2	-4.3	84	12	28	4+	0	10	--	--	1.45	-.50	.40	11	2	2.7	1	8.1	---	--	--	--	11	3	17	6.1	
PACIFIC AREA																																
Canton Island	9	1008.5	1008.8	91	79	85.0	.8	95	6	76	31+	26	0	74	74	1.15	-1.71	.60	7	0	.0	0	13.7	E	*26	ESE	22	1	1	29	9.2	--
Guam (R)	361	------	------	87	73	80.1	.3	89	31+	66	26	0	0	--	--	.90	-3.14	.17	12	0	.0	0	----	---	21	E	12+	--	--	--	---	90
Johnston Island	7	1013.2	1013.9	83	74	78.7	----	86	30	69	10	0	0	70	76	.49	----	.13	12	0	.0	0	15.3	---	31	NE	10+	3	21	4	5.9	61
Koror (R)	94	1005.8	1009.5	87	76	81.8	.5	90	15	73	16	1	0	77	87	13.09	-1.06	2.26	28	4	.0	0	---	---	--	---	--	0	4	27	9.2	-
Majuro	10	1009.1	1009.5	86	78	82.0	----	88	28+	74	16	0	0	76	82	6.35	----	2.88	22	0	.0	0	12.1	---	34	E	16	0	4	27	9.0	68
Ponape (R)	120	1004.4	1009.8	86	75	80.5	-1.0	88	27+	72	1	0	0	76	87	21.26	1.60	3.75	29	4	.0	0	7.9	---	25	E	10	0	2	29	9.6	33
Truk, Moen Island	5	1009.5	1010.2	87	76	81.5	.6	90	25	73	12	1	0	76	85	20.08	7.18	3.37	29	1	.0	0	----	--	--	--	--	0	2	29	9.7	--
Wake Island	11	1014.6	1014.9	83	74	78.6	-.8	86	25+	70	3+	0	0	70	77	2.07	-.24	.60	12	0	.0	0	14.0	ENE	*26	ENE	10	9	18	4	4.9	--
Yap (R)	55	1007.8	1009.9	87	77	82.0	-.3	91	29	73	5	1	0	77	83	11.54	2.39	2.37	20	0	.0	0	7.2	E	*18	E	21+	0	4	27	9.2	--

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station ø	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb.	°F	°F	°F	°F	°F		°F.				°F	%	In.	In.	In.			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
PENNSYLVANIA																																
Allentown	376	1004.6	1018.8	76	52	63.8	3.3	90	29+	38	16	3	0	51	67	1.39	-2.58	0.53	7	2	0.0	0	9.4	WSW	28	W	12+	6	14	11	6.1	--
Erie	732	------	------	70	51	60.1	5.0	86	20	33	1	0	0	--	--	2.55	-.64	.90	12	10	T	T	4.0	---	*17	SSE	19	5	12	14	6.7	--
Harrisburg	335	1004.7	1018.5	77	55	66.0	3.6	90	20	39	9	1	0	50	60	1.51	-2.19	.64	8	4	.0	0	6.5	W	36	S	31	4	15	12	6.5	74
Philadelphia (U)	26	------	------	78	58	67.6	3.9	93	29	43	16	4	0	--	--	----	-----	----	--	--	---	--	----	---	--	---	--	--	--	--	---	--
Philadelphia	7	1014.0	1018.4	77	55	66.4	3.3	91	28	40	16	4	0	51	62	.80	-2.78	.60	6	3	.0	0	10.5	SW	33	W	15	2	17	12	6.7	75
Pittsburgh (U)	749	------	------	77	56	66.5	3.9	90	6	40	16+	1	0	--	--	2.46	-1.03	.73	16	--	.0	--	----	---	--	---	--	--	--	--	---	51
Pittsburgh	1151	988.3	1019.1	75	53	63.9	4.1	87	6	35	16	0	0	51	66	2.56	-1.21	.61	14	6	.0	0	7.5	WSW	*21	WNW	23+	3	10	18	7.5	61
Reading (U)	266	1006.2	1017.9	78	56	66.9	4.4	91	29+	41	16	4	0	--	--	1.29	-2.40	.69	6	4	.0	0	10.0	---	44	W	12	4	14	13	6.4	64
Scranton	940	984.6	1018.9	74	51	62.8	3.9	91	20	34	9	1	0	50	66	.77	-3.34	.20	13	3	.0	0	8.3	WSW	26	NW	14	6	11	14	6.6	57
Williamsport	527	999.8	------	75	52	63.5	3.3	90	22+	35	16+	2	0	--	--	1.45	-2.86	.41	15	--	.0	0	----	---	--	---	--	6	13	12	6.3	--
RHODE ISLAND																																
Block Island	110	1013.2	1017.4	64	48	56.0	1.8	78	28	40	17	0	0	--	--	2.62	-.34	1.95	3	1	.0	0	----	---	--	---	--	10	10	11	5.4	--
Providence	55	1011.4	1017.5	72	50	60.9	4.1	90	28	39	17	1	0	47	65	1.46	-1.56	.55	10	4	.0	0	11.7	SW	*29	SSW	26+	8	13	10	5.6	66
SOUTH CAROLINA																																
Charleston (U)	9	------	------	81	70	75.4	2.5	95	3	58	15	1	0	--	--	4.43	1.07	2.29	13	--	.0	0	10.7	---	33	E	25	--	--	--	---	--
Charleston	41	1017.7	1018.5	83	63	73.1	1.7	93	3	51	16	1	0	65	81	4.91	1.15	1.50	10	5	.0	0	8.4	ESE	--	---	--	3	19	9	6.3	78
Columbia	217	1006.2	1019.0	85	62	73.6	1.9	95	7+	48	16	8	0	62	71	5.79	2.56	1.58	12	6	.0	0	7.0	E	*24	SSW	13	5	16	10	6.1	69
Florence	146	1013.1	1018.9	84	62	73.1	1.8	94	3	47	16	5	0	63	75	3.90	.12	.85	9	6	.0	0	7.1	S	*23	NW	3	6	13	12	6.1	--
Greenville	1018	982.2	1019.3	81	60	70.6	2.1	91	7+	43	16	3	0	59	72	5.63	2.24	1.51	13	6	.0	0	6.9	NE	34	N	4	5	7	19	7.1	52
Spartanburg	801	------	------	81	61	70.6	1.8	91	7+	44	15	2	0	--	--	4.96	1.51	2.27	12	8	.0	0	6.0	---	*23	S	19	--	--	--	---	--
SOUTH DAKOTA																																
Huron	1282	965.8	1013.0	70	46	58.1	.1	99	1	24	15	1	2	44	66	3.12	.87	1.02	14	4	.0	0	14.7	SSE	44	S	2	4	7	20	7.5	58
Rapid City	3165	899.4	1013.5	65	43	53.7	-1.0	85	24	32	15	0	1	37	59	3.25	.20	1.11	12	3	T	T	11.9	NNW	37	NW	10	9	8	14	6.3	53
Sioux Falls	1420	961.7	1013.3	69	48	58.7	.6	94	1	27	15	1	1	46	67	7.28	3.90	2.27	14	11	.0	0	12.4	S	*40	SSE	2	4	8	19	7.5	--
TENNESSEE																																
Bristol	1519	965.2	------	80	58	68.7	4.5	88	12	40	17	0	0	--	--	2.33	-1.11	.59	10	6	.0	0	----	---	--	---	--	3	14	14	7.0	--
Chattanooga	670	991.0	1018.4	82	59	70.7	3.0	91	5	41	15	1	0	60	75	4.64	.48	1.56	12	7	.0	0	5.7	S	27	W	22	7	10	14	6.4	59
Knoxville	950	983.7	1018.9	82	61	71.5	4.1	93	5	43	15	3	0	60	70	3.53	-.05	1.03	10	4	.0	0	6.3	WSW	26	W	22+	7	11	13	6.5	61
Memphis (U)	271	------	------	83	66	74.5	4.0	91	5	51	16+	1	0	--	--	5.39	1.74	2.39	7	--	.0	0	----	---	--	---	--	--	--	--	---	--
Memphis	263	1002.3	1017.0	84	65	74.4	4.3	90	28+	46	15	3	0	62	68	1.85	-2.07	.77	7	6	.0	0	8.4	S	34	W	22	3	12	16	6.9	62
Nashville	577	998.2	1018.0	82	61	71.3	3.1	92	5	42	16+	1	0	60	74	5.20	1.42	1.92	14	10	.0	0	7.3	S	26	WSW	22	4	10	17	7.1	47
Oak Ridge	905	986.4	------	82	59	70.6	4.6	92	5	41	15	3	0	--	--	3.24	-.94	1.19	9	7	.0	0	4.6	---	‡37	---	22	9	11	11	5.7	--
TEXAS																																
Abilene	1759	951.2	1011.2	87	63	74.7	3.0	99	31	50	6	12	0	60	66	2.34	-1.34	.64	8	6	.0	0	13.4	SSE	47	SW	20	11	8	12	5.6	62
Amarillo	3590	886.7	1008.6	79	53	66.0	2.2	93	30	41	6	4	0	47	58	4.82	1.81	2.19	8	10	.0	0	13.1	SW	36	W	2	11	12	8	5.1	79
Austin	615	991.9	1013.7	87	67	77.1	1.9	96	31	61	15	10	0	66	74	1.66	-2.71	1.08	8	4	.0	0	10.1	SSE	34	S	4	5	10	16	6.8	43
Brownsville	16	1010.2	1012.8	87	73	80.3	1.4	92	31+	66	14	9	0	71	79	.07	-3.02	.07	1	1	.0	0	13.0	SE	31	SE	5	6	14	11	6.0	75
Corpus Christi	41	1012.5	1013.7	86	71	78.4	1.0	93	30	65	21+	3	0	71	81	4.49	1.08	2.11	6	6	.0	0	12.6	SSE	35	S	10	5	12	14	6.6	50
Dallas	487	995.6	1014.0	84	67	75.3	1.6	98	31	60	16+	5	0	64	71	3.18	-1.79	1.50	8	4	.0	0	13.0	S	34	S	4	8	9	14	6.5	53
Del Rio (U)	957	------	------	89	68	78.2	.8	99	18	61	5	14	0	--	--	3.02	.55	1.87	10	5	.0	0	----	---	--	---	--	--	--	--	---	--
El Paso	3920	883.0	1008.5	88	60	73.9	2.3	97	12	45	6	12	0	27	22	.30	-.11	.30	1	2	.0	0	13.8	W	49	NW	14	19	9	3	2.8	90
Fort Worth	544	993.2	1013.8	84	66	75.1	1.8	96	31	55	15	4	0	64	72	3.27	-1.65	1.50	9	3	.0	0	14.0	S	*35	S	4	7	11	13	6.5	--
Galveston (U)	7	------	------	81	73	77.1	1.4	91	21	61	11	2	0	--	--	2.31	-.89	1.09	4	--	.0	0	12.9	---	66	W	21	--	--	--	---	66
Galveston	5	1012.9	1015.3	83	73	77.7	1.8	90	29+	63	11	2	0	70	80	3.36	-.13	1.86	5	5	.0	0	13.6	SE	--	---	--	3	14	14	6.7	--
Houston (U)	41	1009.5	------	85	70	77.8	1.9	92	31	60	11	5	0	--	--	7.50	2.66	3.99	6	6	.0	0	10.9	SE	47	SE	10	5	14	12	6.3	70
Houston	50	1011.9	1014.7	85	69	76.9	2.2	93	31	60	11	4	0	68	78	6.20	1.29	3.58	5	4	.0	0	12.7	SE	--	---	--	4	13	14	6.4	--
Laredo	500	995.6	1011.0	97	71	84.0	2.8	105	19	65	20	28	0	65	60	.62	-2.56	.40	4	6	.0	0	14.6	SE	*40	ESE	5	11	17	13	4.7	--
Lubbock	3243	900.8	1010.3	83	57	70.0	2.2	97	30	42	6	11	0	51	58	2.15	-1.21	.83	10	8	.0	0	14.4	S	*38	E	8	11	13	7	5.0	--
Midland	2854	913.0	1010.2	86	61	73.3	.0	95	31+	50	6	10	0	55	59	4.99	2.92	1.59	7	8	.0	0	11.5	SSE	*31	ENE	23	14	11	6	4.2	--
Port Arthur	16	1013.5	1015.1	85	69	77.0	2.6	91	28	60	11+	3	0	69	80	4.01	-.39	2.92	6	6	.0	0	12.0	SE	51	SW	21	3	14	14	6.7	70
San Angelo	1903	945.1	1011.1	87	63	75.0	1.4	100	31	46	6	12	0	57	60	1.59	-1.37	.76	5	6	.0	0	14.4	S	*43	S	1	11	12	8	4.7	--
San Antonio	792	988.2	1013.1	86	68	77.1	1.1	95	31	61	13	10	0	66	74	2.43	-1.09	.88	8	7	.0	0	10.2	SSE	34	NW	22	7	9	15	6.4	62
Victoria	110	1008.5	1013.4	87	69	77.8	.4	93	30	63	15	5	0	69	74	3.24	-.78	2.31	7	6	.0	0	10.8	SSE	‡60	NW	23	6	16	9	6.1	--
Waco	500	992.6	1013.6	86	67	76.4	1.9	98	31	59	15	9	0	65	73	1.96	-2.19	.94	8	6	.0	0	13.3	SSE	*30	NNE	22+	6	8	17	6.8	--
Wichita Falls	1020	975.3	1013.0	86	65	75.2	4.7	98	18	52	6	14	0	60	65	3.61	-.25	1.33	10	10	.0	0	12.1	SSE	*29	WNW	8	11	9	11	5.4	--
UTAH																																
Milford	5028	840.8	1010.5	71	39	54.6	-2.2	89	13	24	20	0	4	--	--	.34	-.40	.18	4	3	.8	T	----	---	--	---	--	9	8	14	5.9	--
Salt Lake City	4220	864.9	1012.0	68	43	55.7	-3.2	92	13	33	20	1	0	36	51	2.05	.49	.64	10	7	.0	0	8.4	N	34	S	1	6	14	11	6.0	70
VERMONT																																
Burlington	331	1002.3	1017.1	70	46	58.3	2.9	88	29	31	9	0	1	45	61	1.49	-1.40	.46	13	4	T	0	7.8	SSW	26	NW	22	6	8	17	6.6	66
VIRGINIA																																
Lynchburg	947	985.6	------	79	57	68.0	3.0	90	7+	39	16+	2	0	--	--	1.57	-1.52	.61	10	4	.0	0	7.3	---	30	N	4	2	14	15	7.1	57
Norfolk	26	1018.6	1020.1	80	60	69.7	3.8	93	30	46	16	4	0	59	70	1.98	-1.47	.95	9	6	.0	0	9.2	SW	29	NW	1	1	19	11	6.4	78
Richmond	162	1013.7	1020.0	81	58	69.4	3.6	92	7	42	15	7	0	57	69	2.44	-1.20	.67	7	7	.0	0	7.5	S	27	SW	13	2	15	14	6.9	65
Roanoke	1174	977.8	1019.8	80	58	68.8	4.1	93	3	40	17	3	0	55	68	3.17	-.45	.77	14	7	.0	0	7.5	SE	--	---	--	2	15	14	7.0	--
WASHINGTON																																
Olympia	190	1010.5	1018.2	65	40	52.3	-1.8	82	23+	32	6+	0	2	40	65	1.45	-.21	.47	10	0	.0	0	7.0	SW	*23	W	24+	5	10	16	6.8	--
Seattle (U)	14	------	------	64	48	56.2	-1.1	87	12	40	5	0	0	--	--	1.50	-.11	.54	11	--	.0	0	----	---	31	SW	9	--	--	--	---	48
Seattle	14	1016.9	1017.8	--	--	----	----	--	--	--	--	--	--	41	62	----	----	----	--	0	---	--	8.3	SW	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	1003.7	1017.8	63	44	53.5	-1.6	81	12	37	5	0	0	42	68	1.60	-.04	.49	9	0	.0	0	11.7	SSW	*35	WSW	9	5	12	14	6.8	--
Spokane	2357	946.2	1015.5	61	40	50.6	-4.1	80	13	28	5	0	2	36	62	2.26	1.22	1.01	13	2	T	0	9.0	SSW	36	SW	9	8	8	15	6.5	55
Stampede Pass (R)	3958	879.4	1019.2	47	33	40.2	-4.3	68	31	25	5	0	17	--	--	5.53	.79	.99	18	0	25.4	80	----	---	--	---	--	5	5	21	7.4	--
Tatoosh (R)	101	1014.9	1018.1	56	46	51.1	.2	72	12	40	4	0	0	45	81	2.36	-.95	.63	13	0	.0	0	12.2	W	56	E	13	3	8	20	7.5	55
Walla Walla (U)	949	979.3	1015.2	67	46	56.8	-4.4	91	13	38	6	1	0	--	--	1.53	.27	.89	8	0	.0	0	6.9	---	26	N	10	10	8	13	5.9	69
Yakima	1061	977.0	1016.2	69	38	53.1	-6.0	87	13	27	5+	0	7	31	44	.14	-.33	.09	2	0	.0	0	9.2	NW	*44	WNW	24	8	9	14	5.9	--
WEST INDIES																																
San Juan, P.R. (U)	47	------	------	82	73	77.5	-1.2	84	15+	71	3+	0	0	--	--	6.27	-.21	2.12	18	--	.0	0	----	---	--	---	--	--	--	--	---	--
San Juan P.R.	15	1013.3	1016.3	84	71	77.9	-.7	89	16+	69	31+	0	0	70	78	7.01	.43	2.61	20	1	.0	0	8.3	ENE	24	NE	26	2	13	16	7.1	65
Swan Island	31	1011.3	------	87	76	81.5	-.6	88	29+	72	22+	0	0	--	--	2.44	-1.81	.86	10	5	.0	0	----	---	--	---	--	4	14	13	6.6	--
WEST VIRGINIA																																
Charleston	950	983.3	1018.7	80	57	68.3	4.6	91	6	38	17	1	0	55	66	2.40	-1.38	.89	14	5	.0	0	5.9	SW	*17	WSW	23+	1	12	18	7.5	--
Elkins	1970	------	------	75	49	62.1	3.9	86	20	32	17+	0	2	52	--	4.55	.30	1.20	16	6	.0	0	6.4	S	*40	W	12	2	10	19	7.7	--
Huntington (U)	565	------	------	82	58	69.9	4.2	92	6+	40	17	6	0	--	--	3.46	-.36	1.44	11	--	.0	0	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	------	80	56	68.0	4.5	93	6	37	16	2	0	--	--	3.30	-.20	1.73	9	[illegible]	.0	0	5.1	---	28	N	4	2	10	19	7.5	50
WISCONSIN																																
Green Bay	689	992.6	1015.6	71	47	59.2	4.8	91	2	32	1	1	1	50	73	3.86	1.33	1.00	11	8	.0	0	13.3	SW	47	W	12	5	9	17	6.6	55
La Crosse	652	989.2	1013.7	73	54	63.1	4.1	92	2	37	15+	1	0	51	65	4.67	1.40	1.07	14	11	.0	0	12.2	S	*33	WNW	12	3	12	16	7.3	--
Madison	857	980.4	1015.4	74	51	62.9	5.4	89	5+	35	15+	0	0	50	67	3.06	-.21	.94	11	7	.0	0	11.1	S	35	W	6	4	9	18	7.3	53
Milwaukee	672	991.5	1016.4	71	48	59.5	5.2	90	2	36	15+	1	0	50	72	1.28	-1.70	.43	10	8	.0	0	11.4	S	31	SW	6	5	10	16	7.1	52
WYOMING																																
Casper	5319	834.7	1011.2	63	38	50.6	-2.5	81	1	32	8+	0	3	33	60	1.99	-.33	.98	15	7	1.1	T	13.0	WSW	*58	NW	29+	8	8	15	6.5	--
Cheyenne	6131	809.7	1012.0	62	39	50.6	.5	81	1	30	7	0	4	35	61	4.16	1.70	1.48	19	9	1.3	1	13.9	WNW	40	W	25+	4	9	18	7.1	50
Lander	5563	833.1	1012.4	62	37	49.0	-3.4	77	1	28	7	0	[illegible]	32	57	2.85	.28	1.37	10	4	20.3	4	7.8	---	38	SW	27	9	7	15	6.1	74
Sheridan	3942	882.8	1014.4	61	37	49.0	-3.9	77	24+	26	7	0	6	38	65	1.46	-1.18	.62	13	2	T	T	9.4	WNW	63	NW	9	8	9	14	6.0	57

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
\+ And also on an earlier date or dates.
a Maximum hourly average.
ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
\# Number of days maximum 70° or above for Alaskan Stations.
† Airport Data
‡ Peak Gust

HEATING DEGREE DAYS

(Base 65°F.)

MAY 1959

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
ALABAMA			
Birmingham	12	2835	2780
Mobile	0	1816	1612
Montgomery	2	2173	2137
ALASKA			
Anchorage	530	11049	10450
Annette	494	6563	6775
Barrow	1400	18835	19061
Barter Island	1372	18411	
Bethel	703	12955	12508
Cold Bay	741	9363	
Cordova	607	9453	9144
Fairbanks	544	14950	13965
Juneau	582	8600	8546
King Salmon	634	11160	
Kotzebue	948	15513	15500
McGrath	590	14749	14107
Nome	829	13924	13510
St. Paul	917	9999	10134
Yakutat	632	8804	8889
ARIZONA			
Flagstaff	466	6530	7313
Phoenix (U)	4		1492
Phoenix	3	1115	1698
Prescott	169	3918	4516
Tucson	10	1459	1776
Winslow	100	4161	4694
Yuma	0	542	951
ARKANSAS			
Ft. Smith	11	3424	3188
Little Rock	4	3034	2982
Texarkana	1	2643	2362
CALIFORNIA			
Bakersfield	41	1624	2115
Bishop	154	3622	4184
Blue Canyon	508	4518	5517
Burbank	58	1072	1786
Eureka (U)	386	3935	4350
Fresno	59	2031	2532
Los Angeles (U)	24	708	1432
Los Angeles	15	624	1959
Mt. Shasta (R)	443	4979	5739
Oakland	169	2100	3044
Red Bluff	57	1920	2546
Sacramento (U)	67	1827	2595
Sacramento	66	2053	2815
Sandberg (R)	369	3510	4187
San Diego	25	701	1531
San Francisco (U)	247	2196	2889
San Francisco	181	1853	3257
San Jose	133	1682	2364
Santa Maria	269	2153	2782
COLORADO			
Alamosa	437	8063	8456
Colorado Springs	258	6007	6179
Denver	273	5823	6067
Grand Junction	104	5081	5773
Pueblo	140	5401	5682
CONNECTICUT			
Bridgeport	155	5773	5858
Hartford	180	6584	6108
New Haven	193	5992	5974
DELAWARE			
Wilmington	103	5152	4904
DIST. OF COLUMBIA			
Washington (U)	46	4198	4258
Washington	39	4168	4333
FLORIDA			
Apalachicola (U)	0	1247	1307
Daytona Beach	0	693	868
Fort Myers	0	317	405
Jacksonville	0	1142	1243
Key West	0	46	77
Miami	0	126	178
Miami Beach	0	79	123
Orlando	0	550	650
Pensacola (U)	0	1504	1435
Tallahassee	0	1433	1519
Tampa	0	452	674
West Palm Beach	0	175	248
GEORGIA			
Athens	14	2937	2800
Atlanta	10	2787	2826
Augusta	5	2484	2138
Columbus	5	2380	2396
Macon	1	2173	2049
Rome	21	3436	3138
Savannah	0	1884	1710
IDAHO			
Boise	382	5259	5798
Lewiston	324	5081	5415
Pocatello	472	6303	6840
ILLINOIS			
Cairo (U)	26	3886	3756
Chicago	114	6253	6252
Chicago University	133	6227	
Moline	114	6467	[illegible]

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
ILLINOIS (Cont'd.)			
Peoria	103	6119	6046
Springfield	89	5573	5661
INDIANA			
Evansville	58	4692	4354
Ft. Wayne	140	6395	6234
Indianapolis	104	5768	5581
South Bend	158	6610	6462
IOWA			
Burlington	110	6238	6067
Des Moines	140	6536	6401
Dubuque	166	7562	7195
Sioux City	166	6770	6958
KANSAS			
Concordia (U)	108	5324	5303
Dodge City	108	5116	5043
Goodland	197	6024	6309
Topeka	92	5195	5194
Wichita	62	4690	4564
KENTUCKY			
Lexington	63	4780	4964
Louisville	51	4408	4434
LOUISIANA			
Baton Rouge	0	1688	1595
Lake Charles	0	1664	1543
New Orleans (U)	0	1301	1175
New Orleans	0	1411	1317
Shreveport	0	2392	2117
MAINE			
Caribou	360	9978	9972
Greenville (U)	361	9546	
Portland	295	8131	7564
MARYLAND			
Baltimore (U)	32	4218	4203
Baltimore	67	4786	4782
Frederick	114	5263	4854
MASSACHUSETTS			
Blue Hill Obs. (R)	222	6853	
Boston	142	5876	5749
Nantucket	333	6095	5963
Pittsfield	287	7657	7589
MICHIGAN			
Alpena (U)	344	8166	7938
Detroit	159	6432	6344
Detroit(Willow Run)	147	6525	6414
Escanaba (U)	391	8702	8491
Grand Rapids	164	7131	6996
Marquette (U)	326	8454	8340
Muskegon	194	7124	6973
S. Ste. Marie	436	9488	9251
MINNESOTA			
Duluth (U)	467	9920	9374
Duluth	439	9970	9759
Internat. Falls	408	10866	10429
Minneapolis	192	7615	7773
Rochester	200	8174	8003
St. Cloud	280	8675	8787
MISSISSIPPI			
Jackson	3	2498	2202
Meridian	2	2477	2333
Vicksburg (U)	0	2274	2000
MISSOURI			
Columbia	70	4975	5099
Kansas City	56	4616	4880
St. Joseph	87	5428	5322
St. Louis (U)	57	4555	4462
St. Louis	63	4744	4688
Springfield	63	4592	4677
MONTANA			
Billings	436	6888	6987
Glasgow	439	9248	8577
Great Falls	505	7393	7389
Havre (U)	407	8270	8088
Helena	540	8057	8053
Kalispell	537	7866	7840
Miles City	377	8007	7744
Missoula	505	7392	7697
NEBRASKA			
Grand Island	180	6370	6272
Lincoln (U)	141	5726	5833
Norfolk	206	6867	7005
North Platte	224	6632	6487
Omaha	135	6091	6128
Scottsbluff	302	6761	6760
Valentine	315	7208	6992
NEVADA			
Elko	505	6604	7152
Ely	537	6895	7243
Las Vegas	19	2204	2425
Reno	415	5451	5871
Tonopah	294	5018	5722
Winnemucca	484	6055	6358

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
NEW HAMPSHIRE			
Concord	235	7529	7530
Mt. Washington Obs.	850	13770	
NEW JERSEY			
Atlantic City (U)	154	5107	4717
Newark	101	5152	5241
Trenton (U)	108	5148	5057
NEW MEXICO			
Albuquerque	60	4118	4389
Clayton	157	5186	5114
Roswell	11	3551	3424
NEW YORK			
Albany	220	7152	6912
Binghamton	240	7261	7449
Buffalo	216	6824	6766
New York (U)	129	5110	5032
New York	107	5044	4979
Rochester	235	7009	6809
Schenectady	179	6781	7010
Syracuse	222	7040	6483
NORTH CAROLINA			
Asheville (U)	58	4085	4067
Cape Hatteras (R)	7	2571	2392
Charlotte	13	3203	3205
Greensboro	33	3908	3810
Raleigh	26	3539	3369
Wilmington	9	2587	2323
Winston-Salem	27	3660	3721
NORTH DAKOTA			
Bismarck	397	9065	8917
Devils Lake (U)	458	9902	9803
Fargo	342	9004	9173
Grand Forks	397	9890	
Pembina	391		
Williston (U)	403	8941	8930
OHIO			
Akron	157	6494	6153
Cincinnati (U)	70	4530	4532
Cincinnati	76	5087	5172
Cleveland	133	6039	5960
Columbus	98	5685	5584
Dayton	110	5802	5558
Sandusky (U)	151	6089	5818
Toledo	136	6500	6334
Youngstown	172	6588	6119
OKLAHOMA			
Oklahoma City	27	3892	3644
Tulsa	21	3616	3584
OREGON			
Astoria	389	4483	4773
Burns (U)	525	6169	6759
Eugene	348	4190	4654
Meacham	649	7054	7561
Medford	302	4151	4478
Pendleton	295	4872	5153
Portland (U)	259	3732	4073
Portland	280	4231	4539
Roseburg	326	3879	
Salem	333	4163	4483
Sexton Summit (R)	580	5725	5947
PENNSYLVANIA			
Allentown	133	5902	5855
Harrisburg	103	5353	5244
Philadelphia (U)	70	4620	4523
Philadelphia	91	5040	4866
Pittsburgh (U)	95	5260	5035
Pittsburgh	130	6000	5869
Reading (U)	85	5137	5049
Scranton	167	6507	6012
Williamsport	138	6179	5873
RHODE ISLAND			
Block Island	276	5812	5747
Providence	180	6080	6067
SOUTH CAROLINA			
Charleston (U)	0	1850	1769
Charleston	3	2185	1973
Columbia	5	2614	2435
Florence	6	2560	2507
Greenville	19	3067	3060
Spartanburg	17	3125	3044
SOUTH DAKOTA			
Huron	259	7925	7822
Pierre	305	7555	
Rapid City	352	6978	7387
Sioux Falls	236	7661	7768
TENNESSEE			
Bristol	45	4264	4148
Chattanooga	25	3549	3384
Knoxville	30	3638	3590
Memphis	15	3219	3137
Nashville	35	3756	3513
TEXAS			
Abilene	8	[illegible]	2657
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0	[illegible]	1713

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
TEXAS (Cont'd.)			
Brownsville	0	829	617
Corpus Christi	0	1176	1011
Dallas	0	2444	2272
Del Rio (U)	0	1669	
El Paso	3	2409	2641
Ft. Worth	4	2553	2361
Galveston (U)	0	1329	1211
Galveston	0	1351	1233
Houston (U)	0	1430	1276
Houston	0	1495	1388
Laredo	0	1149	781
Lubbock	35	3674	3587
Midland	6	2886	
Port Arthur	0	1638	1517
San Angelo	6	2556	2107
San Antonio	0	1774	1579
Victoria	0	1452	1126
Waco	0	2234	2025
Wichita Falls	4	3009	3025
UTAH			
Milford	316	5888	6368
Salt Lake City	296	5263	5785
VERMONT			
Burlington	260	8095	7793
VIRGINIA			
Lynchburg	53	4158	4148
Norfolk	37	3340	3454
Richmond	44	3913	3955
Roanoke	49	4095	4152
WASHINGTON			
Olympia	386	4894	5318
Seattle (U)	280	4012	4331
Seattle-Tacoma	355	4651	5120
Spokane	441	6389	6706
Stampede Pass (R)	761	8558	8711
Tatoosh Island (R)	425	5095	5394
Walla Walla (U)	260	4570	4810
Yakima	365	4919	5792
WEST VIRGINIA			
Charleston	73	4614	4409
Elkins	145	5954	5720
Huntington (U)	55	4445	4068
Parkersburg (U)	79	5002	4737
WISCONSIN			
Green Bay	213	8428	8152
La Crosse	142	7725	7576
Madison	152	7707	7335
Milwaukee	215	7430	7096
WYOMING			
Casper	441	6297	7492
Cheyenne	441	7194	7389
Lander	487	7641	8140
Sheridan	488	7692	7742

Data from airport unless [illegible]
U indicates Urban, R indicates Rural, [illegible]

STORM SUMMARY

MAY 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ø ALL OTHER			
								†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE	
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS	DEATHS	INJURIES	PROPERTY	CROPS
Alabama	3	2	0	5	5									0	1	0	0									0	0	R4	R4
Arkansas						0	0	3	3	0	0	5	0	1	1	4	0												
California										1	5	4	0																
Colorado	1	1	0	0	°4	0	0	3	4	0	0	2	3	1	1	4	0	0	0	2	0								
Connecticut	2	2	0	0	3	0	0	0	4					0	1	3	0												
Florida	3	2	0	2	4	0	0	4	5					0	1	0	0									0	0	3	0
Georgia	1	1	0	0	0	0	0	3	3	0	1	4	3	1	1	3	0									0	0	5	5
Idaho										0	0	4	0																
Illinois	5	4	0	0	5	0	0	*	*	1	0	*	0	1	1	D5	0												
Indiana	2	2	0	0	3	0	0	0	3	0	0	4	0	0	1	2	0									0	0	3	0
Iowa	22	9	0	6	6	0	0	5	0	0	0	5	C													2	0	5	0
Kansas	36	9	0	1	6	0	0	6	5	0	16	6	4	0	1	4	0									1	0	6	0
Kentucky										0	0	4	0	1	0	0	0												
Louisiana	W3	3	0	0	1					0	0	A5	5	0	0	3	0												
Maryland						0	0	0	2					0	0	4	0									0	0	4	3
Massachusetts	P1	1	0	0	3	0	0	0	U	0	0	3	0	0	0	5	0									0	4	4	0
Michigan						0	0	0	3	0	0	5	0	0	0	5	0												
Minnesota	F9	6	0	0	4	0	0	5	2	0	0	5	3	0	2	4	0												
Mississippi	1	1	0	0	3					0	0	4	0																
Missouri	7	5	0	0	5	0	0	5	4	0	0	5	0	1	2	0	0									1	0	6	0
Montana														1	2	1	0												
Nebraska	26	8	1	5	5	0	0	6	6	0	4	5	0	1	2	4	3												
New Hampshire														0	0	4	0												
New Jersey						0	0	0	2					1	0	4	0									1	0	0	0
New Mexico	6	5	0	0	4	0	0	2	4																	2	0	1	3
New York						0	0	4	0	0	0	5	0	0	0	4	0									0	1	4	0
North Carolina						0	0	2	5	0	0	5	3	0	3	4	0												
Ohio	2	1	0	0	3	0	0	3	2					1	0	3	0									0	0	4	0
Oklahoma	E36	11	7	25	6	0	0	5	6	1	0	5	0	2	4	0	0									0	0	0	5
Oregon						0	0	1	4	0	0	4	3	0	0	3	1												
Pennsylvania										0	1	4	0	0	4	5	0									1	0	0	0
Puerto Rico																										5	7	6	C
Rhode Island										0	5	3	0	0	0	4	0												
South Carolina						0	0	0	1					0	0	2	0									0	0	4	4
South Dakota	4	4	0	3	5	0	0	4	3	0	0	5	0	1	0	4	0												
Tennessee										0	1	0	0	1	1	0	0												
Texas	29	13	0	[illegible]	6	0	0	5	6	0	0	5	4	3	1	0	0												
Utah						0	0	0	4																	0	0	4	0
Vermont						0	0	0	U	0	0	4	0																
Washington										0	0	0	4	0	0	2	0												
Wisconsin	17	7	0	6	6	0	0	4	0	0	0	4	0	0	0	4	0												
Wyoming	2	2	0	0	4	0	0	1	1													0	0	3	0				

R Heavy rain from tropical storm Arlene.
° Includes crop damage.
* Not Estimated.
D Other damage occurred; estimates not available.
C Crop damage.
W Includes 2 waterspouts.
A Includes tropical storm Arlene.
P Possible.
U Unknown.
F Includes 5 funnels aloft.
E Includes 17 funnels aloft on 7 days, 2 occurring on non-tornado days.
‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

TROPICAL STORM ARLENE MAY 28 — JUNE 2, 1959

HOWARD C. SUMNER
Marine Section, Office of Climatology, U. S. Weather Bureau

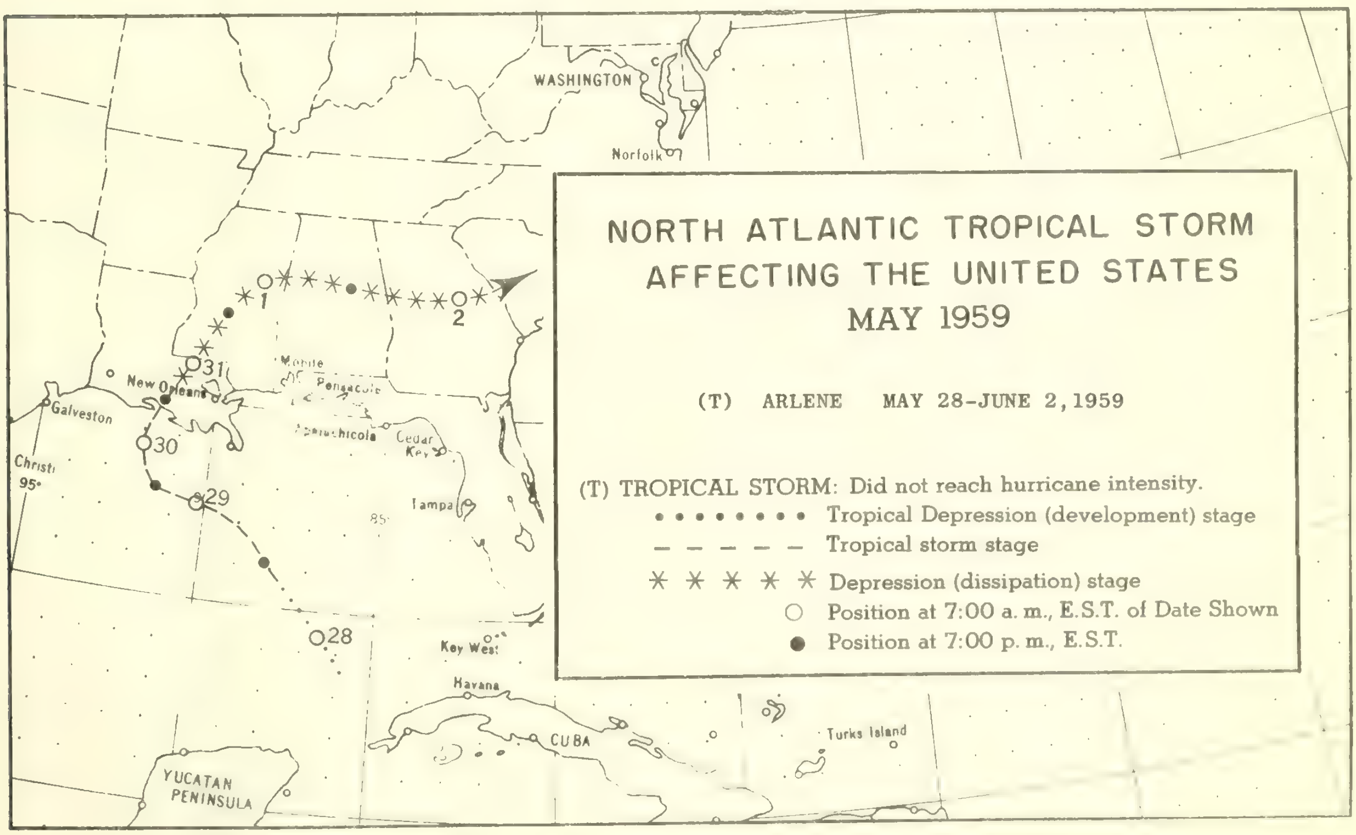
Arlene, one of the rare North Atlantic tropical storms which have occurred in May and the earliest of record to reach the Louisiana coast, moved inland during the late afternoon of May 30. Forming in the central Gulf of Mexico on May 28, the storm developed beneath a low pressure center aloft which had been under observation for several days as it drifted into the Gulf from the western Caribbean. After development of a circulation in the vicinity of latitude 26°N., longitude 88°W., the storm moved northwestward for about 12 hours and then westward during the following 12 hours. During the night of May 29-30, the center remained nearly stationary in a location about 200 miles south of the central Louisiana coast. On the following morning the storm began a northward drift that carried the center over the coastline in the vicinity of Franklin, La., where residents experienced a calm between about 6:20 and 6:30 p.m. on the 30th.

Both the lowest barometer 999.7 millibars (29.52 inches) and the highest winds 55 m.p.h. with gusts to 75 m.p.h. were observed at Patterson, La. Highest tides were 3 feet above normal at Weeks Island and Point Au Fer, La. At Galveston, Tex., moderate sea swells broke on the bar at a rate of 7 to 8 per minute from the east-southeast on May 29 and at the same rate from the east on May 30.

Total damage from Arlene has been estimated at about $500,000, the greatest part of which resulted from flooding of homes in Jefferson Parish, La.

Wind damage was light and confined mostly to the vicinity of Franklin, La., in St. Mary Parish, where uprooted trees brought down power lines and there was considerable damage in loss of roof shingles and downed TV antennas.

Heavy rains began over Louisiana late on the 30th with amounts of 10 to 12 inches falling in the Schriever-Houma-Paradis-Kenner area during the night of May 30-31. Amounts as high as 5 inches were recorded along the path of the storm as it moved into Alabama, where flash flooding resulted in considerable damage to property and crops. Damage in Alabama has been estimated at $100,000, about evenly divided between crop losses and damage to highways and bridges. Although cautionary advices against swells and undertow were issued for the benefit of bathers, one man was drowned in the surf at Galveston on May 30.



GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

MAY 1959

Near record flooding occurred on the Black Vermillion River in Kansas towards the end of the month.

One of the worst floods since 1951 occurred on the Cottonwood River in Kansas and on the upper Washita River in Oklahoma during May. According to local residents the flooding on White Shield Creek in Oklahoma was of record proportions. The second major flood of the season occurred along the upper Wabash River in Indiana. Severe flash floods occurred in eastern Texas early in May.

Excessive rains on May 3 caused severe floods in northeastern Puerto Rico. The rainfall amounts ranged from 5 to 13.8 inches. Runoff was heavy as the soil was saturated from previous heavy rains. Flooding of the main river systems occurred within 5 hours after the inception of the storm. Water rose to a depth of 2-1/2 feet over the road between Morovis and Orocovis, Puerto Rico, from the overflowing Manati River. Many families were evacuated along the overflowing streams. There were five deaths. Damages to roads, bridges, and agriculture were extensive.

ATLANTIC SLOPE DRAINAGE

Light flooding occurred in the lowlands below Columbia, S. C., on the Congaree River from the 28th through the end of the month. Moderate flash flooding occurred along the Pacolet River in South Carolina on the 26th and 27th due to heavy rains of 7 inches over portions of the basin from the 25th to the 27th. Shallow to moderate flooding occurred on the Broad River at Blair, S. C., on the 28th. Rainfall ranged from 1 to 3 inches over the upper Broad on the 21st. Reservoirs on the Saluda River contained the excess with no flooding reported along this stream. Lake Greenwood remained 2 to 3 feet below capacity storage, although heavy rains near the end of the month (1 to 3 inches) effected a substantial rise near the end of the period. Some damage was reported to pastures along the Broad and Congaree Rivers.

Light flooding occurred on the North Fork of the Edisto River at Orangeburg, S. C., from the 13th to the 15th due to heavy rain during the night of the 13th. No damage was reported.

EAST GULF OF MEXICO DRAINAGE

The minor flooding along the Pearl River in Mississippi and Louisiana during the last 10 days of April and the first few days of May was due to brief periods of excessive rainfall. Local moderate flooding occurred over forested lands adjacent to the Pearl River from above Goshen Springs to below Jackson, Miss., and light flooding at Bogalusa, La., between the 25th and the 31st due to heavy rains on the 22d and 23d. Rainfall during that period ranged from 1 to 6 inches.

Several flash floods resulted from the passage of tropical storm "Arlene" during the period from May 29 to June 1. Water rose to a depth of about 2 feet in 12 residences in the southern portion of Gordo, Ala., on the 30th. U. S. Highway 82 underpass in the area was flooded and several cars were stalled. Flash floods in the Heflin, Ala., area on the 30th caused some damage to county roads and a few bridges. Flash floods caused light to moderate damage in the Dothan, Ala., area on the 31st. Flash floods occurred in the Mobile, Ala., area on June 1 and 2 when several small creeks overflowed. Nine persons were evacuated from their homes on the Crystal Springs road where water rose to a depth of 1 to 5 feet. Several roads were closed due to washouts.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The Turkey River rose to above flood stage at Garber, Iowa, on the last day of the month and continued in flood to June 1. This rise was due to heavy showers on the 28th and 30th which averaged around 1 inch for each shower. No damage resulted from the overflow.

Local flooding occurred in the headwaters of the Kickapoo River at Ontario, Wis., from heavy thundershowers (3.5 to 4.5 inches) on the 19th and 20th. County roads were washed out and pasture and corn fields were flooded between Wilton and Ontario, Wis.

Light flooding occurred on low-lying farmland on the Turkey River at Garber, Iowa, on May 31 and June 1. Damage was negligible.

There were two periods of flooding in the Middle, South, and Des Moines Rivers in Iowa during May. The first flooding was due to heavy rains between the 18th and 21st. The heaviest rains occurred in north-central and south-central Iowa, with more than 4 inches reported in the Osceola and Chariton areas of south-central Iowa and more than 6 inches in the Britt and Forest City areas of north-central Iowa. Serious flooding occurred on Otter and Sqaw Creeks in southern Warren County on the morning of the 21st, resulting in the drowning of two women when their car was swept by flood waters from a county road near Medora, Iowa. Flooding along the main rivers was confined to lowland areas along the north, Middle, South, and lower portions of the Des Moines and Skunk Rivers. Damage was confined mainly to growing crops in the flood plain and to construction projects along the river. The second period of flooding began with heavy rains on the 29th and 30th of May. The Des Moines and Raccoon Rivers were in flood and rising as the month ended. Damages again were principally to growing crops and construction projects near the river.

Light flooding occurred on the Fox River at Wayland, Mo., for a few hours on the 31st. Very little damage, if any, resulted from the flooding.

The flooding on the Illinois River during the latter part of April and the first part of May was due to heavy rains on April 27 and 28. The flooding continued in the central basin until the 10th, but flood stage was never exceeded in the southern sections. A flash flood occurred on the Kankakee River at Kankakee, Ill., on May 20 due to heavy rain. Several dwellings were damaged.

Missouri Basin.--Moderate flooding occurred along the lower portion of the Floyd River in Iowa and in the upper reaches of the Vermillion from nighttime thunderstorms between the 27th and 29th. Rainfall during this period ranged from 1.25 to 2.5 inches. Flooding was confined to farmland.

The South Grand River in southwestern Missouri was in flood from the 20th through the 23d due to heavy rains on the 20th and 21st. Some damage resulted to crops.

Major flooding occurred on the Black Vermillion River at Frankfort, Kans., towards the end of the month. A near record crest of 29.5 feet occurred at Frankfort on the 30th, which was 10.5 feet above flood stage. This crest was exceeded only by the record crest of 30.2 feet of August 3, 1948. Considerable surface water accumulated prior to

the overflow of the Black Vermillion River and flooding in Frankfort was 4 to 7 inches above the 1948 levels. This near record flood was due to heavy rain which began at 7 p.m. on the 30th. Within 2 hours after the start of this storm, 2 inches of rain had fallen. Rainfall for the storm totaled 4.38 inches at Frankfort, 5.2 inches at Centralia, and 1.6 inches at Axtell, Kans., by the morning of the 30th. Heavy damages were sustained for the second time within a year, since a crest of 28.2 feet occurred on July 31, 1958.

Light to moderate overflows occurred on the Little Blue River, the Big Blue River, the lower Republican River, and the upper Saline River in Kansas and Nebraska mostly during the early part of the month. The more significant rises of 4 to 5 feet above flood stage were at Beatrice, Nebr., and Blue Rapids, Kans., on the Big Blue River and at Wilson, Kans., on the upper Saline River.

Ohio Basin.--Flash flooding occurred in the South Hills section of the City of Pittsburgh on the 22d. Locally heavy rains resulted in the flooding of many basements, the washout of driveways, and the disruption of traffic. The storm was confined to a small area, with many sections of the city reporting only minor amounts of rainfall.

The flooding in the White and Wabash Basins in Indiana was due to heavy rains on April 27 and 28. This was the second major flood of the season along the upper Wabash. The Wabash was cresting at Covington, Ind., on the 1st, nearly 10 feet above flood stage. Flood damage during May was minor because of the higher crests of preceding months. Spring plowing and planting were delayed in numerous areas as many fields were covered with standing water for a considerable period.

Brief periods of flooding occurred on the Skillet Fork and Little Wabash Rivers in Illinois during the latter half of the month. No damage resulted.

Arkansas Basin.--Heavy rains on the 17th and 18th in the Arkansas Basin caused one of the worst floods on the Cottonwood River in Kansas since 1951. The rainfall over the Cottonwood Basin ranged from 3 to 5 inches with some unofficial reports of as much as 7 inches. The crests at Cottonwood Falls, Kans., on the 18th was nearly 5 feet above flood stage and at Emporia, Kans., slightly above 5 feet. Flash flooding occurred at Florence, Elmdale, Cedar Point, Strong City, and Saffordville, Kans. Extensive damage occurred to crops and roads. The Walnut River crested almost 13 feet above flood stage at El Dorado, Kans., on the 18th; however, local flood protection works prevented overflow in the city itself. Rises elsewhere on the Walnut did not approach flood stage. The Verdigris River crested about 2 feet over flood stage at Coyville, Kans., on the 17th, but was only two-thirds to less than one-half bankfull downstream. The Neosho River, affected by high water flowing from the Cottonwood, Kans., crested slightly over flood stage at Neosho Rapids and Burlington, Kans., on the 21st and 22d.

The flooding on the Deep Fork at Dewar, Okla., on the 12th and 13th was due to heavy rains (2.75 inches) on the 8th and 9th. During this period over 8 inches of rain fell at Calvin, Okla., on the South Canadian River. Almost 6.5 inches of this fell during the night of the 9th. While the river at this point rose sharply, it crested below flood stage. However, considerable damage resulted to rural roads and bridges in Hughes County from small streams.

Rains approaching cloudburst proportions fell on wet soil in the upper Washita and middle portion of the North Fork Rivers in Oklahoma during the night of the 25th. A survey by the Bureau of Reclamation in this area indicates that an average of about 7 inches of rain fell over the southern tributaries of the Washita between Cheyenne and Clinton, Okla., with 10 inches of rain over the midsection of White Shield Creek which enters the Washita near Hammon, Okla. This was a record flood on White Shield Creek according to local residents. About 4 inches of rain fell over the northern tributaries of the Washita between Cheyenne and Clinton, Okla., during the same night. The North Fork River Basin from Shamrock, Tex., to below Sayre, Okla., also received about 4 inches of rain with as much as 10 inches reported by the Bureau of Reclamation about 3 miles northwest of Elk City, Okla. The Washita River flooded from above Clinton to below Carnegie, Okla. The overflow in the Clinton area was the greatest since May 1951. Flood damages were minor on the Washita, resulting mainly from low-lying agricultural lands being inundated and slight stock losses. Flooding was localized in the North Fork Basin. Old U. S. 66 Highway was closed and the bridge threatened at Sayre, Okla. At Elk City, Okla., Elk Creek forced the evacuation of three families as it rose to record or near-record levels.

Lower Mississippi Basin.--The Big Black River at Bovina, Miss., continued above flood stage for the first 2 days of the month, from flooding which was in progress during the last week of April.

Atchafalaya Basin.--The Atchafalaya River exceeded flood stage slightly in its lower reaches due to onshore winds caused by tropical disturbance "Arlene" on May 30 for a period of about 4 hours. There was little or no flooding outside the sea wall and no damage resulted.

WEST GULF OF MEXICO DRAINAGE

The flooding on the Sabine River at Gladewater, Tex., was a continuation of the flooding which began in April due to heavy rain on April 17th and 18th. Little or no damage resulted.

Flash floods occurred in the Sabine Basin in eastern Texas from the excessive rains that fell on the 2d and 3d. The rains were heaviest in the reach from Gladewater, Tex., to Logansport, La., with some stations reporting nearly 14 inches in a period of 4 to 6 hours. The storm was centered between Henderson, Kilgore, and Longview, Texas. Some flooding occurred along the main stem of the Sabine at Tatum, Tex., and Logansport, La., between the 4th and 13th. Considerable damage resulted from the flash flooding to roads, bridges, and other rural property. Many homes were evacuated in Henderson, Tex., which received nearly 12 inches of rain. About 20 miles northeast of Henderson at Lake Cherokee, many more homes were abandoned. Rushing water battered out the concrete moorings of a 150-foot long bridge on State Highway 322 between Henderson and Longview and the bridge collapsed into the creek bed. At least three persons lost their lives in this storm.

The flooding on the Trinity River at Trinidad, Tex., between the 12th and 14th was due to heavy rain on the 10th and 11th. The flooding was confined to the lowlands within the levees and no appreciable damage was reported.

PACIFIC SLOPE DRAINAGE

The flooding on the Skagit River in Washington between April 29 and May 1 was due to rainfall during the last 5 days of April, ranging from 4 to 10 inches plus heavy snowmelt at higher elevations. This was the highest water experienced in the Skagit Valley since November 1955.

FLOOD STAGE DATA

(All dates in May unless otherwise specified)

River and station	Flood stage	Above flood stages -dates		Crest *	
		From–	To–	Stage	Date
ATLANTIC SLOPE DRAINAGE	Ft.			Ft.	
Broad: Blair, S. C.	14	27	28	17.1	28
North Fork Edisto Orangeburg, S. C.	8	13	15	8.8	14
EAST GULF OF MEXICO DRAINAGE					
Pearl: Jackson, Miss.	18	Apr. 21 25	3 29	22.6 21.5	Apr. 29 27
Bogalusa, La.	15	Apr. 20 26	6 31	18.1 16.3	Apr. 26 28
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Turkey: Garber, Iowa	11	31	June 1	11.8	June 1
Raccoon: Jefferson, Iowa	10	31	1/		
Middle: Indianola, Iowa	15	20 30	21 30	17.1 17.0	20 30
South: Ackworth, Iowa	15	21 29	22 30	22.8 19.1	22 30
Des Moines: Tracy, Iowa	14	22 30	24 1/	17.1 17.9	22 31
Eddyville, Iowa	15	22 29	24 1/	18.9	23
Ottumwa, Iowa	9	23 30	23 1/	10.8	23
Fox: Wayland, Mo.	15	31	31	15.5	31
Illinois: Morris, Ill.	13	Apr. 28	1	16.8	Apr. 29
LaSalle, Ill.	20	Apr. 28 4	3 5	E24.1 E20.1	Apr. 29 5
Havana, Ill.	14	4	10	E14.5	7
Missouri Basin					
Floyd: Alton, Iowa	12	31	June 1		
James, Iowa	16	30	June 1	17.6	May 31
South Grand: Browpington, Mo.	19	20	23	E23.7	21
West Fork Big Blue: Dorchester, Nebr.		23	24	14.1	24
Black Vermillion: Frankfort, Kans.	19	5 30	5 31	21.5 29.5	5 30
Republican: Clay Center, Kans.	15	6	6	15.45	6
Saline: Wilson, Kans.	12	30	30	17.0	30
Little Blue: Deweese, Nebr.	6	6 21	6 22	6.95 7.15	6 21
Fairbury, Nebr.	10	6	6	11.2	6
Hanover, Kans.	14	6	6	15.2	6
Big Blue: Crete, Nebr.	16	5 6 24	5 6 25	16.1 17.7 17.55	5 6 25
Wilber, Nebr.	16	5	7	18.7	6
Beatrice, Nebr.	16	3 5	3 7	17.3 20.7	3 7
Barneston, Nebr.	18	6	7	19.8	7
Blue Rapids, Kans.	20	6	8	24.15	6
Randolph, Kans.	22	30	31	23.0	31

River and station	Flood stage	Above flood stages -dates		Crest *	
		From–	To–	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Ohio Basin					
White: Spencer, Ind.	14	Apr. 30	2	15.2	2
Edwardsport, Ind.	15	3	5	15.5	4
Wabash: Bluffton, Ind.	10	Apr. 28	1	13.9	Apr. 29
Wabash, Ind.	12	Apr. 28	[illegible]	21.9	Apr. 28
Lafayette, Ind.	11	Apr. 28	4		
Covington, Ind.	16	Apr. 28	6	25.95	1
Montezuma, Ind.	14	Apr. 28	7	24.9	2
Clinton, Ind.	18	Apr. 28	7	24.7	2
Terre Haute, Ind.	14	Apr. 14	8	20.6	3
Hutsonville, Ill.	T 20	3	8	23.3	5
Riverton, Ind.	18	4	9	20.3	6
Vincennes, Ind.	16	4	11	19.9	8
Skillet Fork: Wayne City, Ill.	15	19 27	20 27	15.8 16.3	19 27
Little Wabash: Wilcox, Ill.	16	22	22	16.1	22
Arkansas Basin					
Walnut: El Dorado, Kans.	15	17	18	27.75	18
Verdigris: Coyville, Kans.	28	17	19	30.2	17
Cottonwood: Cottonwood Falls, Kans.	9	17	19	13.6	18
Emporia, Kans.	20	18	21	25.05	19
Neosho: Neosho Rapids, Kans.	22	20	20	22.3	20
Burlington, Kans.	27	21	22	27.75	22
Deep Fork: Dewar, Okla.	18	12	13	19.0	12
Washita: Clinton, Okla.	20	26	28	27.8	26
Carnegie, Okla.	18	27	1/	20.7	28
Lower Mississippi Basin					
Big Black: Bovina, Miss.	28	Apr. 27	2	28.5	Apr. 28
Atchafalaya Basin					
Atchafalaya: Morgan City, La.	7	30	30	7.35	30
WEST GULF OF MEXICO DRAINAGE					
Sabine: Gladewater, Tex.	26	Apr. 23	[illegible]	31.05	Apr. 28
Logansport, La.	25	10	13	26.75	11
Trinity: Trinidad, Tex.	28	12	14	30.1	14
PACIFIC SLOPE DRAINAGE					
Skagit: Concrete, Wash.	26	Apr. 29	1	32.4	Apr. 30
Mt. Vernon, Wash.	21	Apr. 30	1	24.2	Apr. 30

* Provisional
1/ Continued at end of month
E Estimated
T Tentative

RAWINSONDE DATA

Average monthly values

ALBANY, N. Y. (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	86	12.4	78	286	1.7
1,000--	31	155	12.6	75	285	1.9
950----	31	584	11.7	67	305	8.2
900----	31	1,036	9.6	63	304	12.6
850----	31	1,509	7.3	60	298	15.7
800----	31	2,007	5.0	53	294	17.5
750----	31	2,533	2.7	47	292	18.3
700----	31	3,088	- .1	42	288	20.2
650----	31	3,674	- 3.3	43	284	24.1
600----	31	4,307	- 6.8	37	287	26.0
550----	31	4,976	-10.8	37	284	28.4
500----	31	5,709	-15.5	37	288	31.3
450----	31	6,490	-20.7	39	288	35.2
400----	31	7,360	-26.7	40	288	35.8
350----	30	8,309	-33.4		289	38.9
300----	30	9,374	-41.1		289	42.4
250----	30	10,591	-49.2		295	41.4
200----	29	12,018	-56.8		298	41.4
175----	29	12,859	-59.1		298	41.4
150----	27	13,817	-58.1		295	35.8
125----	25	14,962	-56.7		293	30.3
100----	25	16,375	-57.3		306	22.5
80-----	25	17,787	-56.8		305	10.1
60-----	22	19,621	-54.7		29	4.3
50-----	22	20,790	-54.2		69	5.6
40-----	21	22,220	-53.0		85	6.6
30-----	20	24,081	-51.2		81	5.8
25-----	18	25,263	-49.8		71	5.4
20-----	16	26,740	-47.3		88	8.2
15-----	15	28,664	-43.5		88	8.7
10-----						

ALBUQUERQUE, N. MEX. (836 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,619	12.1	43	111	3.9
1,000--	31	86				
950----	31	525				
900----	31	991				
850----	31	1,480				
800----	31	1,991	13.2	34	221	5.8
750----	31	2,529	10.0	33	244	9.1
700----	31	3,100	5.6	36	247	12.6
650----	31	3,696	.6	39	250	16.1
600----	31	4,339	- 4.3	40	246	19.8
550----	31	5,013	- 9.1	38	236	25.6
500----	31	5,751	-14.3	37	237	29.5
450----	31	6,535	-20.0		242	31.7
400----	31	7,406	-26.2		246	30.3
350----	31	8,359	-33.1		250	36.5
300----	31	9,424	-41.2		255	34.2
250----	31	10,638	-50.4		257	41.6
200----	31	12,065	-58.7		249	48.6
175----	31	12,900	-60.2		253	48.8
150----	31	13,860	-60.9		257	46.2
125----	30	14,997	-61.1		258	38.3
100----	30	16,376	-63.1			
80-----	30	17,752	-62.6			
60-----	29	19,535	-59.5			
50-----	28	20,680	-58.1			
40-----	28	22,093	-56.0			
30-----	28	23,937	-53.0			
25-----	27	25,118	-51.3			
20-----	25	26,570	-49.7			
15-----	19	28,441	-47.3			
10-----	6	31,134	-43.2			

AMARILLO, TEX. (890 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,095	13.3	76	187	4.7
1,000--	31	98				
950----	31	535				
900----	31	999				
850----	31	1,482	15.7	52	219	14.4
800----	31	1,995	14.2	42	236	17.5
750----	31	2,533	10.8	40	239	17.3
700----	31	3,108	6.8	37	246	17.5
650----	31	3,709	2.4	36	246	17.3
600----	31	4,354	- 2.5	41	241	18.5
550----	31	5,028	- 7.6	12	242	21.4
500----	31	5,774	-12.5	33	243	24.7
450----	31	6,560	-18.2		246	27.8
400----	31	7,439	-24.7		245	31.3
350----	31	8,398	-31.8		244	34.8
300----	31	9,469	-40.0		242	39.1
250----	31	10,690	-49.2		241	44.5
200----	30	12,123	-58.1		243	49.0
175----	30	12,957	-61.2		246	49.7
150----	30	13,914	-60.8		248	47.0
125----	30	15,049	-61.0		251	36.7
100----	30	16,429	-63.3		243	25.3
80-----	30	17,796	-63.6		223	15.7
60-----	30	19,581	-59.7		172	5.4
50-----	30	20,726	-57.9		134	6.6
40-----	29	22,141	-55.5		107	7.0
30-----	29	23,990	-52.0		89	8.2
25-----	26	25,173	-49.7		91	8.0
20-----	23	26,649	-46.7		119	5.2
15-----	6	28,531	-44.8			

ANCHORAGE, ALASKA ([illegible] MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	30	5.7	72	183	3.3
1,000--	31	103			186	3.9
950----	31	518	5.3	58	163	4.7
900----	31	964	2.8	57	135	3.9
850----	31	1,424	- .5	60	126	4.5
800----	31	1,906	- 3.7	63	140	4.7
750----	31	2,409	- 6.9	62	142	4.5
700----	31	2,949	-10.0	60	140	4.9
650----	31	3,510	-13.4	57	[illegible]	3.3
600----	31	4,122	-17.1	52	169	4.7
550----	31	4,762	-21.3	[illegible]	179	3.7
500----	31	5,467	-25.8	47	203	1.2
450----	31	6,215	-30.7	44	316	2.9
400----	31	7,051	-36.4		318	6.6
350----	31	7,964	-42.9		308	5.1
300----	31	8,989	-49.3		243	5.8
250----	31	10,174	-52.3		228	8.0
200----	31	11,624	-50.2		195	6.4
175----	31	12,497	-49.9		231	6.6
150----	31	13,506	-49.7		235	3.7
125----	31	14,698	-50.1		282	2.5
100----	31	16,155	-50.2		29	.6
80-----	30	17,615	-50.3		108	1.4
60-----	29	19,499	-49.9		82	4.1
50-----	29	20,692	-49.5		90	6.2
40-----	29	22,155	-49.2		82	8.4
30-----	28	24,043	-48.9		88	11.5
25-----	28	25,242	-48.2		93	13.4
20-----	25	26,707	-47.0		85	13.6
15-----	16	28,647	-44.8			

ANNETTE, ALASKA (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	37	7.3	83	132	2.1
1,000--	31	147	7.3	81	129	1.0
950----	31	566	5.3	75	162	2.9
900----	31	1,009	2.7	73	170	3.9
850----	31	1,470	.1	72	196	4.9
800----	31	1,954	- 2.4	63	220	5.2
750----	31	2,463	- 5.3	59	230	6.4
700----	31	3,004	- 8.7	56	248	7.0
650----	[illegible]	3,570	-11.9	53	247	7.4
600----	31	4,185	-15.4	50	26[illegible]	6.8
550----	31	4,832	-19.6	49	294	10.7
500----	30	5,542	-24.2	48	298	12.4
450----	30	6,298	-29.4	48	303	14.6
400----	30	7,135	-35.0	47	310	20.0
350----	30	8,055	-41.1		311	27.8
300----	30	9,089	-47.6		315	40.4
250----	30	10,277	-53.1		324	32.1
200----	30	11,710	-54.1			
175----	30	12,569	-53.3			
150----	30	13,564	-52.1			
125----	30	14,745	-52.1			
100----	30	16,188	-52.5			
80-----	30	17,634	-51.9			
60-----	29	19,499	-51.1			
50-----	29	20,687	-50.7			
40-----	29	22,144	-50.0			
30-----	29	24,028	-49.3			
25-----	25	25,223	-48.7			
20-----	14	26,653	-48.3			

ATHENS, GA. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	246	17.3	91	41	1.2
1,000--	31	171				
950----	31	611	18.9	72	218	1.9
900----	31	1,076	16.6	68	236	4.1
850----	31	1,561	13.8	69	243	5.4
800----	31	2,070	10.7	69	237	5.6
750----	31	2,601	7.5	65	230	6.4
700----	31	3,171	4.4	59	235	8.4
650----	31	3,771	1.1	53	239	9.1
600----	31	4,412	- 2.4	45	248	10.3
550----	31	5,092	- 6.2	38	249	11.3
500----	31	5,838	-10.7	35	260	11.3
450----	31	6,637	-16.1	40	264	14.4
400----	31	7,518	-22.1	38	264	14.0
350----	31	8,486	-29.4		258	17.3
300----	31	9,568	-37.8		269	22.7
250----	31	10,799	-47.9		267	21.8
200----	31	12,235	-58.8		272	25.1
175----	31	13,064	-63.2		280	24.5
150----	31	14,007	-64.6		278	20.6
125----	31	15,123	-64.6		279	18.8
100----	31	16,481	-66.2		287	10.7
80-----	31	17,834	-65.8		340	5.6
60-----	30	19,596	-61.1		43	4.5
50-----	29	20,732	-59.4		72	11.9
40-----	28	22,136	-57.4		89	13.4
30-----	27	23,971	-53.6		82	14.2
25-----	27	25,150	-51.3		85	12.8
20-----	24	26,604	-48.9		83	13.4
15-----	11	28,514	-45.6			
10-----						
7------						
5------						

BARROW, ALASKA (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	- 7.9	87	88	4.7
1,000--	31	162	- 7.6	87	94	5.1
950----	31	559	- 6.3	81	103	5.6
900----	31	988	- 5.6	72	99	3.9
850----	31	1,437	- 6.3	60	81	4.1
800----	31	1,909	- 8.3	56	76	2.3
750----	31	2,400	-10.3	48	71	1.2
700----	31	2,938	-13.1	42	193	.6
650----	31	3,489	-16.1	40	242	1.6
600----	31	4,099	-19.7	41	243	1.6
550----	31	4,729	-23.8	41	273	2.3
500----	31	5,430	-28.6	40	279	3.3
450----	31	6,164	-34.0	39	282	4.5
400----	31	6,991	-40.2		301	5.2
350----	31	7,891	-46.0		284	7.0
300----	31	8,904	-51.2		296	9.1
250----	31	10,089	-50.4		293	10.1
200----	31	11,560	-46.6		299	9.7
175----	31	12,447	-46.3		305	9.1
150----	31	13,470	-46.6		307	9.5
125----	31	14,679	-47.1		306	8.5
100----	31	16,156	-47.2		322	5.6
80-----	31	17,634	-46.8		335	3.3
60-----	30	19,544	-46.3		25	3.3
50-----	30	20,756	-45.9		64	3.7
40-----	30	22,242	-45.5		72	6.2
30-----	29	24,156	-45.4		83	7.6
25-----	24	25,370	-45.2		80	8.9
20-----	13	26,838	-45.1			

BARTER IS., ALASKA (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	- 8.1	77	69	4.5
1,000--	31	155	- 7.0	81	81	5.2
950----	31	558	- 5.5	74	114	3.5
900----	31	983	- 4.9	64	204	1.2
850----	31	1,432	- 6.0	54	284	1.9
800----	31	1,906	- 8.0	53	291	3.5
750----	31	2,403	-10.4	54	290	4.7
700----	31	2,935	-13.1	51	294	5.1
650----	31	3,493	-16.2	52	297	7.0
600----	31	4,096	-19.8	52	293	6.0
550----	31	4,734	-23.9	48	297	7.6
500----	31	5,428	-28.5	47	295	8.4
450----	31	6,171	-33.7	45	296	8.9
400----	31	6,993	-39.4		295	10.5
350----	31	7,895	-45.8		294	11.7
300----	31	8,909	-51.1		282	14.6
250----	31	10,091	-50.7		283	17.3
200----	30	11,560	-46.7		295	13.2
175----	30	12,446	-46.4		299	12.8
150----	30	13,529	-46.4		305	10.1
125----	30	14,681	-46.5		301	9.1
100----	30	16,162	-46.7		312	7.6
80-----	30	17,644	-46.5		343	4.3
60-----	30	19,558	-46.0		22	3.7
50-----	30	20,772	-45.6		43	4.7
40-----	29	22,265	-45.2		64	8.0
30-----	28	24,192	-44.8		80	9.5
25-----	28	25,413	-44.6		82	11.1
20-----	28	26,910	-43.9		78	11.7
15-----	26	28,843	-42.4		78	12.4
10-----	24	31,606	-38.9		75	15.7
7------	13	34,034	-36.9			
5------	6	36,424	-34.0			

BETHEL, ALASKA (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	2.5	87	118	1.9
1,000--	31	89			73	1.6
950----	31	510	3.6	72	135	7.4
900----	31	944	1.4	70	145	7.4
850----	31	1,406	- .8	69	155	7.6
800----	31	1,887	- 3.5	65	158	8.5
750----	31	2,398	- 6.4	62	157	7.0
700----	31	2,932	- 9.6	60	156	6.8
650----	31	3,500	-13.0	57	150	5.4
600----	31	4,108	-16.3	57	130	9.3
550----	31	4,758	-20.1	56	132	8.9
500----	31	5,459	-24.8	55	113	6.8
450----	31	6,213	-29.9	52	107	3.9
400----	31	7,049	-35.5	50	65	6.8
350----	31	7,968	-41.4		69	8.9
300----	31	8,999	-47.9		96	6.8
250----	31	10,190	-51.5		121	9.7
200----	31	11,641	-50.3		178	1.9
175----	31	12,514	-49.7		205	3.7
150----	30	13,529	-49.5		127	1.7
125----	30	14,724	-49.7		131	1.6
100----	30	16,183	-50.4		100	2.7
80-----	29	17,646	-49.9		80	7.2
60-----	29	19,526	-50.1		88	10.3
50-----	29	20,718	-49.8			
40-----	29	22,179	-49.5			
30-----	26	24,067	-49.3			
25-----	21	25,251	-49.4			
20-----	7	26,640	-49.0			

BISMARCK, N. DAK. (954 MB)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	505	5.9	79	339	2.1
1,000--	31	115				
950----	31	540			358	3.3
900----	31	984	7.4	64	302	3.9
850----	31	1,453	6.2	62	309	5.8
800----	31	1,948	4.0	58	297	8.0
750----	31	2,466	1.7	54	273	10.7
700----	31	3,024	- 1.6	54	275	13.2
650----	31	3,604	- 5.1	51	267	17.1
600----	31	4,234	- 9.2	46	267	20.2
550----	31	4,893	-13.6	41	263	21.0
500----	31	5,620	-18.4	37	249	24.5
450----	31	6,389	-24.2	36	243	25.6
400----	31	7,247	-30.4		238	27.0
350----	31	8,184	-37.0		229	35.8
300----	31	9,234	-44.8		224	38.9
250----	31	10,432	-52.6		222	36.5
200----	31	11,857	-56.6		235	35.0
175----	31	12,706	-55.9		247	35.8
150----	31	13,691	-54.2		250	24.5
125----	31	14,859	-54.8		254	24.1
100----	31	16,287	-55.2		255	13.8
80-----	31	17,710	-55.2		243	9.9
60-----	29	19,550	-54.3		217	3.7
50-----	29	20,719	-53.7			
40-----	27	22,162	-52.6			
30-----	24	24,026	-51.4			
25-----	22	25,213	-50.6			
20-----	19	26,676	-48.6			
15-----	15	28,569	-46.1			

BOISE, IDAHO (915 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	868	6.5	74	198	0.8
1,000--	31	134				
950----	31	556				
900----	31	1,008	7.9	65	301	1.6
850----	31	1,479	6.4	57	318	4.7
800----	31	1,974	3.0	59	312	6.0
750----	31	2,495	- .1	62	304	6.0
700----	31	3,042	- 4.3	61	290	8.0
650----	31	3,619	- 7.9	58	271	8.5
600----	31	4,241	-11.7	54	253	7.8
550----	31	4,898	-16.2	52	255	10.7
500----	31	5,615	-21.2	50	250	11.1
450----	31	6,381	-26.8	44	239	11.1
400----	31	7,225	-33.0		239	7.4
350----	30	8,147	-39.9		244	7.6
300----	30	9,185	-47.0		286	6.2
250----	30	10,376	-52.9		308	8.4
200----	30	11,807	-55.2		291	16.1
175----	30	12,659	-55.2		261	13.8
150----	30	13,643	-55.2		252	12.2
125----	30	14,808	-54.9			
100----	30	16,235	-55.2			
80-----	30	17,657	-55.5			
60-----	29	19,491	-55.6			
50-----	29	20,654	-55.1			
40-----	28	22,080	-54.1			
30-----	28	23,932	-52.3			
25-----	28	25,115	-51.0			
20-----	26	26,574	-48.8			
15-----	20	28,464	-46.4			
10-----	7	31,194	-42.5			

BROWNSVILLE, TEX. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	23.4	93	144	6.6
1,000--	31	109	23.4	89	150	9.9
950----	31	556	21.3	83	158	16.7
900----	31	1,025	19.7	68	163	16.9
850----	31	1,518	18.1	53	158	12.0
800----	31	2,036	15.9	40	161	7.8
750----	31	2,579	12.9	37	171	4.5
700----	31	3,158	8.9	39	179	1.6
650----	31	3,760	5.0	37	304	2.9
600----	31	4,415	.6	35	318	3.3
550----	31	5,099	- 4.0		293	4.9
500----	31	5,853	- 9.0	34	290	6.6
450----	31	6,654	-14.5	34	281	10.1
400----	31	7,544	-20.9		277	15.2
350----	31	8,516	-28.1		277	18.5
300----	31	9,604	-36.5		278	22.5
250----	31	10,842	-46.1		277	28.4
200----	31	12,291	-56.7		280	33.6
175----	31	13,129	-61.4		278	29.3
150----	31	14,077	-64.5		267	26.4
125----	31	15,185	-67.0		260	23.3
100----	31	16,519	-70.7		247	13.8
80-----	31	17,838	-71.8		169	4.5
60-----	31	19,560	-65.1		95	14.2
50-----	30	20,686	-60.4		93	13.0
40-----	30	22,090	-56.8		90	13.4
30-----	30	23,930	-52.8		74	14.4
25-----	27	25,119	-50.4		92	14.4
20-----	22	26,584	-48.2		88	16.5
15-----	16	28,502	-44.9			

BUFFALO, N. Y. (997 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	182	11.1	78	190	2.9
1,000--	31	156				
950----	31	586	12.1	65	251	5.6
900----	31	1,039	10.4	63	277	8.5
850----	31	1,513	8.2	60	281	12.2
800----	31	2,012	5.8	55	280	16.3
750----	31	2,540	3.1	52	286	18.5
700----	31	3,095	.1	50	287	21.0
650----	31	3,685	- 3.5	47	286	22.2
600----	31	4,316	- 6.7	44	283	24.1
550----	31	4,988	-10.5	39	283	27.8
500----	31	5,719	-14.9		284	30.3
450----	31	6,508	-20.4		284	33.6
400----	31	7,371	-26.5		285	38.7
350----	31	8,322	-33.2		285	40.8
300----	31	9,388	-41.0		285	42.6
250----	31	10,605	-49.5		285	45.1
200----	31	12,039	-57.4		296	47.6
175----	31	12,878	-59.9		293	42.0
150----	31	13,841	-59.0		293	35.2
125----	30	14,985	-58.0		293	28.0
100----	30	16,390	-58.1		297	21.4
80-----	29	17,802	-57.4		314	12.2
60-----	26	19,628	-55.7		349	5.4
50-----	25	20,793	-54.7		40	6.2
40-----	22	22,241	-53.3		77	8.4
30-----	20	24,109	-50.6		82	9.5
25-----	17	25,319	-48.4		84	10.1
20-----	13	26,791	-45.8		90	12.0
15-----	5	28,719	-43.0			

BURRWOOD, LA. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	3	23.2	88	165	5.4
1,000--	31	144	23.0	83	145	5.1
950----	31	589	20.5	77	144	7.8
900----	31	1,057	18.2	64	157	9.1
850----	31	1,545	15.6	62	164	8.5
800----	31	2,058	12.8	58	168	8.0
750----	31	2,593	9.7	51	181	7.6
700----	31	3,168	6.5	46	195	6.2
650----	31	3,769	3.0	38	219	6.4
600----	31	4,416	- .5	38	247	4.7
550----	31	5,101	- 4.9	34	257	5.1
500----	31	5,849	- 9.8	34	260	5.8
450----	30	6,651	-15.3	37	260	6.6
400----	30	7,533	-21.6	34	248	7.6
350----	30	8,503	-28.8		252	8.7
300----	30	9,588	-37.0		251	10.9
250----	30	10,824	-46.7		260	14.2
200----	30	12,270	-57.1		263	20.6
175----	30	13,106	-61.3		268	24.7
150----	29	14,060	-63.9		271	25.3
125----	28	25,173	-65.3		273	23.3
100----	28	16,521	-68.4		273	14.6
80-----	26	17,850	-69.7		297	6.8
60-----	23	19,581	-63.9		49	6.2
50-----	22	20,708	-60.8		67	11.3
40-----	21	22,106	-56.7		79	12.2
30-----	21	23,947	-52.6		92	13.0
25-----	21	25,131	-49.8		91	10.7
20-----	19	26,602	-47.0		81	10.5
15-----	14	28,528	-43.7			

CAPE HATTERAS, N. C. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	19.6	83	213	2.1
1,000--	31	168	19.5	75	216	5.1
950----	31	604	16.8	71	244	6.4
900----	31	1,068	14.1	69	258	6.4
850----	31	1,549	11.7	66	284	6.6
800----	31	2,055	9.4	56	287	9.[illegible]
750----	31	2,585	6.8	50	278	9.1
700----	31	3,152	3.9	46	278	11.7
650----	31	3,746	.5	44	275	12.8
600----	31	4,390	- 3.2	39	277	14.2
550----	31	5,067	- 7.1		283	16.5
500----	31	5,812	-11.9	32	284	18.3
450----	31	6,605	-17.2	32	292	21.6
400----	31	7,485	-23.0	38	290	22.7
350----	31	8,450	-29.9		290	24.5
300----	31	9,529	-38.4		295	26.6
250----	31	10,757	-48.1		298	29.0
200----	31	12,193	-58.8		296	32.3
175----	31	13,022	-63.1		299	35.6
150----	31	13,966	-64.6		297	31.7
125----	31	15,084	-63.3		297	25.3
100----	29	16,452	-63.9		309	19.8
80-----	27	17,815	-62.8		326	11.5
60-----	27	19,604	-58.6		13	5.8
50-----	27	20,753	-57.1		48	7.2
40-----	27	22,172	-54.6		67	8.4
30-----	26	24,025	-51.5		71	9.9
25-----	26	25,213	-49.5		78	8.9
20-----	23	26,682	-46.7		83	8.4
15-----	14	28,614	-42.7		70	8.9
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

MAY 1959

CARIBOU, ME. (992 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	191	8.3	75	286	5.2
1,000	31	129				
950	31	549	7.5	63	296	8.5
900	31	996	5.8	61	310	12.2
850	31	1,462	3.3	61	308	13.6
800	31	1,951	1.1	61	303	16.3
750	31	2,469	-1.2	58	299	18.1
700	31	3,017	-3.7	54	295	22.3
650	31	3,597	-6.7	50	296	24.5
600	31	4,220	-10.2	46	295	24.9
550	31	4,884	-14.2	42	296	26.0
500	31	5,603	-18.6	39	296	28.0
450	31	6,379	-23.9	38	295	30.3
400	31	7,233	-29.8	35	292	33.0
350	31	8,171	-36.6		291	34.8
300	31	9,224	-43.7		290	38.5
250	31	10,432	-50.0		294	44.9
200	31	11,874	-54.8		293	36.1
175	30	12,720	-55.2		291	34.8
150	30	13,705	-54.5		299	29.1
125	27	14,878	-53.1		288	22.9
100	27	16,314	-53.9		302	16.9
80	26	17,751	-53.6		317	9.5
60	26	19,609	-52.4		352	3.7
50	24	20,784	-51.4		31	3.5
40	21	22,238	-50.3		70	6.2
30	16	24,116	-49.2		74	11.9
25	15	25,312	-47.6		83	11.3
20	13	26,774	-45.7		78	9.3
15	8	28,684	-42.8			
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CHARLESTON, S. C. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	13	19.7	93	101	0.8
1,000	31	173	21.0	79	155	3.1
950	31	616	19.3	71	201	4.3
900	31	1,082	16.5	70	232	4.9
850	31	1,567	13.7	64	254	4.3
800	31	2,077	11.0	57	267	3.7
750	31	2,611	8.1	54	263	4.9
700	31	3,181	5.0	50	261	6.2
650	31	3,781	1.6	49	258	8.4
600	31	4,425	-1.8	44	259	8.9
550	31	5,110	-5.9	39	266	9.5
500	31	5,855	-10.3		265	11.9
450	31	6,652	-15.8		266	12.6
400	31	7,539	-21.9		272	13.4
350	31	8,508	-29.0		276	15.2
300	31	9,592	-37.4		280	18.5
250	31	10,826	-47.1		282	22.0
200	31	12,266	-58.1		284	25.1
175	31	13,097	-63.2		289	26.8
150	31	14,037	-65.8		295	26.4
125	31	15,149	-64.6		299	21.2
100	31	16,508	-66.0		300	17.1
80	31	17,863	-65.2		323	10.9
60	30	19,639	-60.3		22	5.4
50	30	20,781	-58.2		49	9.1
40	29	22,200	-55.1		73	12.0
30	28	24,051	-51.6		83	11.7
25	27	25,239	-49.7		87	10.1
20	21	26,707	-47.1		89	6.4
15	15	28,607	-44.8		49	3.7

COLD BAY, ALASKA (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	27	3.5	90	167	6.2
1,000	31	80			200	4.9
950	31	494	2.0	80	160	3.7
900	31	930	.3	75	155	3.3
850	31	1,388	-1.4	71	118	4.7
800	31	1,869	-3.1	65	132	2.9
750	31	2,378	-5.5	62	141	3.7
700	31	2,918	-8.0	55	127	5.2
650	31	3,487	-11.2	51	119	5.2
600	31	4,101	-14.7	51	124	6.0
550	31	4,752	-18.8	52	134	7.4
500	31	5,459	-23.6	51	129	7.0
450	31	6,215	-28.7	50	131	6.2
400	31	7,058	-34.5	51	161	6.0
350	30	7,974	-40.7		158	3.3
300	30	9,008	-47.4		210	2.7
250	30	10,199	-51.5		212	7.0
200	30	11,648	-50.9		211	9.7
175	30	12,517	-51.0		240	6.8
150	30	13,521	-50.8		234	5.2
125	30	14,706	-51.5		245	4.5
100	29	16,155	-51.8		216	4.7
80	29	17,603	-51.7		167	3.9
60	29	19,470	-51.7		142	4.9
50	29	20,653	-51.6		96	4.9
40	29	22,103	-51.5		95	8.5
30	25	23,979	-50.7		103	9.7
25	20	25,175	-50.4		99	12.6
20	15	26,655	-49.4			
15	5	28,579	-47.8			

COLUMBIA, MO. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	238	15.2	89	144	4.5
1,000	31	132				
950	31	569	16.4	75	183	9.7
900	31	1,030	15.2	69	226	14.0
850	31	1,513	13.1	62	237	15.7
800	31	2,022	10.7	49	239	13.4
750	31	2,555	7.6	47	240	13.8
700	31	3,123	4.3	47	251	15.5
650	31	3,715	.4	46	249	16.9
600	31	4,360	-3.5	41	246	20.0
550	31	5,033	-8.0	38	253	20.4
500	31	5,777	-13.0	39	257	23.3
450	31	6,563	-18.7		255	25.6
400	31	7,443	-24.3	33	257	29.0
350	31	8,403	-31.1		254	31.7
300	31	9,478	-39.2		251	35.0
250	31	10,703	-48.7		249	39.8
200	31	12,139	-58.2		252	48.0
175	31	12,973	-61.0		256	48.0
150	31	13,931	-60.7		257	40.6
125	31	15,070	-59.9		255	33.2
100	31	16,458	-61.6		254	22.7
80	31	17,841	-61.0		253	15.0
60	31	19,643	-58.3		211	2.9
50	31	20,795	-56.9		98	3.7
40	31	22,217	-54.6		87	7.2
30	31	24,073	-51.6		89	10.5
25	29	25,260	-50.4		88	9.9
20	27	26,725	-47.6		85	8.9
15	14	28,613	-44.9		87	8.2

DAYTON, OHIO (984 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	297	14.6	80	173	1.6
1,000	31	155				
950	31	591	15.5	72	231	5.6
900	31	1,050	13.6	66	244	12.2
850	31	1,530	11.2	64	253	13.0
800	31	2,035	8.5	57	258	14.0
750	31	2,563	5.5	55	258	16.1
700	31	3,127	2.3	53	262	16.9
650	31	3,718	-1.4	56	260	17.3
600	31	4,356	-5.1	54	262	20.0
550	31	5,027	-9.2	48	261	21.2
500	31	5,766	-13.6	42	261	22.7
450	31	6,550	-18.8	41	267	24.7
400	31	7,428	-24.7	40	267	28.4
350	31	8,386	-31.7	39	270	31.5
300	31	9,459	-39.7		271	35.0
250	31	10,680	-49.0		274	36.7
200	31	12,112	-58.8		276	45.7
175	31	12,943	-61.3		277	42.4
150	31	13,900	-61.2		277	36.5
125	31	15,033	-60.0		279	30.5
100	31	16,422	-61.3		280	21.0
80	31	17,807	-60.5		291	11.3
60	31	19,607	-58.3		353	4.9
50	31	20,759	-56.3		61	4.9
40	31	22,182	-54.4		75	7.8
30	30	24,036	-51.4		80	8.5
25	29	25,221	-49.5		74	10.1
20	26	26,688	-47.4		75	8.9
15	18	28,614	-44.1		79	7.4
10	6	31,314	-39.9			

DENVER, COLO. (836 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,611	6.6	81	217	1.2
1,000	31	111				
950	31	539				
900	31	995				
850	31	1,473				
800	31	1,975	9.1	63	255	3.7
750	31	2,503	6.7	57	261	4.9
700	31	3,071	3.3	54	245	8.5
650	31	3,666	-.2	51	253	12.8
600	31	4,303	-5.1	51	255	17.9
550	31	4,975	-10.0	49	253	23.3
500	31	5,709	-15.2	42	248	25.1
450	31	6,488	-21.0	37	244	26.4
400	31	7,355	-27.6	36	241	29.9
350	31	8,301	-35.2	35	240	35.4
300	31	9,357	-43.2		238	43.1
250	31	10,564	-51.1		239	47.6
200	31	11,994	-57.1		243	48.8
175	31	12,836	-58.5		241	45.5
150	31	13,807	-57.8		242	41.2
125	31	14,960	-57.2		244	32.3
100	31	16,368	-58.1		238	23.7
80	31	17,773	-58.5		236	11.1
60	29	19,587	-56.1		207	5.1
50	29	20,749	-55.6		150	3.5
40	28	22,180	-53.8		103	7.0
30	28	24,040	-51.4		101	7.8
25	27	25,229	-49.9		88	8.0
20	26	26,693	-47.4		87	10.1
15	20	28,610	-44.5		93	9.7
10	8	31,372	-39.9			
7						

DODGE CITY, KANS. (922 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	792	13.4	87	157	4.3
1,000	30	102				
950	30	541				
900	30	997	14.4	75	172	6.4
850	30	1,482	15.0	59	212	11.1
800	30	1,995	13.4	45	237	11.9
750	30	2,536	10.1	41	245	12.6
700	30	3,105	6.3	41	247	16.1
650	30	3,708	2.0	41	245	17.9
600	30	4,349	-3.1	42	249	19.6
550	30	5,029	-8.1	39	249	22.9
500	30	5,766	-13.3	37	251	29.1
450	30	6,556	-18.8		248	32.3
400	30	7,429	-25.1	33	252	35.4
350	30	8,385	-32.5		255	37.9
300	30	9,454	-40.7		255	45.1
250	30	10,670	-49.9		248	47.4
200	28	12,100	-58.4		249	52.8
175	28	12,936	-60.1		252	46.2
150	28	13,898	-59.7			
125	28	15,039	-59.8			
100	28	16,427	-61.8			
80	28	17,808	-61.7			
60	28	19,606	-58.2			
50	28	20,757	-57.1			
40	28	22,175	-55.3			
30	28	24,023	-52.6			
25	27	25,208	-50.6			
20	24	26,666	-48.9			
15	20	28,565	-46.0			

EL PASO, TEX. (879 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,197	17.5	41	252	3.1
1,000	31	78				
950	31	522				
900	31	995				
850	31	1,487	18.9	30	252	6.4
800	31	2,004	15.9	27	253	11.9
750	31	2,544	11.7	29	247	13.0
700	31	3,121	7.4	29	244	16.1
650	31	3,721	3.1	28	231	16.7
600	31	4,370	-1.4		229	19.2
550	31	5,047	-6.2		231	23.5
500	31	5,797	-11.4		240	25.3
450	31	6,591	-17.2		243	27.0
400	31	7,471	-23.7		244	29.0
350	31	8,432	-31.1		245	31.7
300	31	9,507	-39.3		246	32.4
250	31	10,731	-48.7		248	35.4
200	31	12,167	-57.6		248	37.1
175	31	13,004	-60.9		249	40.6
150	31	13,961	-62.0		252	36.7
125	31	15,086	-63.0		255	35.0
100	31	16,453	-65.5		252	25.8
80	31	17,810	-65.3		231	7.0
60	30	19,576	-61.7		205	7.6
50	30	20,713	-59.0		173	5.2
40	30	22,121	-56.7		85	5.2
30	29	23,961	-53.5		101	4.9
25	28	25,142	-51.5		107	6.2
20	25	26,594	-49.0		98	3.5
15	12	28,453	-47.2			

ELY, NEV. (806 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,908	2.3	69	172	2.7
1,000	31	122				
950	31	551				
900	31	1,005				
850	31	1,476				
800	31	1,973	4.6	62	175	1.0
750	31	2,500	3.7	53	1	3.3
700	31	3,056	.1	53	273	4.3
650	31	3,645	-4.0	53	250	8.0
600	31	4,272	-8.6	52	243	15.0
550	31	4,936	-13.4	48	243	19.2
500	31	5,660	-18.3	42	238	21.8
450	31	6,436	-23.8	36	246	24.7
400	31	7,288	-30.0	36	251	20.0
350	31	8,229	-37.1		252	18.1
300	31	9,275	-44.9		248	20.4
250	31	10,475	-51.8		271	19.6
200	31	11,906	-56.1		269	21.4
175	31	12,754	-56.8		264	23.9
150	30	13,734	-56.7			
125	30	14,891	-56.6			
100	30	16,304	-57.6			
80	30	17,710	-57.7			
60	30	19,529	-56.7			
50	30	20,686	-56.0			
40	30	22,107	-54.9			
30	29	23,952	-53.0			
25	29	25,131	-51.7			
20	29	26,583	-49.9			
15	28	28,476	-46.4			
10	17	31,216	-41.5			
7	6	33,634	-39.9			

FAIRBANKS, ALASKA (998 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	135	4.5	73	359	2.7
1,000	31	117			324	3.3
950	31	536	5.3	54	16	1.9
900	31	975	2.6	56	224	1.2
850	31	1,435	-.7	59	240	4.7
800	31	1,916	-4.0	60	241	6.0
750	31	2,419	-7.6	62	244	7.0
700	31	2,956	-11.0	58	250	6.4
650	31	3,520	-14.0	54	265	7.6
600	31	4,127	-17.9	52	272	8.5
550	31	4,768	-22.3	50	279	9.7
500	31	5,467	-27.1	47	285	9.1
450	31	6,211	-32.3	47	282	11.5
400	31	7,042	-37.8	46	286	14.4
350	31	7,950	-44.0		286	12.4
300	31	8,970	-50.1		269	11.3
250	31	10,150	-53.0		215	12.8
200	31	11,600	-49.4		241	10.5
175	31	12,477	-48.6		240	8.4
150	31	13,491	-48.6		255	7.2
125	31	14,689	-48.9		240	5.2
100	30	16,158	-49.0		217	4.3
80	28	17,628	-48.7		194	2.7
60	27	19,530	-48.3			
50	24	20,748	-48.0			
40	23	22,223	-47.1			
30	13	24,163	-46.5			
25	8	25,392	-46.0			

FLINT, MICH. (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	234	12.4	79	192	2.7
1,000	31	148				
950	31	583	13.2	67	226	7.4
900	31	1,035	11.8	63	251	11.3
850	31	1,511	9.4	62	257	13.8
800	31	2,012	7.0	57	258	16.3
750	31	2,539	4.3	54	259	18.7
700	31	3,100	1.2	51	263	19.6
650	31	3,689	-2.4	49	268	22.5
600	31	4,324	-6.3	50	265	24.3
550	31	4,993	-10.0	44	265	27.0
500	31	5,729	-14.6	38	265	29.3
450	31	6,509	-19.8		269	30.5
400	31	7,383	-25.8	32	269	33.6
350	31	8,338	-32.6		271	38.9
300	31	9,406	-40.7		274	42.4
250	31	10,624	-49.5		275	44.3
200	31	12,056	-58.0		274	48.8
175	31	12,894	-60.0		273	40.6
150	30	13,857	-59.1		278	36.3
125	30	15,004	-57.9		279	30.7
100	30	16,409	-58.5		281	23.3
80	28	17,822	-57.7		295	12.6
60	28	19,645	-56.0		347	3.7
50	27	20,806	-54.5		45	5.4
40	26	22,237	-52.8		80	6.8
30	25	24,108	-50.0		81	9.1
25	24	25,299	-48.2		83	10.7
20	18	26,789	-45.3		89	11.9
15	11	28,727	-41.3			

FORT WORTH, TEX. (993 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	180	19.8	86	161	4.5
1,000	31	119				
950	31	558	19.0	81	176	13.2
900	31	1,027	17.5	74	193	17.5
850	31	1,515	16.0	63	202	15.3
800	31	2,030	14.4	49	209	10.7
750	31	2,568	11.1	44	227	7.6
700	31	3,145	7.4	38	238	6.4
650	31	3,745	3.0	40	250	7.8
600	31	4,395	-1.6	39	260	9.7
550	31	5,076	-6.2	33	256	11.1
500	31	5,822	-11.3		253	12.0
450	31	6,613	-16.9		252	15.2
400	31	7,497	-23.0		254	18.3
350	31	8,462	-30.1		253	22.5
300	31	9,541	-38.5		258	26.8
250	31	10,769	-47.9		258	33.4
200	31	12,208	-57.6		254	37.1
175	31	13,044	-60.9		254	38.9
150	31	13,999	-62.0		254	35.4
125	31	15,124	-63.4		252	30.3
100	30	16,488	-65.4		253	21.4
80	29	17,847	-65.5		228	10.5
60	29	19,614	-60.7		157	3.9
50	27	20,747	-58.6		110	6.2
40	26	22,163	-55.3		92	7.8
30	26	24,016	-51.4		94	9.9
25	26	25,208	-48.7		97	8.2
20	21	26,675	-46.4		92	5.4
15	17	28,587	-44.1		90	7.0
10	9	31,357	-38.5			

GLASGOW, MONT. (933 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	696	4.5	76	52	1.7
1,000	31	123				
950	31	546				
900	31	991	7.0	63	274	1.4
850	31	1,459	4.8	58	299	5.2
800	31	1,951	2.1	57	294	5.6
750	31	2,464	-1.0	57	285	6.2
700	31	3,017	-4.3	54	280	8.4
650	31	3,592	-7.7	50	276	9.9
600	31	4,216	-11.4	45	265	10.5
550	31	4,868	-15.6	41	257	12.4
500	31	5,589	-20.8	40	248	14.2
450	31	6,347	-26.5	38	246	19.4
400	31	7,199	-32.7		244	17.3
350	31	8,127	-39.4		236	22.2
300	31	9,165	-46.9		228	25.5
250	31	10,355	-53.1		232	24.3
200	31	11,787	-54.3		265	15.9
175	31	12,644	-53.6		276	14.4
150	31	13,637	-52.7		254	15.9
125	30	14,817	-53.0		255	15.2
100	30	16,256	-53.0		265	13.4
80	30	17,693	-53.4		260	7.4
60	30	19,547	-52.8			.0
50	30	20,720	-52.8		116	2.3
40	30	22,166	-51.7		71	5.4
30	29	24,034	-50.8		81	7.8
25	29	25,224	-49.7		83	10.3
20	27	26,690	-47.8			
15	20	28,618	-45.3			

GRAND JUNCTION, COLO. (848 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,474	11.9	37	113	6.4
1,000	30	71				
950	30	507				
900	30	971				
850	30	1,457			86	5.8
800	30	1,967	12.3	33	168	6.4
750	30	2,500	8.5	35	219	8.5
700	30	3,070	4.0	40	238	11.9
650	30	3,665	-1.1	45	240	14.8
600	30	4,300	-6.2	50	240	20.6
550	30	4,969	-11.5	50	239	24.7
500	30	5,699	-17.0	49	239	28.0
450	30	6,476	-22.6	42	246	29.3
400	30	7,336	-28.8	39	243	29.9
350	30	8,277	-36.0		244	26.8
300	30	9,330	-44.0		254	22.2
250	30	10,531	-52.3			
200	30	11,955	-57.3			
175	30	12,799	-57.7			
150	29	13,770	-57.7			
125	29	14,921	-58.1			
100	29	16,325	-58.1			
80	28	17,724	-58.9			
60	28	19,534	-57.3			
50	28	20,689	-56.6			
40	28	22,109	-54.9			
30	27	23,958	-52.3			
25	25	25,141	-51.4			
20	23	26,593	-49.6			
15	18	28,494	-46.6			
10	10	31,188	-43.1			

GREAT FALLS, MONT. (886 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,123	4.8	71	239	5.1
1,000	31	122				
950	31	550				
900	31	996				
850	31	1,463	5.3	57	244	9.3
800	31	1,955	2.0	57	269	6.4
750	31	2,467	-1.5	59	284	6.8
700	31	3,019	-4.7	57	281	7.0
650	31	3,592	-8.5	54	272	8.0
600	31	4,215	-12.4	51	270	9.9
550	31	4,869	-16.6	47	264	11.7
500	31	5,585	-21.5	43	257	10.7
450	31	6,346	-27.0	37	256	12.2
400	31	7,193	-33.0		253	15.0
350	31	8,120	-39.6		247	16.7
300	31	9,159	-46.3		247	18.7
250	30	10,357	-52.2		247	17.7
200	30	11,791	-54.4		244	19.0
175	30	12,647	-54.0		247	20.4
150	30	13,639	-53.2		244	20.4
125	30	14,814	-53.1		244	18.3
100	29	16,254	-53.0		239	14.2
80	29	17,691	-53.1		232	11.7
60	29	19,542	-53.5		225	6.2
50	29	20,716	-52.9		145	3.3
40	29	22,157	-52.1		105	5.8
30	28	24,026	-50.6		96	8.5
25	27	25,215	-49.6		83	10.7
20	27	26,681	-47.8		81	14.0
15	22	28,580	-44.7		90	13.0
10	13	31,290	-41.5			
7	5	33,761	-39.7			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

GREEN BAY, WIS. (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	210	10.4	88	253	3.1
1,000	31	127				
950	31	557	12.4	69	245	8.5
900	31	1,011	11.3	65	252	9.9
850	31	1,487	9.2	59	243	12.2
800	31	1,988	6.4	58	243	15.3
750	31	2,513	3.2	55	257	15.5
700	31	3,071	- .1	53	260	17.3
650	31	3,658	- 3.5	51	261	21.2
600	31	4,290	- 7.5	46	267	22.7
550	31	4,957	-11.5	42	264	24.1
500	31	5,687	-16.1	39	253	26.4
450	31	6,467	-21.1	38	255	29.1
400	31	7,334	-27.1	38	254	30.7
350	31	8,283	-33.8		254	34.4
300	31	9,346	-41.6		247	31.9
250	31	10,561	-49.8		255	33.0
200	31	11,994	-56.8		256	37.1
175	31	12,835	-58.4		256	40.6
150	31	13,807	-57.2			
125	31	14,962	-57.0			
100	31	16,372	-57.6			
80	31	17,780	-57.2			
60	31	19,604	-56.1			
50	30	20,764	-55.4			
40	29	22,188	-53.9			
30	26	24,046	-51.8			
25	24	25,225	-50.9			
20	19	26,666	-49.4			
15	10	28,550	-46.8			
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GREENSBORO, N. C. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	273	16.5	89	210	2.5
1,000	31	178				
950	31	614	17.1	71	240	6.2
900	31	1,077	15.2	66	260	7.6
850	31	1,560	12.7	65	266	9.3
800	31	2,067	9.8	68	253	10.9
750	31	2,597	6.7	65	260	11.5
700	31	3,165	3.8	58	268	13.6
650	31	3,760	.5	51	266	11.9
600	31	4,403	- 3.2	48	270	12.2
550	31	5,078	- 7.0	45	272	11.9
500	31	5,826	-11.6	46	276	11.7
450	31	6,618	-16.8	42	271	13.2
400	31	7,501	-23.0	39	276	15.0
350	31	8,466	-30.1	39	271	17.7
300	31	9,545	-38.5		274	19.6
250	31	10,772	-48.2		278	20.8
200	31	12,206	-58.8		289	26.8
175	31	13,034	-63.4		288	29.1
150	31	13,977	-64.7		292	24.9
125	31	15,096	-63.2		307	22.3
100	31	16,464	-64.3		303	13.2
80	31	17,832	-63.0		6	10.5
60	30	19,620	-60.1		42	8.9
50	30	20,764	-58.2		63	10.7
40	29	22,174	-56.2		72	14.6
30	28	24,016	-52.9		83	14.0
25	27	25,196	-51.2		99	12.4
20	25	26,652	-48.6		105	11.3
15	17	28,550	-45.1			
10	7	31,222	-42.1			

HILO, T. H. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	20.1	89	229	3.3
1,000	31	148	21.4	81	237	1.9
950	31	591	18.4	84	84	5.2
900	31	1,054	15.4	87	88	7.6
850	31	1,537	12.6	89	85	6.8
800	31	2,045	10.4	82	79	5.2
750	31	2,584	9.1	55	85	5.4
700	31	3,152	7.7		88	4.1
650	31	3,760	5.0		72	1.6
600	31	4,409	1.6		319	2.5
550	31	5,100	- 2.2		292	4.7
500	31	5,856	- 6.8		277	6.6
450	31	6,665	-12.4		271	10.5
400	31	7,559	-19.1		271	16.7
350	31	8,539	-25.9		271	23.7
300	31	9,637	-34.2		271	33.8
250	31	10,890	-43.4		273	44.1
200	31	12,354	-54.8		273	48.4
175	31	13,197	-60.7		277	44.5
150	31	14,142	-66.8		277	42.4
125	31	15,230	-71.6		274	35.8
100	31	16,538	-74.1		274	23.7
80	31	17,836	-73.6		287	8.4
60	31	19,546	-66.2		100	10.9
50	31	20,662	-62.4		85	15.9
40	31	22,050	-59.0		85	18.5
30	31	23,868	-55.3		94	22.9
25	27	25,032	-52.9		90	22.2
20	21	26,484	-50.0		80	19.6
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INTERNAT. FALLS, MINN. (969 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	360	6.7	77	256	1.0
1,000	31	98				
950	31	520	7.0	74	246	2.5
900	31	966	6.1	74	244	8.5
850	31	1,434	5.1	72	257	12.2
800	31	1,928	3.5	64	256	13.0
750	31	2,450	.7	59	261	16.7
700	31	3,001	- 2.6	58	259	18.7
650	31	3,582	- 6.0	56	255	20.6
600	31	4,208	- 9.8	52	257	22.2
550	31	4,871	-13.9	47	260	23.5
500	31	5,594	-18.3	47	259	24.9
450	31	6,366	-23.7	45	259	31.7
400	31	7,224	-29.7	44	261	34.6
350	31	8,164	-36.2	40	256	40.2
300	31	9,217	-43.6		254	43.5
250	31	10,424	-50.6		252	47.4
200	31	11,863	-54.8		252	49.5
175	30	12,719	-54.3		255	43.3
150	29	13,708	-53.1		256	32.8
125	29	14,882	-53.5		254	26.6
100	29	16,316	-53.9		256	20.8
80	28	17,750	-53.5		254	13.2
60	26	19,599	-52.9		283	2.3
50	25	20,776	-52.1		55	2.7
40	23	22,224	-50.8		86	6.6
30	21	24,099	-49.1		85	7.6
25	18	25,305	-47.5		82	11.5
20	13	26,799	-45.5		78	17.7
15	7	28,752	-41.2			
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JACKASS FLATS, NEV. (881 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,100	13.0	30	29	5.1
1,000	31	73				
950	31	510				
900	31	976				
850	31	1,459	14.5	27	29	1.9
800	31	1,967	10.7	30	179	4.3
750	31	2,502	6.7	34	238	3.3
700	31	3,064	2.5	36	248	5.4
650	31	3,654	- 1.9	39	248	8.5
600	31	4,290	- 6.2	35	249	11.5
550	31	4,958	-11.0	35	254	16.3
500	31	5,690	-16.0	36	262	21.6
450	31	6,467	-21.6	30	263	26.6
400	31	7,333	-27.9		258	32.3
350	31	8,279	-35.2		259	35.6
300	31	9,335	-43.1		263	38.9
250	31	10,542	-51.1		262	40.6
200	31	11,972	-57.1		260	41.4
175	31	12,814	-58.3		259	39.8
150	31	13,785	-57.8		261	33.6
125	30	14,935	-58.2		256	29.9
100	30	16,336	-59.2		251	24.1
80	29	17,736	-59.5		241	14.4
60	26	19,547	-57.5		207	5.1
50	23	20,700	-57.2		128	4.7
40	22	22,113	-56.1		107	6.0
30	20	23,956	-53.7		94	8.0
25	17	25,131	-52.3		79	8.2
20	16	26,576	-49.5		78	7.8
15	10	28,455	-47.6			
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JACKSON, MISS. (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	101	19.1	91	164	1.4
1,000	31	149	19.3	88	172	2.1
950	31	589	19.4	76	192	8.5
900	31	1,056	17.0	74	200	8.5
850	31	1,542	14.3	70	199	9.1
800	31	2,052	11.5	67	201	9.3
750	31	2,587	8.4	64	207	9.9
700	31	3,157	5.6	54	220	9.9
650	31	3,755	2.1	51	229	8.5
600	31	4,402	- 1.6	49	240	8.7
550	31	5,083	- 6.1	50	245	9.3
500	31	5,829	-10.6	39	244	9.5
450	31	6,630	-16.1	39	247	10.1
400	31	7,510	-22.0	37	247	11.9
350	31	8,479	-29.0	36	250	14.6
300	31	9,563	-37.3		251	17.5
250	31	10,798	-47.1		248	20.6
200	31	12,241	-57.7		251	25.8
175	31	13,076	-61.6		264	27.8
150	31	14,027	-63.2		266	25.3
125	31	15,149	-63.6		268	22.9
100	31	16,511	-66.0		261	16.1
80	31	17,859	-66.6		270	6.8
60	30	19,618	-61.4		70	6.0
50	30	20,755	-58.7		81	8.9
40	30	22,168	-54.7		75	11.7
30	27	24,030	-50.4		89	11.9
25	26	25,229	-48.0		85	9.3
20	19	26,703	-45.0		81	8.9
15	11	28,636	-41.7			
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JACKSONVILLE, FLA. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	21.0	91	165	1.4
1,000	31	175	21.8	81	157	2.1
950	31	615	20.4	71	175	5.4
900	31	1,086	17.7	72	180	3.9
850	31	1,573	14.9	68	171	2.7
800	31	2,084	11.7	66	162	2.5
750	31	2,619	8.6	62	199	2.9
700	31	3,190	5.6	52	222	2.3
650	31	3,787	2.4	47	254	3.7
600	31	4,435	- 1.4	44	260	5.4
550	31	5,115	- 5.4	37	261	7.4
500	31	5,866	- 9.9	32	263	8.0
450	31	6,665	-15.1		274	8.2
400	31	7,551	-21.6		274	9.3
350	31	8,522	-28.6		283	8.0
300	30	9,610	-36.9		283	7.8
250	30	10,846	-46.7		292	13.0
200	30	12,291	-57.5		284	17.9
175	30	13,125	-62.2		290	20.2
150	30	14,070	-65.6		297	24.5
125	29	15,185	-65.1		313	19.4
100	29	16,535	-67.8		322	15.2
80	29	17,877	-67.4		345	9.7
60	29	19,631	-62.3		49	9.1
50	29	20,766	-59.3		59	10.3
40	29	22,172	-57.0		76	11.7
30	27	24,007	-53.2		88	11.7
25	26	25,191	-50.4		92	10.1
20	23	26,664	-47.9		79	9.1
15	22	28,572	-45.6		87	10.7
10	9	31,290	-41.0			

KING SALMON, ALASKA (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	3.4	86	127	2.3
1,000	31	97			159	2.1
950	31	516	3.6	71	134	4.3
900	31	952	1.3	71	143	4.3
850	31	1,410	- 1.1	68	132	4.7
800	31	1,892	- 3.6	68	127	5.6
750	31	2,398	- 6.3	62	116	5.1
700	31	2,936	- 9.1	55	119	5.8
650	31	3,504	-12.1	52	130	5.2
600	31	4,115	-15.5	51	136	4.9
550	31	4,763	-19.6	49	161	4.1
500	31	5,469	-24.3	47	168	3.5
450	31	6,223	-29.4	47	202	4.1
400	31	7,062	-35.0	46	207	6.0
350	31	7,981	-41.1		235	6.6
300	31	9,014	-47.3		248	7.6
250	31	10,207	-51.4		258	13.0
200	31	11,661	-50.3		257	14.4
175	30	12,531	-50.2		259	10.7
150	30	13,539	-49.6		252	6.8
125	29	14,725	-50.3		251	5.4
100	29	16,181	-50.4		258	2.9
80	28	17,638	-50.7		250	1.4
60	27	19,514	-50.4		78	2.9
50	24	20,701	-49.9		95	4.5
40	23	22,160	-49.6		91	6.2
30	20	24,047	-49.6		85	11.1
25	18	25,245	-49.2		89	12.2
20	11	26,769	-48.0		82	14.4
15	6	28,725	-45.1			
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KOTZEBUE, ALASKA (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	- 0.8	87	105	2.7
1,000	31	118	1.6	74	100	1.7
950	31	529	1.9	65	143	1.7
900	31	967	- .3	64	197	2.9
850	31	1,423	- 2.8	64	195	4.9
800	31	1,902	- 5.5	60	200	5.1
750	31	2,404	- 8.3	56	216	5.4
700	31	2,940	-11.4	55	218	5.8
650	31	3,500	-14.6	49	230	5.2
600	31	4,107	-18.3	46	235	6.8
550	31	4,747	-22.5	43	229	6.6
500	31	5,445	-26.9	42	211	7.2
450	31	6,190	-32.6	42	215	7.2
400	31	7,017	-38.4		214	10.9
350	31	7,924	-44.2		211	8.2
300	30	8,947	-49.5		247	10.5
250	30	10,135	-51.0		239	6.4
200	30	11,598	-47.6		226	3.7
175	30	12,481	-47.1		162	2.3
150	30	13,502	-47.4		173	2.1
125	30	14,705	-48.3		161	4.3
100	30	16,171	-48.7		124	2.1
80	30	17,638	-48.3		92	3.3
60	30	19,533	-48.0		104	6.4
50	30	20,736	-47.6		89	8.9
40	29	22,207	-47.2		95	8.9
30	29	24,110	-46.7			
25	27	25,318	-46.3			
20	14	26,842	-45.0			
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LAKE CHARLES, LA. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	20.8	90	113	3.1
1,000	31	136	21.6	84	135	4.9
950	31	581	20.2	74	170	9.7
900	31	1,047	17.4	73	175	11.1
850	31	1,534	15.0	64	182	9.5
800	31	2,046	12.5	57	186	8.7
750	31	2,581	9.9	49	185	7.6
700	31	3,157	6.9	42	198	5.2
650	31	3,759	3.2	46	215	2.5
600	30	4,407	- .8	41	247	3.9
550	30	5,088	- 5.2	42	260	6.6
500	30	5,840	- 9.9	37	264	8.0
450	30	6,640	-15.4		258	9.5
400	30	7,526	-21.4		254	13.2
350	30	8,498	-28.7		253	16.3
300	30	9,583	-37.1		260	17.3
250	30	10,820	-46.4		265	23.5
200	30	12,268	-56.6		258	26.6
175	30	13,107	-60.9		260	29.1
150	30	14,060	-63.2		267	27.2
125	30	15,179	-64.9		262	28.4
100	30	16,533	-67.0		257	19.8
80	29	17,876	-68.0		250	7.8
60	28	19,624	-63.2		78	7.8
50	28	20,752	-60.2		86	10.1
40	28	22,157	-56.4		80	11.9
30	28	24,001	-52.0		79	11.5
25	26	25,186	-49.9		89	11.5
20	22	26,651	-48.0		76	9.3
15	12	28,558	-45.5			
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LANDER, WYO. (827 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,696	4.4	71	228	3.1
1,000	31	117				
950	31	543				
900	31	993				
850	31	1,470				
800	31	1,967	5.8	57	214	1.7
750	31	2,488	2.6	55	260	4.1
700	31	3,047	- .9	54	284	8.0
650	31	3,629	- 4.4	51	271	13.4
600	31	4,261	- 8.6	52	258	17.5
550	31	4,920	-13.1	46	254	22.2
500	31	5,650	-18.0	40	241	23.7
450	31	6,421	-23.6	37	225	28.2
400	31	7,279	-30.2	38	232	26.4
350	31	8,215	-37.4		241	30.9
300	31	9,262	-45.4		243	25.1
250	31	10,457	-53.0		245	22.0
200	31	11,881	-56.2		247	20.0
175	31	12,730	-56.0		257	20.0
150	31	13,713	-55.2		254	18.1
125	31	14,877	-55.4		250	18.7
100	31	16,300	-55.8		248	16.1
80	31	17,720	-55.8		249	9.7
60	31	19,550	-55.2		298	1.4
50	31	20,716	-54.5		86	2.7
40	30	22,147	-53.6			
30	28	24,001	-51.7			
25	28	25,187	-50.4			
20	26	26,650	-48.6			
15	25	28,552	-45.9			
10	15	31,259	-42.1			

LAS VEGAS, NEV. (933 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	660	16.9	25	210	7.2
1,000	31	64				
950	31	505				
900	31	971	18.7	23	234	7.4
850	31	1,458	15.8	24	270	6.6
800	31	1,969	12.1	26	266	6.4
750	31	2,501	8.2	27	246	6.6
700	31	3,070	3.6	30	242	7.0
650	31	3,661	- .9	31	239	8.7
600	31	4,300	- 5.3		240	12.6
550	31	4,969	-10.2		250	16.7
500	31	5,704	-15.1		255	21.8
450	31	6,485	-21.0		257	27.8
400	31	7,352	-27.6		259	31.3
350	31	8,298	-34.8		259	35.9
300	31	9,357	-42.8		259	40.0
250	31	10,564	-51.5		259	41.2
200	30	11,991	-58.0		256	46.0
175	30	12,831	-58.9		253	44.1
150	30	13,798	-58.8		257	35.9
125	30	14,943	-59.1		255	30.3
100	30	16,337	-60.6		251	23.7
80	30	17,728	-59.9		241	13.0
60	28	19,528	-58.1		195	4.3
50	28	20,677	-57.5		118	4.7
40	26	22,088	-56.0		113	6.2
30	25	23,927	-53.6		93	8.5
25	22	25,098	-52.0		87	8.4
20	19	26,541	-49.7		86	8.9
15	10	28,444	-45.5		78	7.2
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LITTLE ROCK, ARK. (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	79	18.9	89	165	1.9
1,000	31	142	18.8	86	182	2.5
950	31	584	18.1	78	201	9.9
900	31	1,047	16.2	73	209	12.8
850	31	1,532	13.8	69	217	13.2
800	31	2,041	11.1	64	219	13.0
750	31	2,581	8.2	57	221	12.6
700	31	3,146	5.0	47	227	10.9
650	31	3,746	1.6	44	238	10.9
600	31	4,388	- 2.6	45	236	12.0
550	31	5,070	- 6.7	42	244	12.8
500	31	5,813	-11.5		247	15.3
450	31	6,610	-17.0		253	14.8
400	31	7,488	-23.3	36	259	16.7
350	31	8,451	-30.3		257	18.7
300	31	9,531	-38.5		247	21.0
250	31	10,760	-48.1		242	24.5
200	31	12,198	-58.5		253	28.0
175	31	13,031	-62.2		260	29.1
150	31	13,981	-62.9		261	30.1
125	31	15,105	-63.1		253	23.5
100	31	16,470	-65.4		254	17.7
80	31	17,824	-65.7		243	8.2
60	30	19,589	-61.9		113	3.9
50	29	20,722	-59.5		98	9.1
40	27	22,129	-56.9		87	10.7
30	27	23,967	-53.0		92	11.7
25	24	25,146	-51.2		92	9.3
20	21	26,596	-48.9		72	8.7
15	6	28,470	-46.5			
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McGRATH, ALASKA (1001 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	103	3.5	80	212	0.8
1,000	31	107			209	1.0
950	31	525	5.2	60	155	1.7
900	31	967	2.2	59	149	3.3
850	31	1,426	- .7	60	148	3.3
800	31	1,908	- 3.8	60	156	4.1
750	31	2,413	- 7.0	61	153	3.9
700	31	2,950	-10.3	56	174	3.9
650	31	3,514	-13.7	50	184	5.4
600	31	4,121	-17.4	50	185	5.4
550	31	4,763	-21.5	52	191	4.3
500	31	5,465	-25.9	50	224	4.9
450	31	6,213	-31.0	46	231	4.3
400	31	7,045	-37.0	43	237	6.2
350	31	7,958	-43.1		252	7.6
300	31	8,982	-49.5		264	10.9
250	31	10,166	-52.5		269	12.2
200	31	11,614	-50.6		256	7.4
175	31	12,487	-49.4		264	4.7
150	31	13,498	-49.0		276	5.6
125	31	14,693	-49.9		278	3.7
100	31	16,151	-50.0		261	1.9
80	31	17,612	-49.8		58	1.0
60	31	19,499	-49.4		69	2.7
50	31	20,695	-49.3		89	4.9
40	28	22,164	-49.3		71	7.2
30	27	24,060	-48.9		82	8.4
25	25	25,253	-48.5		86	9.7
20	15	26,693	-48.5			
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MEDFORD, OREG. (971 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	401	7.0	88	291	0.6
1,000	31	157				
950	31	584	8.3	78	295	2.9
900	31	1,028	6.9	74	312	1.9
850	31	1,496	4.3	72	310	1.2
800	31	1,987	1.7	66	292	2.9
750	31	2,505	- .8	56	301	4.7
700	31	3,054	- 3.5	50	295	7.4
650	31	3,631	- 6.6	45	293	11.7
600	31	4,258	-10.5	43	294	14.2
550	31	4,916	-14.7	39	296	16.7
500	31	5,638	-19.5	36	299	17.5
450	31	6,407	-24.9		299	16.9
400	31	7,260	-31.4		304	15.9
350	31	8,193	-38.4		296	16.7
300	31	9,237	-45.8		311	16.3
250	31	10,434	-52.3			
200	31	11,861	-56.8			
175	31	12,709	-56.4			
150	31	13,688	-55.9			
125	31	14,849	-56.2			
100	31	16,267	-56.6			
80	31	17,683	-56.0		221	6.6
60	31	19,514	-55.2		169	4.3
50	30	20,674	-55.4		130	3.9
40	30	22,098	-54.8		81	6.8
30	29	23,949	-53.2		81	8.9
25	28	25,126	-52.5		83	9.9
20	27	26,572	-50.5		87	8.5
15	14	28,482	-47.4			
10	6	31,241	-42.4			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

MIAMI, FLA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	23.6	80	104	4.3
1,000	31	156	24.0	74	104	8.9
950	31	600	20.8	77	111	12.8
900	31	1,070	17.8	76	106	12.4
850	31	1,558	15.1	70	95	10.3
800	31	2,071	12.5	64	90	8.0
750	31	2,604	9.8	56	75	5.6
700	31	3,181	6.9	50	59	4.3
650	31	3,781	3.6	46	63	2.9
600	31	4,434	- .3	45	360	.8
550	31	5,118	- 4.3	39	246	1.7
500	31	5,872	- 9.1	35	265	3.1
450	31	6,673	-14.5	33	290	4.7
400	31	7,563	-20.7	33	289	7.8
350	31	8,537	-28.1	33	289	8.4
300	31	9,624	-36.6	36	288	13.6
250	31	10,862	-46.4		285	16.9
200	31	12,307	-57.2		297	20.6
175	30	13,141	-61.9		290	23.5
150	30	14,087	-65.4		289	21.6
125	30	15,190	-67.8		307	18.5
100	30	16,523	-70.5		334	12.6
80	30	17,848	-69.4		8	10.1
60	30	19,590	-63.1		54	9.5
50	30	20,720	-60.1		62	11.3
40	29	22,119	-56.8		79	15.3
30	29	23,962	-52.2		90	14.8
25	27	25,153	-49.2		87	13.8
20	26	26,622	-46.9		88	11.1
15	11	28,534	-43.3			
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MIDLAND, TEX. (914 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	871	17.6	83	156	4.3
1,000	31	91				
950	31	535				
900	31	1,000	18.3	75	155	7.0
850	31	1,491	18.2	57	197	17.5
800	31	2,009	16.4	42	216	14.8
750	31	2,551	12.9	36	232	9.7
700	31	3,131	8.6	36	232	9.7
650	31	3,736	3.8	39	241	13.2
600	31	4,383	- 1.3	40	240	16.3
550	31	5,065	- 6.2	34	247	15.7
500	31	5,810	-11.2		246	19.2
450	31	6,603	-16.9		245	21.6
400	31	7,485	-23.4		246	25.5
350	31	8,448	-30.8		244	28.0
300	30	9,526	-39.6		245	29.9
250	30	10,750	-48.6		243	33.0
200	29	12,185	-58.2		249	37.1
175	29	13,019	-61.4		253	42.0
150	29	13,973	-62.3		252	41.8
125	28	15,105	-63.5		253	36.5
100	28	16,466	-66.5		258	21.8
80	28	17,817	-66.1		236	15.0
60	27	19,581	-61.0		148	7.6
50	27	20,719	-59.0		116	9.3
40	27	22,127	-56.4		105	8.2
30	24	23,983	-52.0		91	10.1
25	23	25,168	-50.2		105	9.3
20	21	26,629	-48.6		93	8.5
15	12	28,504	-46.5			
10	5	31,198	-43.0			

MONTGOMERY, ALA. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	18.6	87	94	2.1
1,000	31	160	19.4	80	106	1.9
950	31	600	19.9	67	183	6.0
900	31	1,069	17.4	65	197	8.2
850	31	1,556	14.2	66	204	9.1
800	31	2,066	11.0	66	211	9.1
750	31	2,600	8.2	57	223	9.3
700	31	3,169	5.3	48	232	10.1
650	31	3,772	1.8	46	241	10.1
600	31	4,414	- 2.0	45	246	10.7
550	31	5,095	- 6.0	43	257	10.5
500	31	5,842	-10.5	39	265	11.3
450	31	6,642	-15.8	40	266	11.9
400	31	7,525	-22.0	43	269	13.0
350	31	8,494	-28.8	37	257	15.7
300	31	9,579	-37.3		253	17.5
250	31	10,813	-47.1		257	20.6
200	31	12,255	-57.9		260	22.7
175	31	13,088	-62.7		264	26.2
150	31	14,032	-64.5		277	25.8
125	31	15,149	-64.6		288	22.5
100	31	16,503	-67.0		289	16.3
80	30	17,847	-66.8		296	11.5
60	30	19,603	-62.6		36	5.4
50	28	20,732	-60.0		68	7.4
40	27	22,138	-56.6		73	9.5
30	26	23,982	-52.3		84	9.5
25	25	25,172	-50.0		86	8.4
20	23	26,642	-47.4		78	5.8
15	15	28,537	-44.6			
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NANTUCKET, MASS. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	14	11.5	82	294	5.6
1,000	31	153	12.6	73	298	8.0
950	31	585	12.5	62	302	9.1
900	31	1,038	10.5	62	299	10.1
850	31	1,513	7.9	63	297	13.0
800	31	2,011	5.5	59	300	15.0
750	31	2,535	2.7	56	296	17.9
700	31	3,093	- .1	52	298	17.5
650	31	3,680	- 3.3	51	302	20.2
600	31	4,313	- 6.9	46	299	21.2
550	31	4,982	-11.1	42	300	21.0
500	31	5,713	-15.7	40	297	22.5
450	31	6,493	-21.0	38	296	25.1
400	31	7,362	-27.0		300	25.6
350	31	8,312	-34.0		306	29.0
300	31	9,374	-41.8		303	30.3
250	31	10,588	-50.2		314	32.3
200	31	12,020	-57.5		315	32.3
175	31	12,858	-59.8		318	36.9
150	31	13,819	-60.6		314	29.3
125	31	14,958	-59.2		324	24.7
100	31	16,359	-58.6		333	25.5
80	31	17,762	-58.0		341	16.3
60	30	19,582	-56.8		35	11.1
50	30	20,739	-56.0		53	12.8
40	29	22,158	-54.9			
30	28	24,003	-53.2			
25	28	25,181	-51.6			
20	26	26,630	-50.1			
15	20	28,531	-46.4			
10	9	31,235	-41.5			

NASHVILLE, TENN. (998 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	177	17.0	89	168	1.4
1,000	31	158				
950	31	599	17.9	72	216	8.0
900	31	1,061	16.0	69	236	9.9
850	31	1,545	12.9	68	238	10.3
800	31	2,053	10.2	64	234	10.5
750	31	2,587	7.2	59	237	10.9
700	31	3,153	4.1	54	248	10.1
650	31	3,747	.8	50	254	11.5
600	31	4,393	- 3.0	47	264	13.6
550	31	5,070	- 6.9	38	260	15.7
500	31	5,816	-11.6	38	259	14.8
450	31	6,608	-17.0	40	257	15.3
400	31	7,490	-23.0	36	260	17.3
350	31	8,456	-29.9		260	20.0
300	31	9,536	-38.3		254	20.8
250	31	10,764	-48.1		251	27.0
200	31	12,201	-58.5		261	33.4
175	31	13,032	-62.9		260	31.5
150	31	13,978	-63.9		267	27.2
125	31	15,099	-63.5		274	22.7
100	31	16,467	-64.8		280	16.1
80	31	17,826	-64.9		300	7.6
60	31	19,598	-61.0		53	6.6
50	31	20,735	-59.1		68	11.5
40	30	22,143	-56.8		81	10.5
30	25	23,979	-54.0		77	12.0
25	25	25,154	-51.9		81	13.8
20	25	26,607	-49.6		93	13.8
15	20	28,489	-47.3		74	8.2
10	7	31,177	-44.0			

N. Y. INT. AP, IDLEWILD (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	14.0	76	305	4.3
1,000	31	163	13.9	69	297	7.8
950	31	594	13.3	62	296	9.7
900	31	1,049	11.2	62	289	11.1
850	31	1,525	9.0	61	286	14.8
800	31	2,025	6.5	57	281	17.1
750	31	2,552	3.7	52	282	19.2
700	31	3,110	.7	51	286	21.8
650	31	3,698	- 2.9	55	290	23.3
600	31	4,331	- 6.6	51	287	26.0
550	31	5,001	-10.4	45	287	27.0
500	31	5,734	-14.9	42	290	29.3
450	31	6,517	-19.9	40	288	34.0
400	31	7,388	-25.9	40	290	39.1
350	31	8,342	-32.7		290	41.8
300	31	9,410	-40.7		290	45.7
250	31	10,628	-49.2		294	48.4
200	31	12,060	-58.3		296	49.7
175	31	12,894	-61.1		299	45.3
150	31	13,849	-61.2		296	37.3
125	31	14,986	-59.7		298	29.1
100	30	16,385	-59.4		305	23.1
80	30	17,783	-58.8		322	13.4
60	30	19,599	-56.6		357	4.9
50	29	20,757	-55.6		35	5.1
40	27	22,181	-53.9		73	7.0
30	25	24,036	-51.7		83	9.1
25	24	25,226	-49.9		80	9.9
20	19	26,695	-47.7		59	6.8
15	13	28,594	-44.3			
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NOME, ALASKA (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	2.2	83	38	5.8
1,000	31	107	3.0	75	45	5.6
950	31	521	2.0	69	105	6.2
900	31	958	.1	71	141	5.6
850	31	1,414	- 2.2	69	152	5.2
800	31	1,894	- 4.9	67	141	4.9
750	31	2,398	- 7.6	63	152	4.9
700	31	2,933	-10.6	58	150	4.5
650	31	3,494	-13.9	56	153	4.7
600	31	4,105	-17.2	53	158	6.2
550	31	4,747	-21.3	50	197	4.1
500	31	5,449	-26.0	49	228	6.6
450	31	6,200	-31.0	47	219	5.4
400	31	7,032	-36.8	45	229	8.2
350	31	7,946	-42.7		257	9.1
300	31	8,973	-48.8		261	8.2
250	31	10,161	-51.8		272	6.6
200	31	11,618	-48.6		272	4.5
175	31	12,498	-47.8		285	2.1
150	31	13,515	-48.3		291	2.7
125	31	14,714	-48.9		307	1.7
100	31	16,178	-49.4		57	1.4
80	31	17,642	-49.1		71	3.3
60	31	19,532	-48.8		105	4.1
50	31	20,731	-48.6		99	7.4
40	31	22,200	-48.3		89	8.5
30	28	24,086	-48.1		92	12.4
25	24	25,277	-48.1		91	14.0
20	22	26,751	-47.6		90	13.4
15	18	28,650	-46.1		82	13.4
10	12	31,346	-44.1			

NORFOLK, VA. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	9	17.8	83	228	3.1
1,000	31	172	17.8	74	246	5.1
950	31	611	16.7	63	270	8.0
900	31	1,071	14.3	59	274	7.4
850	31	1,552	11.6	58	269	9.1
800	31	2,057	9.0	57	276	12.2
750	31	2,587	6.2	54	276	14.8
700	31	3,152	3.2	49	278	15.9
650	31	3,747	- .1	47	275	17.3
600	31	4,387	- 3.8	44	279	18.8
550	31	5,061	- 7.7	35	281	21.6
500	31	5,805	-12.4	36	282	22.5
450	31	6,599	-17.5	34	286	25.5
400	31	7,476	-23.6	33	288	25.5
350	31	8,438	-30.5		289	30.3
300	31	9,515	-39.1		286	35.4
250	31	10,740	-48.8		294	36.9
200	31	12,172	-59.1		297	37.5
175	31	13,000	-63.4		298	36.5
150	31	13,945	-64.0		299	35.2
125	30	15,066	-62.1		301	27.6
100	30	16,442	-62.9		306	21.4
80	30	17,820	-61.4		326	11.3
60	30	19,619	-58.1		16	6.2
50	29	20,766	-56.7		60	8.4
40	29	22,189	-54.3		72	9.7
30	27	24,045	-51.1		86	10.7
25	25	25,235	-49.4		85	10.5
20	24	26,706	-46.7		80	9.9
15	20	28,640	-43.2		85	7.4
10	5	31,421	-37.2			

NORTH PLATTE, NEBR. (915 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	848	10.0	85	76	1.7
1,000	31	94				
950	31	528				
900	31	982	10.4	79	76	2.1
850	31	1,459	10.8	67	208	3.9
800	31	1,964	9.3	61	237	7.0
750	31	2,490	7.5	50	237	11.5
700	31	3,063	4.2	47	235	14.6
650	31	3,654	.2	48	242	17.1
600	31	4,299	- 4.6	49	243	21.6
550	31	4,965	- 9.5	46	242	24.7
500	31	5,709	-14.8	47	237	26.0
450	31	6,485	-20.6	42	242	27.4
400	31	7,360	-26.6	37	240	31.7
350	31	8,311	-33.7		230	33.6
300	31	9,374	-41.8		227	39.1
250	31	10,586	-50.8		230	42.9
200	31	12,011	-58.5		237	44.9
175	31	12,850	-58.8		239	45.1
150	31	13,821	-57.7		245	36.9
125	31	14,974	-57.3		257	25.6
100	30	16,377	-58.8		247	17.3
80	30	17,780	-58.2		239	14.0
60	29	19,599	-56.0			.0
50	28	20,763	-55.0		84	6.2
40	27	22,193	-53.9		87	10.7
30	26	24,047	-51.7		102	5.2
25	25	25,235	-50.8		94	9.1
20	18	26,698	-48.9		75	15.2
15	14	28,626	-46.0			
10	6	31,318	-41.4			

OAKLAND, CALIF. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	11.5	82	292	3.1
1,000	31	130	11.4	77	284	4.3
950	31	558	10.8	64	300	7.0
900	31	1,010	10.5	48	320	10.1
850	31	1,485	8.8	40	318	8.9
800	31	1,984	5.9	36	317	8.2
750	31	2,508	3.2	31	309	10.5
700	31	3,067	.3	30	314	13.0
650	31	3,655	- 3.4	30	307	15.9
600	31	4,287	- 7.0		306	20.2
550	31	4,955	-11.4		303	23.3
500	31	5,685	-16.5		301	26.8
450	31	6,463	-22.1		299	30.1
400	31	7,326	-28.4		296	31.7
350	31	8,270	-35.5		297	35.2
300	31	9,324	-43.6		295	36.5
250	31	10,529	-52.1		296	41.0
200	31	11,953	-58.2		290	40.6
175	31	12,792	-59.0		280	35.2
150	31	13,760	-58.4		278	30.1
125	31	14,909	-58.3		274	27.2
100	31	16,310	-59.3		272	21.6
80	31	17,709	-58.6		265	12.4
60	31	19,520	-57.4		232	4.3
50	30	20,675	-56.8		133	2.5
40	29	22,093	-55.6		93	4.5
30	28	23,933	-53.8		79	7.4
25	27	25,108	-52.7		79	7.4
20	27	26,553	-50.8		75	7.6
15	22	28,420	-47.8		80	7.8
10	11	31,144	-42.2			

OKLAHOMA CITY, OKLA. (968 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	392	17.3	90	165	5.6
1,000	31	111				
950	31	549	17.9	79	178	8.4
900	31	1,015	17.3	71	217	11.7
850	31	1,502	16.1	57	226	8.5
800	31	2,016	13.5	48	237	10.1
750	31	2,553	10.2	44	240	9.9
700	31	3,126	6.3	42	244	11.3
650	31	3,725	2.2	41	257	10.3
600	31	4,370	- 2.3	40	246	11.7
550	30	5,048	- 6.9	39	259	14.8
500	30	5,793	-11.9	38	257	16.9
450	30	6,584	-17.6	35	256	18.8
400	30	7,462	-23.9	35	262	20.4
350	30	8,423	-31.1		257	20.0
300	30	9,498	-39.3		262	25.8
250	28	10,718	-48.8		259	34.0
200	28	12,153	-57.9		252	39.8
175	28	12,989	-60.6		253	36.3
150	27	13,949	-60.9		253	40.4
125	27	15,082	-61.6		247	33.8
100	27	16,456	-63.8		240	24.9
80	27	17,823	-63.6		225	18.7
60	27	19,605	-59.6		163	4.3
50	26	20,751	-58.0		115	8.2
40	24	22,171	-55.3		96	11.1
30	23	24,020	-51.9		95	10.5
25	19	25,210	-50.3		97	11.9
20	14	26,686	-48.3		96	10.1
15	11	28,622	-45.4			
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OMAHA, NEBR. (966 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	403	12.8	85	194	2.7
1,000	31	110				
950	31	544	13.1	75	195	3.1
900	31	998	12.3	69	218	9.9
850	31	1,477	11.0	62	235	13.0
800	31	1,982	8.8	57	240	14.2
750	31	2,513	6.2	51	244	15.9
700	31	3,077	2.8	52	247	18.1
650	31	3,671	- 1.0	47	254	19.4
600	31	4,308	- 5.2	44	254	23.9
550	31	4,979	- 9.8	41	257	25.6
500	31	5,716	-14.6	39	253	25.1
450	31	6,502	-19.8	35	251	26.6
400	31	7,372	-26.2	36	253	30.1
350	31	8,325	-33.1		253	34.2
300	31	9,391	-41.2		251	39.1
250	31	10,605	-50.4		244	42.7
200	31	12,030	-58.6		244	52.7
175	31	12,865	-60.2		249	50.9
150	31	13,829	-58.6		253	38.2
125	30	14,972	-58.2		252	29.9
100	29	16,375	-59.9		242	22.5
80	28	17,766	-59.0		244	14.6
60	28	19,578	-57.2		201	3.9
50	28	20,733	-56.3		145	2.7
40	28	22,157	-54.5		123	4.3
30	28	24,009	-52.0		94	7.6
25	26	25,190	-50.6		92	9.1
20	25	26,654	-48.4		96	8.9
15	19	28,530	-45.8		93	8.2
10	9	31,262	-40.8			

PEORIA, ILL. (993 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	201	14.5	86	174	3.1
1,000	30	136				
950	30	577	15.1	74	224	9.3
900	30	1,031	13.9	62	239	12.4
850	30	1,511	11.8	57	245	14.4
800	30	2,017	9.1	54	245	15.7
750	30	2,544	5.9	52	247	15.9
700	30	3,110	2.4	48	252	17.5
650	30	3,699	- 1.2	48	255	20.6
600	30	4,339	- 4.9	41	253	21.6
550	30	5,009	- 9.1	39	257	22.2
500	30	5,748	-13.7	38	257	24.7
450	30	6,532	-18.9		260	26.6
400	30	7,407	-25.0		264	31.5
350	30	8,364	-32.0		262	35.9
300	29	9,432	-40.3		260	40.0
250	29	10,651	-49.3		259	44.1
200	29	12,083	-58.4		259	48.2
175	28	12,917	-61.1		260	44.9
150	28	13,875	-60.5		262	41.2
125	27	15,020	-60.0		267	34.0
100	27	16,410	-61.1		259	25.3
80	27	17,797	-59.9		265	13.0
60	24	19,606	-58.5		194	1.0
50	24	20,755	-57.0		89	5.6
40	22	22,183	-54.6		93	7.8
30	21	24,033	-51.6		93	9.7
25	20	25,224	-49.8		88	12.2
20	18	26,684	-47.1		85	10.7
15	11	28,633	-43.5			
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PITTSBURGH, PA. (978 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	353	13.3	78	151	0.8
1,000	31	168				
950	31	598	14.5	71	221	4.7
900	31	1,057	13.2	64	271	10.3
850	31	1,537	10.6	62	278	12.4
800	31	2,040	7.8	59	274	14.6
750	31	2,567	4.9	58	273	16.5
700	31	3,131	1.5	57	276	18.1
650	31	3,722	- 1.8	56	276	18.5
600	31	4,358	- 5.3	51	278	20.4
550	31	5,033	- 9.2	50	282	23.1
500	31	5,770	-13.5	46	278	27.0
450	31	6,559	-18.8	39	273	28.4
400	31	7,432	-25.0		280	30.7
350	31	8,390	-32.0		280	33.0
300	31	9,460	-40.3		281	36.7
250	31	10,679	-49.7		282	42.0
200	31	12,110	-58.5		284	44.5
175	31	12,943	-62.0		288	38.9
150	31	13,896	-61.7		282	36.3
125	31	15,030	-60.4		286	30.1
100	31	16,419	-60.7		292	22.5
80	31	17,809	-60.0		300	14.0
60	29	19,604	-58.1		336	5.1
50	29	20,756	-57.1		42	5.2
40	27	22,164	-55.9		67	7.4
30	26	24,008	-52.9		73	9.5
25	25	25,196	-50.7		73	8.9
20	19	26,670	-48.0		80	10.9
15	10	28,565	-44.5			
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PORTLAND, ME. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	20	11.3	76	298	3.1
1,000	31	145	12.2	65	305	5.6
950	31	572	11.4	59	314	9.5
900	31	1,025	9.1	56	313	10.7
850	31	1,497	6.9	59	311	13.2
800	31	1,993	4.2	55	301	15.0
750	31	2,512	1.8	54	295	17.3
700	31	3,070	- 1.5	53	293	18.3
650	31	3,651	- 4.6	50	292	20.2
600	31	4,284	- 8.2	49	294	24.9
550	31	4,945	-12.2	44	292	26.4
500	31	5,677	-17.0	42	292	28.4
450	31	6,452	-22.1	39	293	32.1
400	31	7,319	-27.9	38	292	36.5
350	31	8,265	-34.5	36	300	36.9
300	31	9,326	-42.0		298	41.8
250	31	10,541	-49.3		300	43.9
200	31	11,983	-56.0		299	42.9
175	31	12,828	-57.9		295	41.4
150	30	13,802	-57.8		296	30.3
125	30	14,955	-56.9		298	27.0
100	30	16,371	-56.3		306	19.2
80	30	17,788	-56.2		317	10.9
60	30	19,626	-54.7		351	6.0
50	28	20,799	-53.9		44	5.2
40	26	22,239	-52.1		69	9.3
30	24	24,108	-49.8		79	10.1
25	22	25,299	-48.6		77	9.1
20	20	26,781	-46.5		65	9.9
15	12	28,709	-43.7			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

RAPID CITY, S. DAK. (903 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	966	7.1	73	327	3.3
1,000	31	114				
950	31	542				
900	31	989			4	1.7
850	31	1,462	7.5	61	298	6.4
800	31	1,961	5.8	60	275	7.8
750	31	2,485	3.4	59	259	8.2
700	31	3,044	.2	56	264	11.3
650	31	3,628	- 3.4	52	255	14.4
600	31	4,263	- 7.8	53	254	18.7
550	31	4,927	-12.5	49	251	21.2
500	31	5,655	-17.5	45	252	26.2
450	31	6,430	-22.9	42	246	30.5
400	31	7,289	-28.9	38	241	35.8
350	31	8,231	-36.2		239	39.8
300	31	9,281	-44.7		237	43.9
250	31	10,481	-52.3		234	49.9
200	30	11,903	-56.9		234	47.0
175	30	12,750	-56.8		237	42.0
150	30	13,729	-56.0		242	35.8
125	29	14,890	-55.4		238	27.8
100	29	16,311	-56.0		239	20.2
80	28	17,729	-56.1		230	14.4
60	26	19,564	-55.4		195	4.3
50	26	20,728	-54.5		145	4.1
40	25	22,162	-53.1		119	4.9
30	24	24,018	-50.9		86	8.9
25	20	25,210	-49.6		85	10.7
20	18	26,683	-47.5		84	10.5
15	8	28,641	-44.6			
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ST. CLOUD, MINN. (975 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	316	9.6	86	236	1.4
1,000	31	104				
950	31	536	10.5	76	225	1.4
900	31	982	9.6	70	241	8.5
850	31	1,456	7.7	66	249	11.1
800	31	1,954	5.8	57	254	13.2
750	31	2,479	2.9	56	258	14.8
700	31	3,036	- .4	57	252	16.1
650	31	3,622	- 3.7	53	257	19.0
600	31	4,254	- 7.5	50	257	23.5
550	31	4,923	-11.7	45	260	26.8
500	31	5,650	-16.5	41	259	27.6
450	31	6,429	-21.9	40	259	34.2
400	31	7,291	-28.0	39	256	38.5
350	31	8,236	-35.0	38	248	39.2
300	31	9,294	-43.0		249	39.4
250	31	10,502	-50.7		251	48.0
200	31	11,934	-56.6		255	48.6
175	31	12,779	-57.5			
150	31	13,755	-56.0			
125	31	14,918	-55.5			
100	31	16,337	-56.9			
80	30	17,749	-56.4			
60	30	19,581	-55.0			
50	30	20,749	-54.2		64	10.3
40	29	22,188	-52.7		64	4.1
30	28	24,052	-51.4		103	5.4
25	27	25,241	-50.3		81	10.9
20	21	26,703	-48.6		87	12.6
15	17	28,611	-46.2			
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ST. PAUL IS., ALASKA (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	0.9	93	46	1.2
1,000	31	76			336	2.1
950	31	487	.5	83	28	3.7
900	31	923	- .7	76	55	2.5
850	31	1,379	- 1.7	65	105	1.9
800	31	1,860	- 3.6	61	146	2.9
750	31	2,366	- 6.4	58	114	2.7
700	31	2,905	- 9.0	53	112	2.7
650	31	3,469	-12.4	52	150	2.3
600	31	4,084	-16.0	49	166	3.7
550	31	4,728	-19.9	51	208	4.1
500	31	5,437	-24.2	50	206	7.0
450	31	6,189	-29.2	47	218	5.8
400	31	7,032	-34.6	43	218	9.1
350	31	7,953	-40.7		195	10.1
300	31	8,988	-47.3		219	8.9
250	31	10,180	-51.5		246	7.2
200	31	11,633	-49.9		289	6.0
175	31	12,506	-50.0		248	1.7
150	31	13,514	-49.8		146	1.7
125	31	14,706	-50.4		113	2.7
100	31	16,161	-50.8		106	5.6
80	31	17,614	-50.9		109	4.7
60	31	19,488	-50.9		95	6.0
50	30	20,672	-50.7		118	7.2
40	28	22,124	-50.5		104	9.3
30	25	23,999	-50.1		93	11.7
25	15	25,187	-49.7			
20	7	26,656	-49.1			
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SALEM, ORE. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	7.3	91	189	2.3
1,000	31	157	8.4	81	202	1.9
950	31	581	7.3	74	259	1.9
900	31	1,025	5.2	72	258	2.3
850	31	1,490	2.4	71	250	4.5
800	31	1,978	- .2	65	255	6.4
750	31	2,492	- 2.4	50	273	8.5
700	31	3,038	- 4.8	48	283	10.5
650	31	3,612	- 8.1	44	288	10.9
600	31	4,235	-12.2	44	288	12.2
550	31	4,888	-16.5	42	286	13.4
500	31	5,606	-21.0	38	291	14.8
450	31	6,370	-26.5	37	295	18.3
400	31	7,218	-32.6		299	19.4
350	31	8,146	-39.4		305	23.3
300	31	9,186	-46.6		305	26.8
250	31	10,379	-52.5		310	28.0
200	31	11,808	-55.6		299	23.7
175	31	12,660	-55.4		292	22.3
150	31	13,644	-54.9		285	18.3
125	31	14,810	-54.9		282	15.3
100	31	16,235	-54.8		268	9.1
80	31	17,663	-54.8		259	6.6
60	31	19,507	-54.3		226	2.5
50	31	20,677	-53.9		132	2.7
40	31	22,113	-53.1		100	5.2
30	28	23,971	-51.8		82	7.8
25	27	25,155	-50.5		85	8.9
20	24	26,634	-47.8		84	11.1
15	19	28,536	-44.2		91	8.7
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SALT LAKE CITY, UTAH (869 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,288	8.1	70	[illegible]	1.9
1,000	31	109				
950	31	536				
900	31	995				
850	31	1,472	9.9	54	146	1.0
800	31	1,974	7.4	[illegible]	200	.8
750	31	2,502	4.0	52	217	4.7
700	31	3,061	.0	55	[illegible]	8.7
650	31	3,646	- 4.2	57	242	13.4
600	31	4,277	- 8.8	58	237	16.5
550	31	4,940	-13.6	55	237	21.8
500	31	5,665	-18.4	46	234	27.2
450	31	6,436	-24.1	42	233	31.3
400	31	7,294	-30.4	39	235	32.8
350	31	8,230	-37.4		233	37.1
300	31	9,277	-45.2		234	38.5
250	31	10,474	-52.3		234	41.6
200	31	11,905	-55.6		236	39.4
175	31	12,754	-55.8		237	36.1
150	31	13,737	-55.2		238	28.8
125	31	14,899	-56.1		239	24.7
100	31	16,317	-56.4		235	19.6
80	31	17,731	-56.7		230	13.0
60	30	19,558	-56.2		202	3.9
50	30	20,718	-55.5		102	3.5
40	29	22,144	-54.7		97	6.0
30	29	23,992	-52.6		84	7.0
25	29	25,174	-51.1		82	7.0
20	27	26,630	-49.0		79	7.8
15	19	28,542	-45.6		79	8.9
10	9	31,286	-41.4			

SAN ANTONIO, TEX. (985 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	243	20.8	89	132	3.5
1,000	31	115				
950	31	559	20.0	85	155	11.1
900	31	1,026	18.0	79	171	15.5
850	31	1,516	17.0	65	182	15.9
800	31	2,032	14.8	52	195	11.9
750	31	2,576	12.5	38	207	7.0
700	31	3,152	8.8	36	237	4.1
650	31	3,758	4.4	38	293	5.2
600	31	4,408	- .2	34	285	8.4
550	31	5,092	- 5.1		282	9.1
500	31	5,842	-10.1		278	10.1
450	31	6,642	-15.6		272	12.0
400	31	7,526	-21.9		269	13.8
350	31	8,495	-29.2		275	18.8
300	31	9,578	-37.6		268	22.2
250	31	10,812	-47.0		266	28.2
200	30	12,257	-57.2		266	33.8
175	30	13,094	-61.4		273	34.6
150	30	14,045	-63.6		263	26.6
125	29	15,161	-64.9		256	20.6
100	29	16,513	-67.7		257	17.7
80	29	17,852	-68.5		244	7.4
60	29	19,597	-63.0		126	6.8
50	29	20,727	-60.1		98	8.9
40	29	22,133	-56.2		76	9.1
30	27	23,975	-52.9		79	8.7
25	26	25,154	-50.9		84	10.1
20	25	26,615	-48.5		84	12.6
15	21	28,520	-45.7			
10	17	31,239	-42.0			

SAN DIEGO, CALIF. (999 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	124	13.9	81	175	2.1
1,000	31	118			178	1.6
950	31	548	11.6	79	214	3.3
900	31	1,002	10.1	72	264	2.5
850	31	1,478	10.8	43	302	8.2
800	31	1,983	9.9	27	289	10.1
750	31	2,508	7.6	22	280	11.5
700	31	3,082	4.6		271	13.2
650	31	3,676	1.1		267	15.7
600	31	4,322	- 2.7		274	19.2
550	31	4,996	- 7.4		270	21.2
500	31	5,743	-12.8		268	23.3
450	31	6,526	-18.9		274	25.5
400	31	7,406	-25.8		272	30.7
350	31	8,360	-33.1		272	36.1
300	31	9,426	-41.4		267	39.6
250	31	10,640	-50.7		270	45.3
200	31	12,066	-58.6		266	48.4
175	31	12,901	-60.8		266	48.6
150	31	13,859	-60.9		264	46.2
125	31	14,993	-61.1		262	39.6
100	30	16,373	-63.0		259	27.4
80	30	17,746	-62.7		255	15.3
60	30	19,532	-59.6		218	2.1
50	29	20,679	-58.2		132	2.9
40	28	22,092	-56.2		110	4.3
30	26	23,936	-53.1		90	5.8
25	26	25,117	-50.9		91	7.0
20	22	26,577	-48.3		91	5.1
15	13	28,486	-44.8		95	13.0
10	5	31,268	-40.8			

SAN JUAN, P. R. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	23.6	84	108	3.3
1,000	31	141	23.2	81	101	10.1
950	31	590	20.5	82	85	15.7
900	31	1,055	17.6	81	88	15.3
850	31	1,543	14.8	79	92	13.8
800	31	2,055	12.4	72	94	11.1
750	31	2,593	10.0	63	94	8.9
700	31	3,167	7.7	54	92	5.8
650	31	3,774	4.8	48	99	4.3
600	31	4,424	1.2	42	159	1.9
550	31	5,113	- 3.0	38	245	1.6
500	31	5,869	- 7.7	38	247	5.8
450	31	6,676	-12.8	36	255	9.1
400	31	7,571	-19.0	35	260	13.6
350	31	8,551	-26.1		254	19.6
300	31	9,648	-34.6		260	25.5
250	31	10,896	-44.5		266	32.3
200	31	12,351	-56.4		259	41.4
175	31	13,188	-62.1		264	44.1
150	31	14,127	-68.2		271	39.6
125	30	15,212	-71.8		269	34.6
100	30	16,520	-74.3		271	23.3
80	29	17,822	-72.2		272	7.2
60	29	19,546	-64.8		66	14.4
50	28	20,669	-61.1		81	17.7
40	28	22,065	-58.1		86	25.1
30	28	23,896	-53.3		92	23.5
25	28	25,078	-50.3		86	26.2
20	23	26,549	-46.6		79	18.1
15	13	28,489	-40.4			
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SANTA MARIA, CALIF. (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	74	9.7	89	274	2.5
1,000	31	123	10.1	84	298	3.1
950	31	550	11.1	68	10	8.0
900	31	1,004	11.4	54	26	9.5
850	31	1,480	9.6	47	2	10.7
800	31	1,981	7.7	34	334	11.5
750	31	2,508	5.6	25	318	13.0
700	31	3,072	2.6	23	307	14.6
650	31	3,663	- .8		296	16.5
600	31	4,302	- 4.5		297	19.6
550	31	4,973	- 8.9		296	23.7
500	31	5,713	-14.1		287	24.7
450	31	6,496	-20.0		284	24.5
400	31	7,366	-26.6		281	25.3
350	31	8,317	-34.1		285	29.7
300	31	9,378	-42.5		272	35.9
250	31	10,586	-51.4		265	39.4
200	31	12,009	-59.0		262	38.1
175	31	12,842	-60.8		264	35.0
150	31	13,802	-60.5		258	37.9
125	31	14,939	-60.4		[illegible]	29.9
100	31	16,326	-61.7		258	25.5
80	31	17,709	-61.2		259	16.3
60	31	19,502	-59.3		162	1.2
50	31	20,648	-58.2		135	5.1
40	31	22,058	-56.8		89	6.8
30	31	23,890	-54.7		79	9.7
25	31	25,060	-53.2		79	12.4
20	29	26,501	-50.9		72	11.9
15	21	28,367	-48.2			
10	6	30,999	-45.9			

SANTA MONICA, CALIF. (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	38	14.4	81	54	2.3
1,000	31	120	14.0	79	73	2.1
950	31	552	11.4	76	85	2.5
900	31	1,003	10.5	63	14	3.5
850	31	1,479	9.8	49	329	5.8
800	31	1,982	9.0	29	306	9.3
750	31	2,511	6.7		290	10.5
700	31	3,077	3.5		282	12.0
650	31	3,672	- .2		280	15.5
600	31	4,311	- 4.3		276	18.3
550	31	4,984	- 8.8		272	20.8
500	31	5,723	-13.9		276	22.7
450	31	6,506	-19.9		275	27.0
400	31	7,379	-26.3		273	29.3
350	31	8,330	-33.8		273	33.6
300	31	9,392	-42.1		274	36.5
250	31	10,603	-51.1		273	42.4
200	30	12,026	-58.6		267	39.8
175	30	12,860	-60.8		265	43.1
150	30	13,819	-60.5		268	43.9
125	29	14,952	-60.4		264	36.7
100	29	16,336	-62.0		260	29.1
80	28	17,716	-62.3		257	16.7
60	28	19,504	-59.7		227	3.9
50	27	20,648	-58.3		164	3.1
40	27	22,058	-56.8		115	3.5
30	25	23,890	-54.4		80	5.6
25	25	25,062	-53.1		76	7.2
20	23	26,512	-50.9		80	7.2
15	18	28,403	-47.6		89	8.9
10	10	31,075	-43.9			

SAULT STE. MARIE, MICH. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	221	7.1	83	95	3.1
1,000	31	142				
950	31	567	8.4	76	180	5.1
900	31	1,013	8.1	71	238	10.5
850	31	1,484	7.1	65	260	14.4
800	31	1,981	4.6	62	263	16.1
750	31	2,504	1.8	57	265	18.3
700	31	3,058	- 1.3	53	266	20.4
650	31	3,643	- 4.8	51	270	23.1
600	31	4,273	- 8.4	53	269	25.6
550	31	4,939	-12.5	51	266	28.8
500	31	5,665	-17.0	46	268	29.9
450	31	6,443	-22.3	44	264	35.9
400	31	7,304	-28.3	43	267	37.1
350	31	8,247	-35.4	43	268	41.0
300	31	9,304	-43.1		263	46.4
250	31	10,512	-50.6		265	52.8
200	30	11,941	-56.8		271	50.9
175	29	12,791	-57.8		270	44.3
150	29	13,766	-56.8		269	34.8
125	28	14,917	-55.9		272	29.1
100	28	16,334	-56.8		277	22.5
80	27	17,748	-56.6		291	13.4
60	26	19,575	-55.8		332	4.1
50	26	20,737	-55.5		40	2.7
40	25	22,162	-54.6		91	4.3
30	25	24,014	-52.4		88	8.2
25	24	25,199	-50.6		93	8.4
20	22	26,650	-48.5		87	8.9
15	20	28,553	-45.6		93	9.7
10	11	31,298	-39.2			

SEATTLE, WASH. (1003 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	125	7.9	84	154	3.3
1,000	31	149			155	3.7
950	31	568	7.3	73	194	6.2
900	31	1,017	5.2	69	223	6.6
850	31	1,482	2.3	69	239	5.6
800	31	1,969	- .6	68	249	4.3
750	31	2,478	- 3.7	62	274	4.9
700	31	3,026	- 6.3	51	282	6.4
650	31	3,594	- 9.4	46	284	7.6
600	31	4,218	-13.1	44	280	10.1
550	31	4,866	-17.2	44	273	11.5
500	31	5,585	-21.9	43	271	11.5
450	31	6,341	-27.2	43	276	12.0
400	31	7,193	-33.2	43	277	15.5
350	31	8,118	-40.0		283	15.7
300	31	9,156	-46.8		297	15.9
250	31	10,347	-52.7		298	18.3
200	31	11,779	-54.9		289	19.6
175	31	12,633	-54.4		284	18.1
150	31	13,623	-53.6		279	16.1
125	31	14,795	-54.0		282	13.0
100	31	16,230	-53.4		268	11.1
80	31	17,666	-53.4		246	6.0
60	31	19,521	-52.9		204	2.7
50	31	20,697	-52.7		133	2.1
40	31	22,142	-51.6		91	4.3
30	31	24,013	-50.4		92	8.2
25	28	25,199	-49.1		92	8.7
20	26	26,672	-47.1		84	10.7
15	19	28,602	-44.3		88	14.0
10	7	31,334	-40.8			

SHREVEPORT, LA. (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	76	19.6	91	160	4.1
1,000	31	132	19.7	89	166	5.2
950	31	573	18.9	77	190	11.9
900	31	1,039	17.0	72	193	13.6
850	31	1,526	14.7	65	201	11.9
800	31	2,037	12.4	55	204	9.3
750	31	2,575	9.3	50	214	7.8
700	31	3,146	6.1	49	230	8.0
650	31	3,746	2.3	46	238	8.7
600	31	4,393	- 1.5	44	243	10.9
550	31	5,074	- 5.8	41	249	10.7
500	31	5,822	-10.8	37	248	10.5
450	31	6,621	-16.1		250	11.1
400	31	7,502	-22.4		250	14.2
350	31	8,470	-29.4		252	17.1
300	31	9,551	-37.8		264	19.4
250	31	10,782	-47.5		262	23.7
200	31	12,224	-57.2		258	28.6
175	31	13,060	-61.0		259	31.3
150	31	14,013	-63.0		262	31.9
125	31	15,133	-64.2		259	27.6
100	31	16,494	-66.0		257	19.8
80	31	17,843	-67.2		242	9.3
60	31	19,599	-62.1		109	4.3
50	31	20,734	-59.7		95	8.4
40	31	22,147	-56.3		89	10.5
30	31	23,988	-52.1		92	9.1
25	30	25,170	-50.0		90	7.4
20	26	26,641	-47.4		78	7.2
15	19	28,545	-44.7		98	7.2
10	7	31,257	-41.0			

SPOKANE, WASH. (931 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	722	5.8	77	169	4.1
1,000	31	132				
950	31	556				
900	31	1,001	7.0	61	196	6.0
850	31	1,469	4.7	57	225	6.6
800	31	1,961	1.5	59	242	7.8
750	31	2,474	- 2.0	60	250	8.2
700	31	3,022	- 5.6	61	258	8.0
650	31	3,594	- 8.9	57	261	8.4
600	31	4,216	-12.6	50	253	10.5
550	31	4,869	-16.9	48	256	9.9
500	31	5,584	-21.8	44	264	9.3
450	31	6,343	-26.9	43	275	11.3
400	31	7,191	-33.0	43	279	12.4
350	31	8,117	-40.0		281	15.2
300	31	9,153	-47.6		286	16.3
250	31	10,342	-53.1		279	15.3
200	31	11,773	-54.9		265	16.7
175	30	12,625	-53.6		271	16.5
150	30	13,618	-53.0		268	15.3
125	30	14,795	-52.8		266	13.8
100	29	16,237	-53.5		254	10.3
80	29	17,674	-52.9		239	8.2
60	28	19,533	-52.8		218	2.7
50	27	20,707	-52.3		135	2.3
40	26	22,147	-51.4		94	5.8
30	25	24,024	-49.8		91	9.3
25	25	25,220	-48.0		82	11.7
20	25	26,698	-45.9		83	11.9
15	16	28,615	-42.9		79	15.2
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TAMPA, FLA. (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	21.6	92	94	5.2
1,000	31	162	21.4	84	105	6.4
950	31	604	20.0	72	130	8.9
900	31	1,072	17.5	67	129	8.2
850	31	1,558	14.4	69	111	6.6
800	31	2,069	11.6	64	101	6.4
750	31	2,606	8.8	56	94	5.1
700	31	3,175	5.8	48	158	1.6
650	31	3,779	2.3	42	150	1.2
600	31	4,421	- 1.0	33	233	1.4
550	31	5,105	- 5.7	33	243	2.9
500	30	5,850	-10.4	33	264	3.1
450	30	6,650	-15.7		280	3.7
400	30	7,534	-22.2		280	5.2
350	30	8,501	-29.4		278	7.4
300	30	9,583	-38.1		284	9.7
250	30	10,813	-47.8		280	14.8
200	29	12,250	-58.6		283	19.4
175	29	13,078	-63.4		285	25.1
150	28	14,014	-66.3		294	26.2
125	27	15,117	-67.3		297	20.6
100	27	16,452	-70.3		297	14.0
80	27	17,777	-69.7		316	5.6
60	27	19,513	-64.0		43	8.4
50	27	20,639	-60.9		70	9.1
40	27	22,036	-57.5		66	11.1
30	23	23,869	-53.8		87	9.9
25	23	25,048	-50.9		86	7.2
20	16	26,514	-47.7		81	7.0
15	7	28,402	-43.9			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

TATOOSH IS., WASH. (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	31	9.1	86	173	3.1
1,000--	31	143	9.0	80	226	3.7
950----	31	562	7.0	73	255	5.2
900----	31	1,010	4.4	72	253	5.6
850----	31	1,473	2.0	67	246	4.5
800----	31	1,960	- .7	66	255	5.8
750----	31	2,468	- 3.6	60	251	7.4
700----	31	3,016	- 6.6	54	260	6.8
650----	31	3,584	- 9.9	49	274	8.7
600----	31	4,204	-13.7	46	271	11.1
550----	31	4,847	-17.7	38	275	12.2
500----	31	5,567	-22.2	38	278	13.4
450----	31	6,324	-27.3	37	285	15.3
400----	31	7,173	-33.1	41	281	13.6
350----	31	8,098	-39.7		271	8.9
300----	31	9,136	-47.1		265	10.3
250----	31	10,326	-52.9		258	14.2
200----	30	11,764	-55.8		272	17.7
175----	30	12,615	-55.2		290	15.3
150----	29	13,600	-54.1		281	13.2
125----	27	14,769	-53.7		281	11.1
100----	27	16,203	-54.3		275	8.4
80-----	27	17,636	-53.7		273	4.5
60-----	26	19,487	-53.0		197	3.5
50-----	26	20,662	-52.6		163	1.7
40-----	26	22,105	-51.8		110	3.5
30-----	24	23,980	-50.5		106	5.8
25-----	23	25,174	-49.6		111	8.0
20-----	18	26,642	-47.8		98	8.4
15-----						
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TOPEKA, KANS. (983 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	269	15.4	86	161	3.9
1,000--	31	119				
950----	31	555	15.9	77	181	8.7
900----	31	1,015	14.4	69	209	15.2
850----	31	1,498	13.2	62	225	20.2
800----	31	2,006	11.2	51	230	18.5
750----	31	2,540	8.0	46	243	16.7
700----	31	3,108	4.2	46	251	16.9
650----	31	3,702	.0	45	255	16.9
600----	31	4,344	- 4.3	41	251	19.4
550----	31	5,016	- 8.5	43	248	24.5
500----	31	5,757	-13.1	37	251	27.2
450----	31	6,542	-18.5		253	29.5
400----	31	7,419	-24.7		257	32.1
350----	31	8,377	-31.8		255	34.4
300----	31	9,448	-40.2		255	41.4
250----	31	10,668	-49.3		251	44.5
200----	31	12,097	-59.0		246	51.3
175----	31	12,929	-61.5		248	50.5
150----	30	13,889	-60.1		255	45.1
125----	30	15,028	-60.1		251	33.4
100----	30	16,416	-61.7		246	24.5
80-----	29	17,800	-61.4		239	15.9
60-----	29	19,598	-58.7		188	5.6
50-----	28	20,749	-57.0		113	5.2
40-----	27	22,169	-54.6		103	7.6
30-----	23	24,021	-52.0		80	9.5
25-----	21	25,210	-50.3		81	8.7
20-----	15	26,662	-48.2		87	9.1
15-----	10	28,572	-44.9			
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7------						

WASHINGTON, D. C. (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	88	15.6	82	245	1.7
1,000--	31	169	15.9	78	234	3.5
950----	31	604	15.8	64	281	8.9
900----	31	1,064	13.9	60	285	11.9
850----	31	1,544	11.0	64	281	13.6
800----	31	2,049	8.4	57	285	14.6
750----	31	2,578	5.4	53	281	15.5
700----	31	3,141	2.2	49	276	17.7
650----	31	3,731	- 1.0	47	275	19.8
600----	31	4,372	- 4.6	43	279	21.8
550----	31	5,045	- 8.6	41	279	25.6
500----	31	5,786	-13.1	40	279	26.6
450----	31	6,571	-18.3	36	281	31.3
400----	31	7,452	-24.3	36	282	33.0
350----	31	8,412	-31.4	37	284	36.1
300----	31	9,485	-39.5		285	37.3
250----	31	10,707	-48.8		290	39.1
200----	31	12,139	-58.8		293	42.0
175----	31	12,969	-62.7		292	41.0
150----	31	13,917	-63.0		299	33.2
125----	31	15,047	-61.1		299	24.9
100----	31	16,431	-61.6		309	21.0
80-----	30	17,819	-60.4		332	12.2
60-----	29	19,625	-57.5		31	6.4
50-----	28	20,781	-56.0		47	4.9
40-----	28	22,206	-54.3		70	9.7
30-----	25	24,061	-51.2		78	9.9
25-----	25	25,251	-49.3		72	9.9
20-----	22	26,729	-47.2		74	11.1
15-----	18	28,644	-44.1		95	8.9
10-----	9	31,372	-38.8			
7------						

WINNEMUCCA, NEV. (868 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,310	3.4	69	75	1.4
1,000--	31	143				
950----	31	562				
900----	31	1,013				
850----	31	1,483	7.4	54	54	3.3
800----	31	1,980	4.8	54	352	3.3
750----	31	2,500	1.2	56	298	4.5
700----	31	3,055	- 2.5	57	268	8.0
650----	31	3,631	- 6.6	58	268	11.5
600----	31	4,259	-10.9	55	266	12.0
550----	31	4,915	-15.1	49	267	13.0
500----	31	5,637	-19.8	43	269	15.9
450----	31	6,401	-25.3	39	271	17.7
400----	31	7,256	-31.4		273	19.4
350----	31	8,188	-38.3		276	24.5
300----	31	9,232	-45.5		280	25.5
250----	31	10,429	-52.0		284	23.7
200----	31	11,861	-55.6		274	25.3
175----	31	12,711	-55.8		269	23.3
150----	31	13,692	-55.9		263	22.2
125----	30	14,853	-56.1		261	22.7
100----	30	16,269	-56.8		255	18.1
80-----	28	17,681	-56.5		243	11.3
60-----	28	19,507	-56.2		209	3.3
50-----	28	20,666	-55.5		157	3.1
40-----	28	22,089	-54.3		94	5.1
30-----	24	23,929	-53.4		86	7.8
25-----	24	25,105	-52.1		85	8.9
20-----	18	26,559	-49.8		85	11.3
15-----	6	28,550	-44.4			
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YAKUTAT, ALASKA (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	12	4.1	90	70	5.2
1,000--	31	132	5.9	80	79	4.9
950----	31	549	4.5	70	118	3.7
900----	31	990	1.6	68	130	4.1
850----	31	1,449	- 1.2	65	150	4.5
800----	31	1,930	- 4.2	65	129	4.5
750----	31	2,434	- 7.2	64	134	2.3
700----	31	2,971	-10.6	60	206	1.7
650----	31	3,536	-13.5	52	213	2.7
600----	31	4,143	-17.3	47	252	2.9
550----	31	4,786	-21.5	45	267	4.7
500----	31	5,487	-26.1	45	288	8.7
450----	31	6,237	-30.8	45	291	12.2
400----	31	7,071	-36.4	46	278	18.5
350----	31	7,985	-42.4		267	11.5
300----	31	9,013	-48.3		291	21.2
250----	31	10,203	-52.1		275	24.3
200----	31	11,650	-50.8			
175----	31	12,522	-50.1			
150----	31	13,530	-49.9			
125----	31	14,722	-50.1			
100----	31	16,179	-50.3			
80-----	30	17,638	-50.2			
60-----	30	19,518	-49.8			
50-----	30	20,713	-49.2			
40-----	29	22,182	-48.7			
30-----	29	24,077	-48.1			
25-----	27	25,272	-47.6			
20-----	24	26,747	-46.6			
15-----	20	28,670	-44.6			
10-----	16	31,405	-40.9			
7------	5	33,918	-36.3			

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Date	Sun's zenith distance								
	A M					P M			
	78 7°	75 7°	70 7°	60 0°	*	60 0°	70 7°	75 7°	78 7°

ALBUQUERQUE, N. MEX.

Date	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
May									
2------	----	----	1.00	1.15	----	----	1.08	0.92	0.81
3------	0.89	0.97	1.11	1.28	1.45	----	----	----	----
4------	H .85	H .93	H 1.05	H 1.20	----	----	----	----	----
5------	----	----	----	1.23	1.46	1.25	1.08	.96	.87
9------	----	.89	1.03	1.21	----	----	----	----	----
10-----	H .71	H 86	H 1.00	H 1.20	H 1.44	1.24	1.11	.99	.89
11-----	.87	99	1.08	1.26	1.43	----	1.09	91	83
13-----	D .53	D .71	D .82	----	----	----	----	----	----
15-----	----	.77	.90	1.10	1.32	----	----	----	----
16-----	.79	91	1.02	1.22	1.42	----	----	----	----
17-----	.93	1.01	1.13	----	1.38	----	----	----	----
18-----	----	----	----	1.28	1.46	1.07	.85	.75	.59
19-----	.84	.97	1.07	1.22	1.41	1.07	----	.81	----
20-----	.73	.84	.97	1.15	----	----	----	----	----
21-----	.76	.88	1.01	1.19	----	----	----	----	----
22-----	.79	89	1.03	1.21	1.43	H .55	H .26	H .24	H .19
26-----	.83	.92	1.03	1.22	1.39	----	----	----	----
27-----	.85	.95	1.08	1.25	1.44	----	----	----	----
28-----	.89	.98	1.13	1.26	1.43	1.16	.85	.76	.67
29-----	1.01	1.08	1.17	1.28	1.42	1.22	1.08	.91	.83
31-----	.97	1.05	1.17	1.32	----	----	1.12	1.01	.93
Aver-ages	0.83	0.94	1.07	1.24	1.43	1.08	0.80	0.83	0.74

GUAM, M. I.

Date	Air mass								
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
May									
14-----	----	M 0.84	----	----	----	----	----	----	----
16-17‡-	----	----	----	----	----	----	----	----	----
22-----	----	----	----	----	S 1.26	S 1.09	S 0.94	M 0.82	----

* Values Corresponding to true solar noon.
H Haze.
D Dust.
M Moderate haze - indeterminable.
S Slight haze - indeterminable.
I Intense haze - indeterminable.
† Clock failure.
‡ Recorder repaired.

LINCOLN, NEBR.

Date	Air mass								
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
May									
1-----	----	0.69	0.75	0.91	----	----	----	----	----
11----	----	----	----	----	1.23	1.00	0.84	0.72	0.63
14----	0.70	.8[illegible]	.92	1.00	----	1.08	.91	.82	.74
15----	.65	84	98	1.06	1.27	----	----	----	----
24----	.60	.69	.83	----	----	----	----	----	----
27----	.66	.75	84	.96	----	----	----	----	----
Aver-ages	0.65	0.78	0.86	0.98	1.25	1.04	0.89	0.77	0.64

TUCSON, ARIZ.

Date	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
May									
3-----	0.83	0.93	1.05	1.21	----	1.22	1.05	0.96	0.73
5-----	.80	.90	1.03	1.20	1.44	1.22	1.05	.91	80
7-----	.83	.93	1.07	----	----	----	.93	.78	.66
15----	.79	.90	1.03	1.21	----	1.22	1.05	.89	.79
16----	.75	.86	1.00	1.14	----	1.22	1.06	.93	.83
18----	.94	1.04	1.16	1.30	----	1.26	1.11	.99	.90
19----	.91	1.01	1.13	1.28	----	1.22	.98	.85	.73
20----	.84	.93	1.05	1.20	----	----	----	----	----
22----	.81	.91	1.04	1.22	----	----	1.06	.95	83
24----	.83	.94	1.07	1.24	1.49	----	----	----	----
25----	.94	1.02	1.14	1.28	----	1.20	1.05	.92	1.79
26----	.80	.88	1.03	1.19	----	1.23	1.05	.91	.80
27----	.84	.97	1.10	1.24	----	1.22	1.06	.92	.82
28----	.94	1.02	1.14	1.28	1.50	1.34	1.19	----	----
31----	----	----	----	----	1.48	1.27	1.13	1.01	.90
Aver-ages	0.85	0.95	1.07	1.23	1.48	1.24	1.06	0.97	0.80

OMAHA, NEBR.

Date	Air mass								
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
May									
1-----	----	----	----	----	H 1.00	----	----	----	----
10----	I 0.42	I 0.53	----	----	----	----	----	----	----
11----	S .64	S .72	S 0.85	----	----	----	----	----	----
14----	M .49	M .62	----	----	----	----	----	----	----
15----	†	†	†	M 1.04	S 1.25	----	----	----	----
27----	.54	.66	.79	----	----	----	----	----	----
Aver-ages	0.52	0.63	0.82	1.04	1.13	----	----	----	----

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.
May 7	585	534	674	669	667	539	245	748	709	442	537
May 8	649	232	691	220	628	439	272	710	584	571	559
May 9	608	511	690	---	536	363	329	(608)	532	734	578
May 10	791	632	694	356	329	491	390	223	659	641	318
May 11	793	689	671	678	408	481	410	689	704	488	531
May 12	751	122	542	676	296	400	259	616	701	511	558
May 13	561	226	98	402	330	---	363	(576)	618	276	585
Average	677	421	580	500	456	452	324	(596)	644	523	524
May 14	477	137	685	127	597	685	560	779	368	333	498
May 15	667	558	519	554	723	672	370	750	138	461	573
May 16	783	260	710	210	695	386	681	740	720	633	624
May 17	720	519	702	441	641	402	558	646	390	594	457
May 18	782	361	587	536	657	457	505	560	696	758	698
May 19	766	---	208	590	446	457	362	237	585	463	676
May 20	667	---	448	461	360	416	408	202	743	525	492
Average	695	367	551	417	589	496	492	559	520	538	574
May 21	498	---	429	416	312	390	516	449	553	560	268
May 22	811	---	641	717	484	469	660	626	452	597	487
May 23	415	---	667	718	535	492	166	788	259	678	275
May 24	510	---	717	374	460	464	143	675	692	345	532
May 25	689	---	675	416	313	512	203	727	313	755	527
May 26	810	---	638	305	421	393	400	132	507	653	636
May 27	792	---	671	479	452	428	721	245	623	670	614
Average	646	---	634	489	425	450	401	520	486	608	477
May 28	828	---	421	746	516	486	---	238	620	---	638
May 29	827	---	563	272	419	513	312	---	756	---	639
May 30	737	---	624	746	181	695	568	---	757	---	659
May 31	665	---	550	731	290	688	763	596	759	---	655
June 1	756	---	458	452	442	448	655	763	747	---	681
June 2	739	---	652	279	538	599	557	738	725	---	609
June 3	386	---	717	399	598	729	400	(705)	406	---	667
Average	705	---	555	518	426	594	542	(608)	681	---	650

1959	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.	El Paso, Tex.	Ely, Nev.	Ft. Worth, Tex.	Fresno, Calif.
May 7	610	761	284	623	316	693	697	695	738	757	659	643
May 8	601	675	650	---	686	285	321	588	774	737	(322)	635
May 9	604	737	600	318	555	376	427	669	711	725	539	638
May 10	620	767	675	623	406	540	365	698	774	780	(101)	641
May 11	574	767	206	593	316	405	715	702	766	524	550	612
May 12	558	752	614	593	339	611	708	690	758	773	682	603
May 13	608	611	584	220	281	581	370	364	601	668	684	498
Average	597	724	516	495	414	499	515	629	732	709	(491)	610
May 14	599	640	89	621	223	566	172	657	721	781	465	546
May 15	566	675	429	713	75	686	497	730	635	581	166	674
May 16	535	826	582	638	407	453	278	595	778	706	432	633
May 17	606	812	609	594	514	342	508	674	778	434	495	649
May 18	601	437	654	429	656	584	407	747	797	782	610	679
May 19	555	780	548	534	587	635	550	716	798	510	711	666
May 20	583	745	350	332	492	607	693	740	792	772	649	667
Average	578	702	466	552	422	553	444	694	757	653	504	645
May 21	487	813	545	333	406	483	558	704	757	448	378	668
May 22	564	822	349	644	555	383	734	665	775	289	(311)	609
May 23	592	735	710	530	131	364	732	619	561	786	222	661
May 24	552	755	336	450	650	614	431	676	696	733	(276)	619
May 25	568	382	---	127	667	301	378	709	774	546	677	652
May 26	566	733	694	175	322	392	476	631	814	609	469	645
May 27	523	899	677	695	544	389	537	738	796	652	(458)	683
Average	550	806	551	422	475	418	549	677	739	580	(399)	648
May 28	591	874	709	563	329	688	672	740	807	846	(627)	682
May 29	533	(843)	613	650	510	534	696	724	781	670	741	679
May 30	562	678	234	614	614	686	758	759	573	834	728	662
May 31	391	368	765	286	542	439	753	755	733	827	657	657
June 1	558	407	69	438	233	426	727	721	800	839	441	646
June 2	501	704	726	342	384	624	428	730	669	808	501	645
June 3	484	---	659	(383)	754	707	603	712	587	624	448	628
Average	517	(646)	539	(468)	481	586	662	734	707	778	(592)	657

1959	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga	Indianapolis, Ind	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo
May 7	624	709	601	734	614	720	619	822	594	658	746	560
May 8	656	---	377	716	651	679	555	839	760	646	735	490
May 9	723	---	664	310	203	635	458	851	769	578	641	722
May 10	723	576	766	651	317	413	383	853	535	479	721	616
May 11	661	616	687	796	575	413	239	816	501	291	756	607
May 12	633	674	756	---	680	340	316	770	231	569	755	737
May 13	417	741	616	764	267	350	246	735	352	683	757	739
Average	634	663	638	662	472	507	402	812	535	558	730	639
May 14	562	(756)	656	758	511	722	274	851	264	651	489	446
May 15	584	(800)	670	745	626	767	426	876	114	650	682	353
May 16	536	725	---	549	607	752	588	828	489	470	660	462
May 17	578	639	408	384	697	718	456	876	533	612	672	601
May 18	674	482	355	52	438	707	283	856	751	--	650	323
May 19	431	389	254	355	513	414	614	866	262	462	560	490
May 20	351	495	711	385	369	245	194	---	627	576	345	451
Average	531	(612)	509	461	537	618	405	809	435	570	580	447
May 21	510	642	382	556	342	313	398	863	451	366	668	433
May 22	587	738	590	591	411	500	450	878	642	524	251	492
May 23	531	759	737	777	633	558	327	893	174	254	534	745
May 24	566	597	562	720	699	429	388	837	469	320	797	706
May 25	590	(537)	647	142	484	287	631	882	800	249	509	263
May 26	546	111	706	---	386	396	397	865	409	653	570	575
May 27	642	179	593	194	451	500	274	889	561	646	726	576
Average	567	(509)	602	497	487	426	409	872	501	430	579	541
May 28	421	246	---	288	658	541	655	880	602	707	746	633
May 29	391	541	814	762	643	358	628	900	462	626	504	541
May 30	620	444	805	657	414	236	382	880	492	393	463	589
May 31	503	728	815	750	116	341	574	882	652	---	667	355
June 1	463	760	823	785	325	444	444	879	334	---	805	780
June 2	653	744	820	---	235	649	687	857	131	616	775	689
June 3	441	(617)	580	688	518	677	738	868	821	457	777	620
Average	499	(583)	776	655	416	464	587	878	499	560	677	601

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

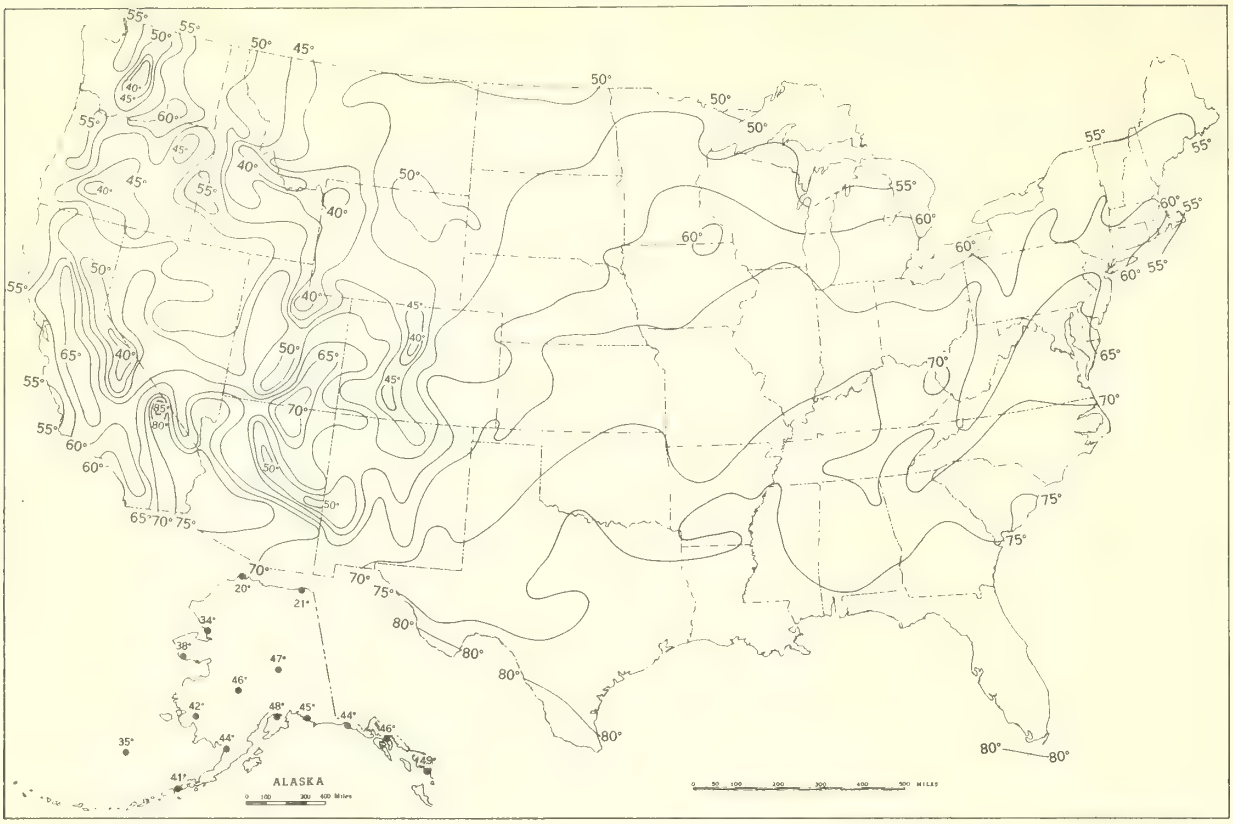
Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Las Vegas, Nev.	Lexington, Ky	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Manhattan, Kan.	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla
May 7------	719	777	493	711	680	669	561	664	716	172	683	356	457	401	555	608
May 8------	749	704	442	268	673	669	149	327	640	364	679	543	641	557	706	147
May 9------	700	636	240	628	649	598	382	435	703	693	396	726	707	134	493	---
May 10------	758	620	421	538	---	594	255	681	726	701	481	608	366	406	331	142
May 11------	658	620	724	510	---	482	680	685	551	725	549	531	477	675	600	658
May 12------	738	288	112	326	200	(286)	547	673	438	709	363	625	567	125	374	704
May 13------	765	490	421	626	574	405	640	274	712	610	527	220	108	475	424	439
Average-------	727	591	408	515	555	(529)	459	534	641	611	525	515	475	396	498	449
May 14------	788	285	742	771	648	643	693	---	673	576	302	377	599	638	406	311
May 15------	775	412	757	683	710	679	673	665	267	266	---	367	303	755	563	334
May 16------	742	743	165	631	667	683	93	397	325	660	730	592	692	349	747	188
May 17------	307	479	447	505	552	474	277	463	273	733	366	474	493	442	619	608
May 18------	751	477	226	544	---	562	290	384	381	741	660	648	594	184	525	691
May 19------	765	726	---	533	684	707	544	617	548	732	586	245	172	602	633	691
May 20------	601	284	489	589	577	611	575	707	171	594	304	490	558	479	257	593
Average-------	676	487	471	608	640	623	449	539	377	615	491	456	487	493	536	488
May 21------	609	338	220	377	510	436	314	688	518	724	618	516	538	226	434	471
May 22------	747	632	105	295	326	355	148	509	668	714	294	495	470	112	490	---
May 23------	780	439	176	600	648	539	472	710	363	525	632	708	460	617	534	399
May 24------	630	612	573	183	443	364	522	702	712	617	433	535	574	695	---	362
May 25------	694	447	608	605	485	322	616	344	521	566	534	729	667	448	203	602
May 26------	713	578	464	507	501	295	340	554	533	772	544	647	490	537	393	337
May 27------	601	390	581	589	655	505	531	483	188	550	252	660	487	667	495	572
Average-------	711	491	432	451	510	402	420	570	501	638	472	613	526	472	425	457
May 28------	792	814	436	453	675	710	650	721	319	619	604	527	390	298	452	709
May 29------	829	580	525	531	589	521	584	735	580	734	488	541	528	615	506	676
May 30------	790	329	---	33	636	655	594	751	359	686	254	514	568	244	232	675
May 31------	791	665	--	250	559	551	122	733	664	652	448	694	570	254	366	475
June 1------	797	460	(722)	190	595	555	570	702	630	610	440	513	169	657	302	73
June 2------	794	396	---	392	700	693	663	597	680	480	473	158	55	627	335	260
June 3------	762	660	---	625	635	649	692	675	521	344	602	481	605	716	568	---
Average-------	793	586	---	353	627	619	554	702	536	589	473	490	412	488	394	478

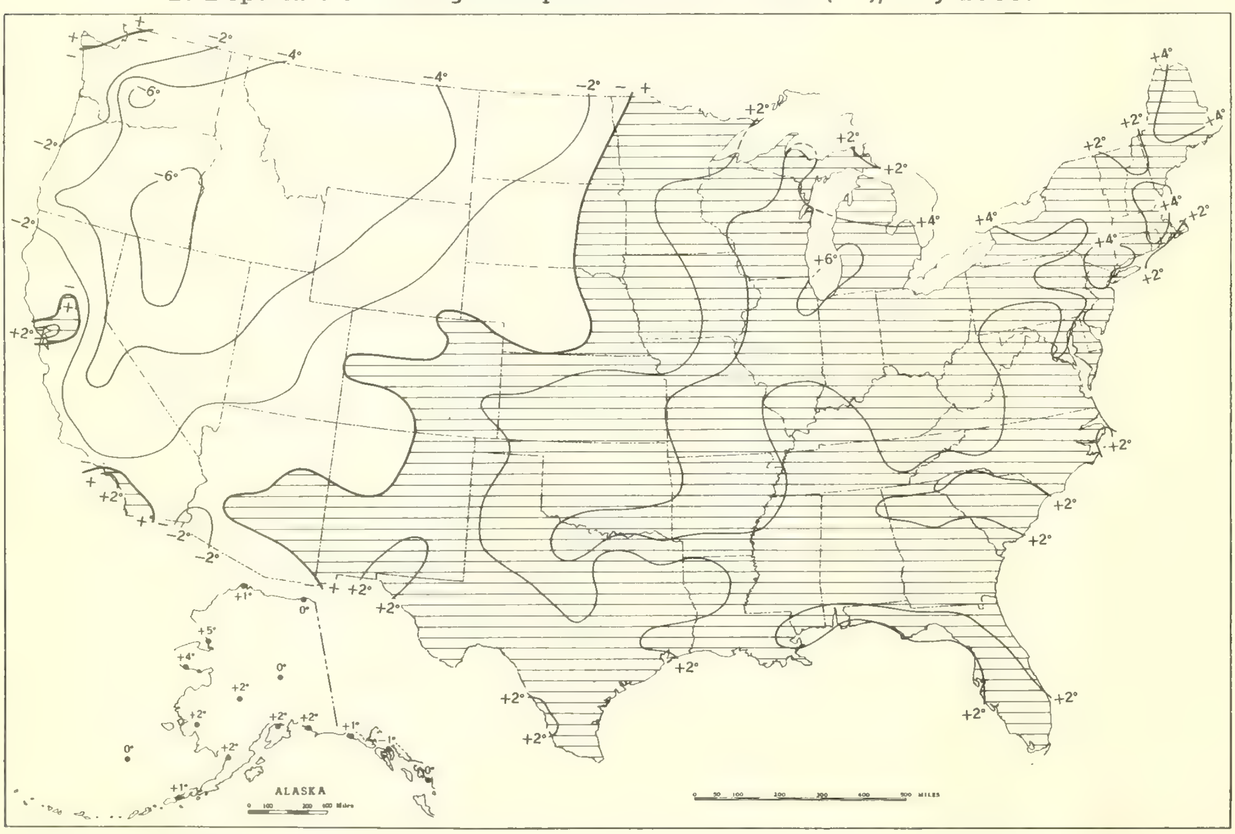
1959	Portland, Me.	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste Marie, Mich.	Schenectady, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Obs & Test Dev Ctr)
May 7------	---	731	731	735	550	563	739	527	526	654	501	705	614	601	624	778	(667)	572
May 8------	583	---	597	696	583	544	653	723	690	392	560	595	742	170	624	761	736	665
May 9------	740	472	751	633	252	474	760	683	682	390	593	514	706	329	425	622	692	558
May 10------	618	397	578	677	291	212	749	368	488	374	540	662	545	78	622	755	700	335
May 11------	---	772	699	626	613	525	736	458	444	---	547	---	628	637	673	730	644	542
May 12------	550	727	765	456	623	658	300	692	396	667	414	727	399	659	538	723	718	564
May 13------	374	750	771	576	169	709	493	376	228	581	718	735	236	579	591	679	534	160
Average-------	573	642	699	628	440	527	633	547	493	510	553	657	553	436	585	724	(670)	485
May 14------	426	542	778	730	---	651	744	652	593	103	678	579	434	---	468	746	755	605
May 15------	411	84	755	587	---	493	781	767	184	92	620	103	277	410	529	774	573	405
May 16------	---	345	655	707	---	418	753	623	656	350	402	255	559	166	457	772	730	607
May 17------	594	395	691	636	---	445	752	700	612	248	599	288	417	486	514	766	774	648
May 18------	760	461	739	341	512	693	798	460	701	648	545	314	737	670	527	796	650	155
May 19------	522	---	573	704	491	667	779	365	339	312	500	215	296	665	326	--	787	586
May 20------	511	591	146	622	(134)	583	781	239	536	683	---	242	660	594	429	792	775	614
Average-------	537	403	619	616	---	564	770	544	517	348	557	285	483	498	464	774	721	517
May 21------	542	513	487	565	195	376	785	154	466	323	296	---	527	310	543	738	(736)	438
May 22------	641	796	416	403	288	558	233	702	561	724	419	819	550	267	561	790	---	380
May 23------	664	---	725	704	717	438	---	340	292	709	460	876	408	408	531	771	740	500
May 24------	193	---	757	500	644	496	757	719	520	423	448	642	753	312	656	779	634	639
May 25------	754	---	604	408	279	560	(566)	704	691	487	466	574	796	---	671	805	(530)	720
May 26------	707	624	685	454	438	343	404	525	498	495	473	475	510	191	480	792	673	514
May 27------	686	471	124	584	(666)	596	816	505	(655)	677	611	443	426	595	565	798	682	648
Average-------	598	601	543	517	(461)	481	(594)	521	(526)	548	453	638	567	347	573	782	(666)	548
May 28------	544	606	312	707	434	599	811	758	(550)	496	672	615	488	678	251	808	648	621
May 29------	594	654	194	694	593	708	802	201	(600)	458	690	575	544	685	320	811	689	604
May 30------	227	806	226	704	154	715	747	722	(375)	724	440	871	527	664	691	541	724	669
May 31------	803	806	639	572	265	696	548	95	(690)	749	510	860	645	471	592	795	612	146
June 1------	588	793	738	688	732	542	534	561	(500)	741	196	791	216	188	456	801	(707)	149
June 2------	215	740	798	740	763	585	727	782	(137)	352	351	751	82	660	653	751	742	83
June 3------	616	713	695	719	744	572	736	704	(450)	590	597	709	715	682	696	779	721	512
Average-------	512	731	514	689	527	631	701	546	(472)	587	494	739	460	575	523	755	(692)	398

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature (°F.) at Surface, May 1959.



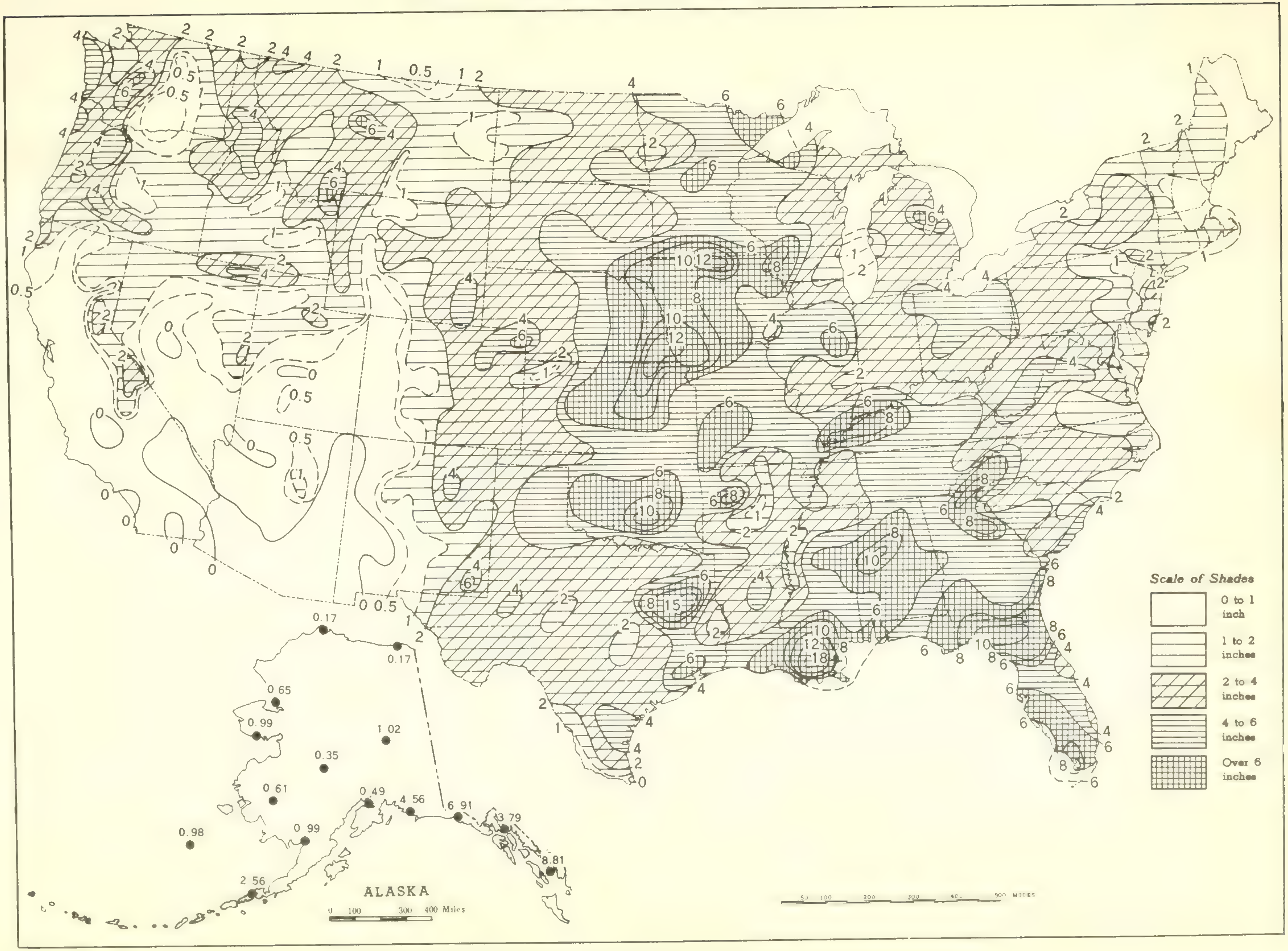
B. Departure of Average Temperature from Normal (°F.), May 1959.



A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

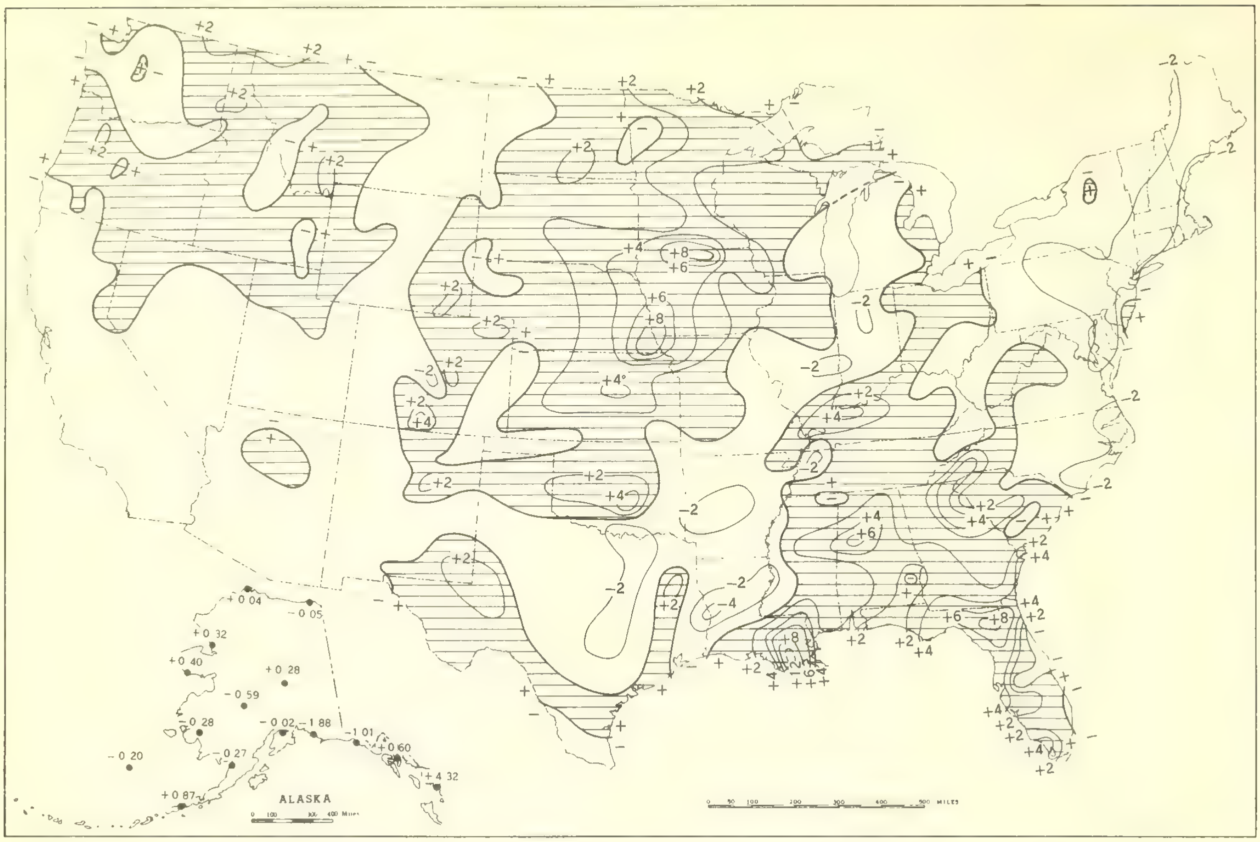
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), May 1959.

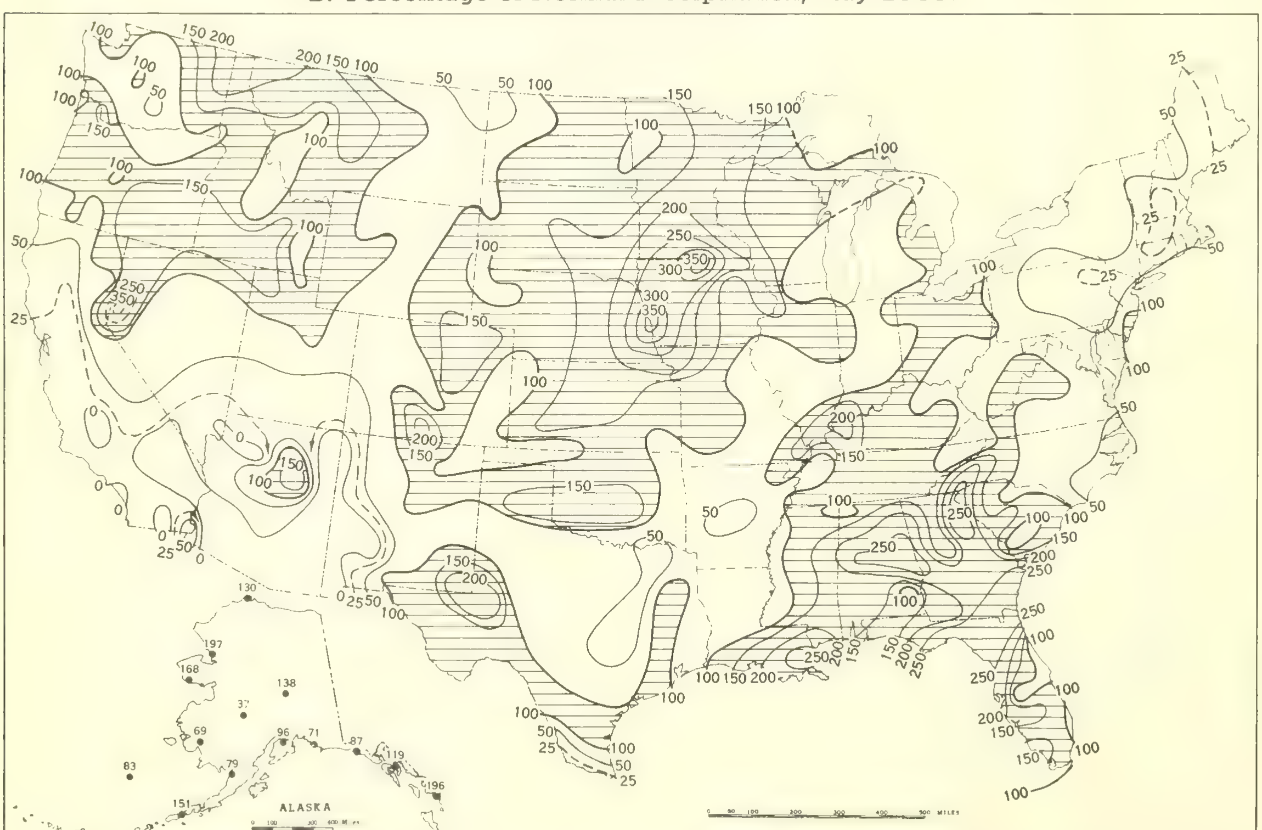


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), May 1959.

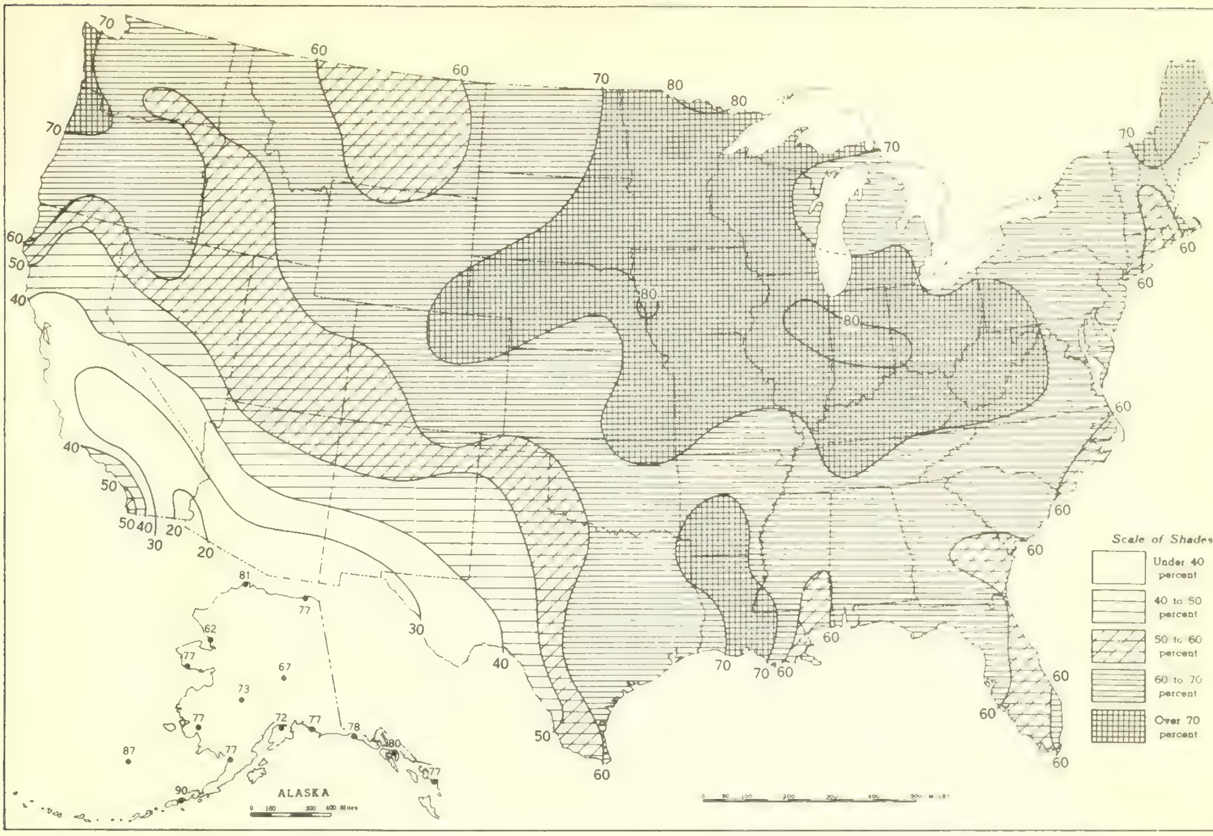


B. Percentage of Normal Precipitation, May 1959.

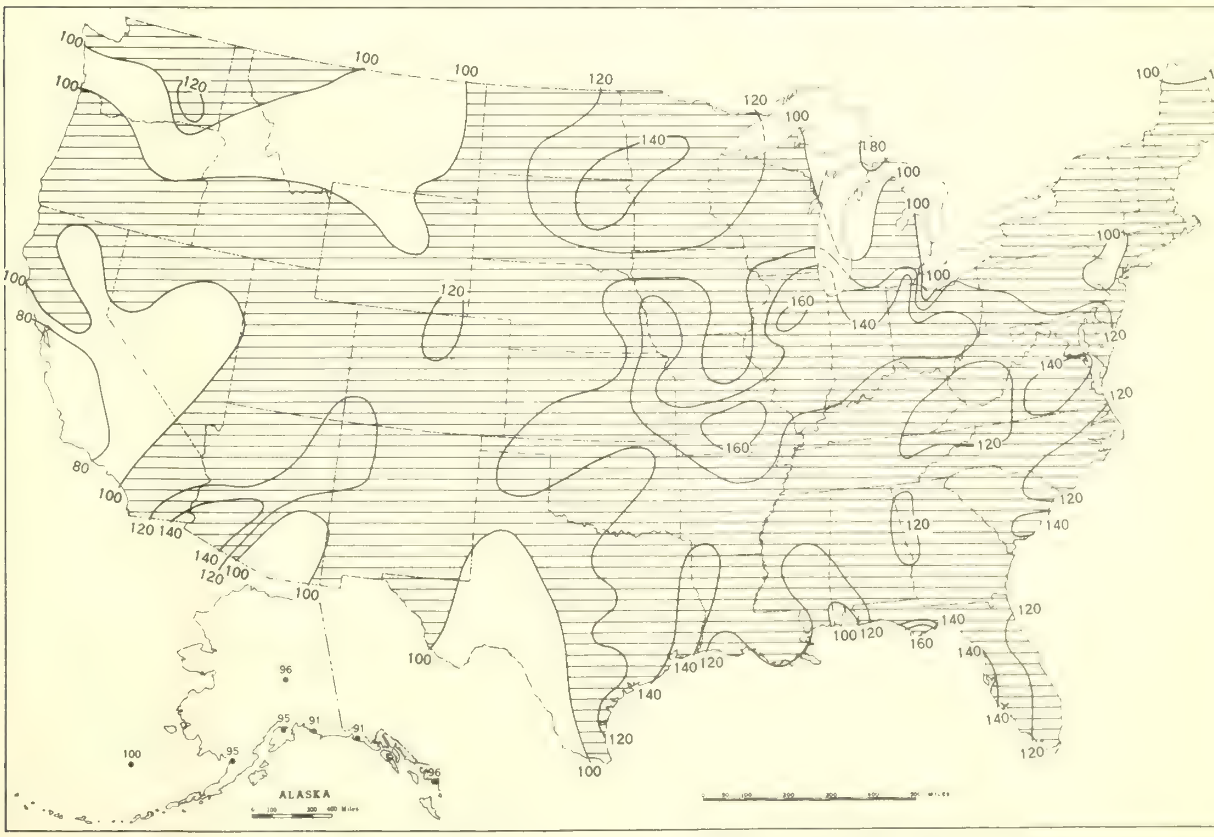


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, May 1959.

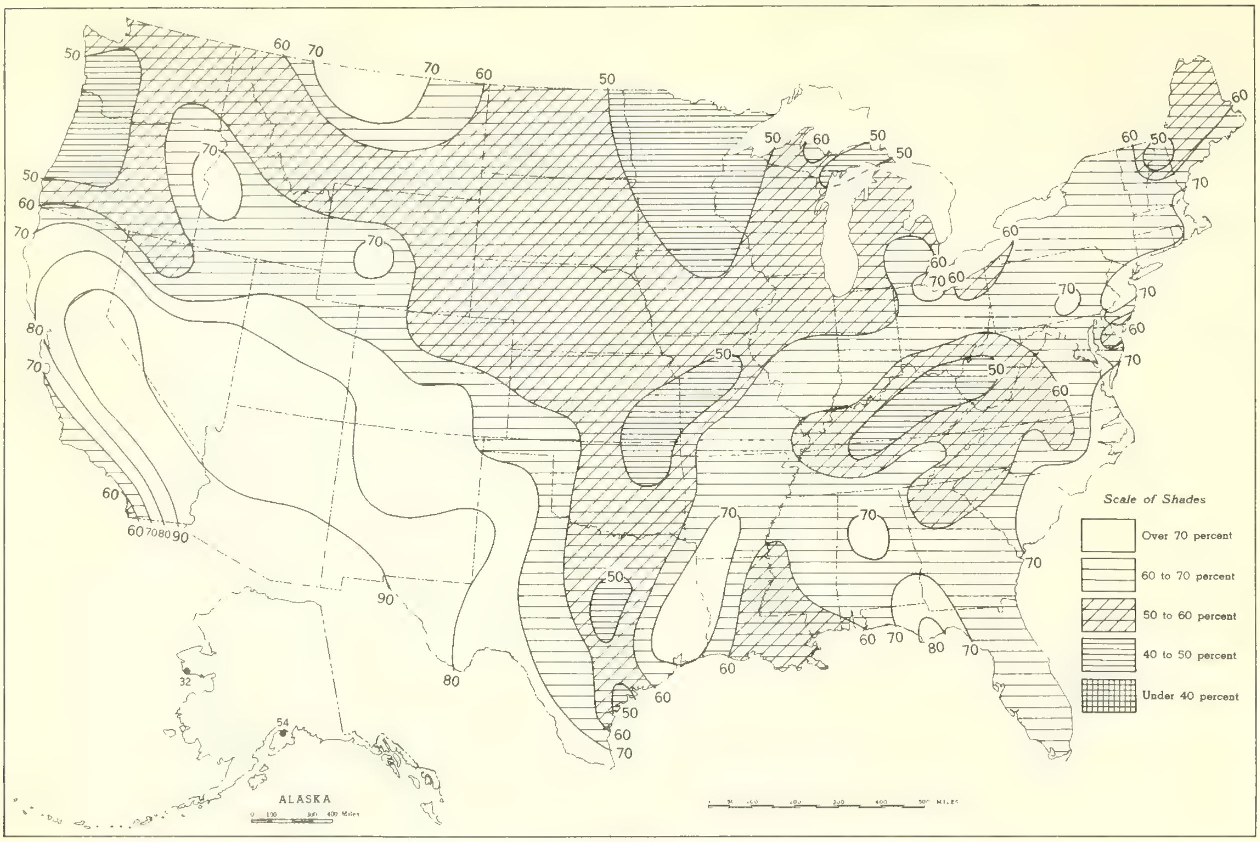


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, May 1959.

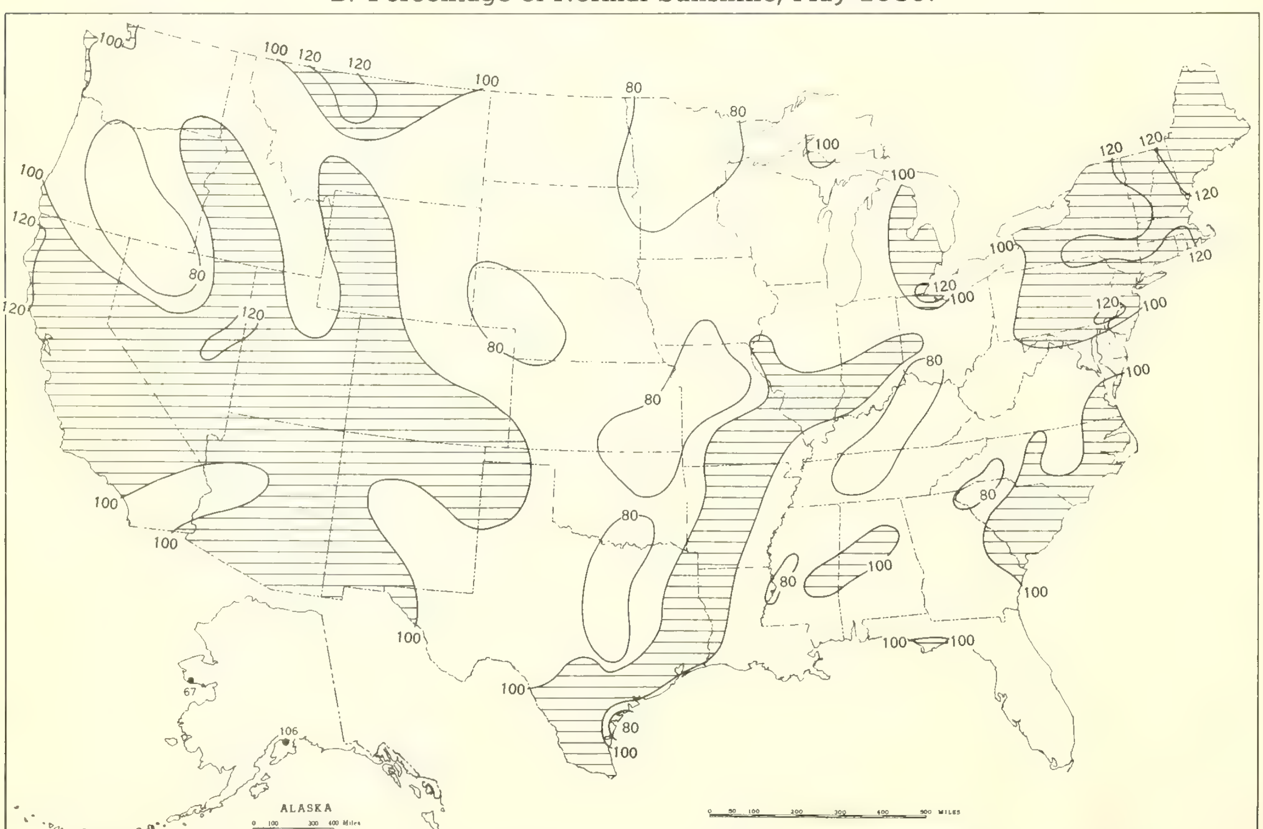


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, May 1959.

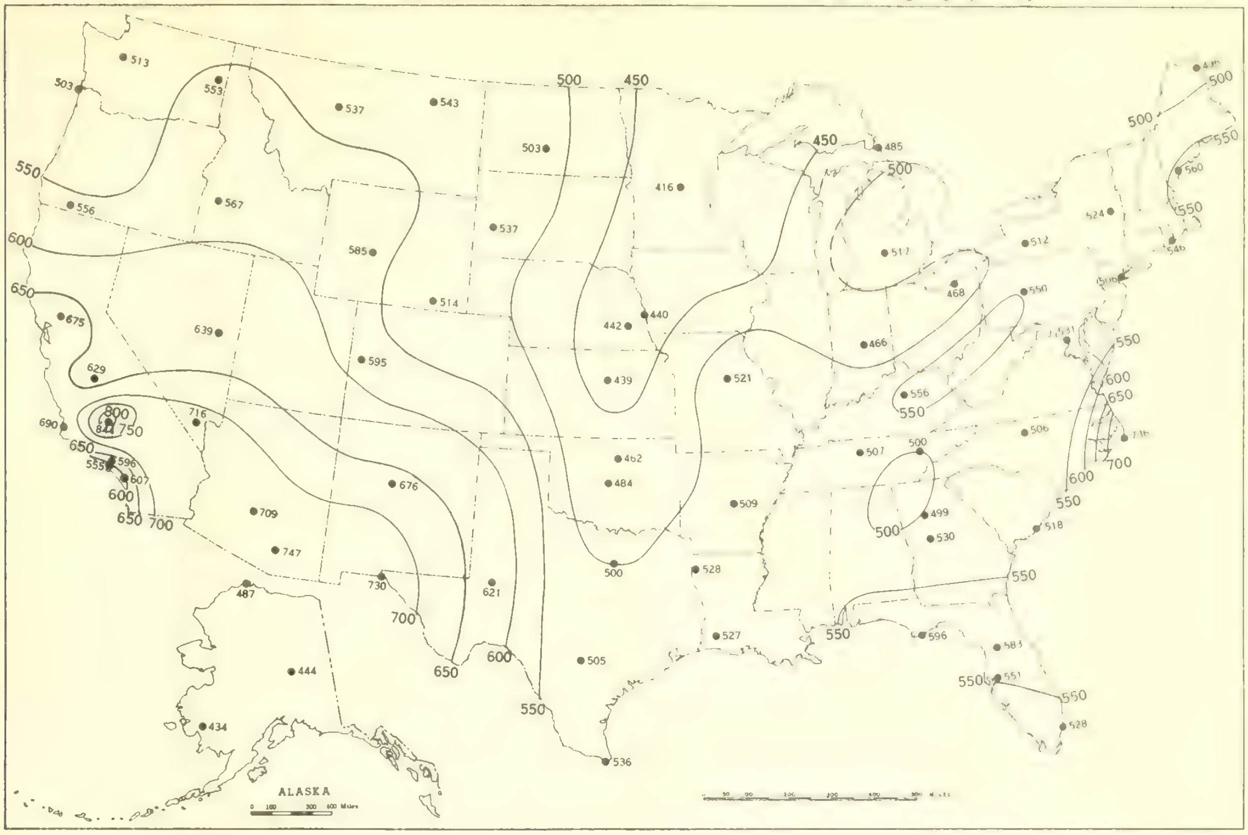


B. Percentage of Normal Sunshine, May 1959.

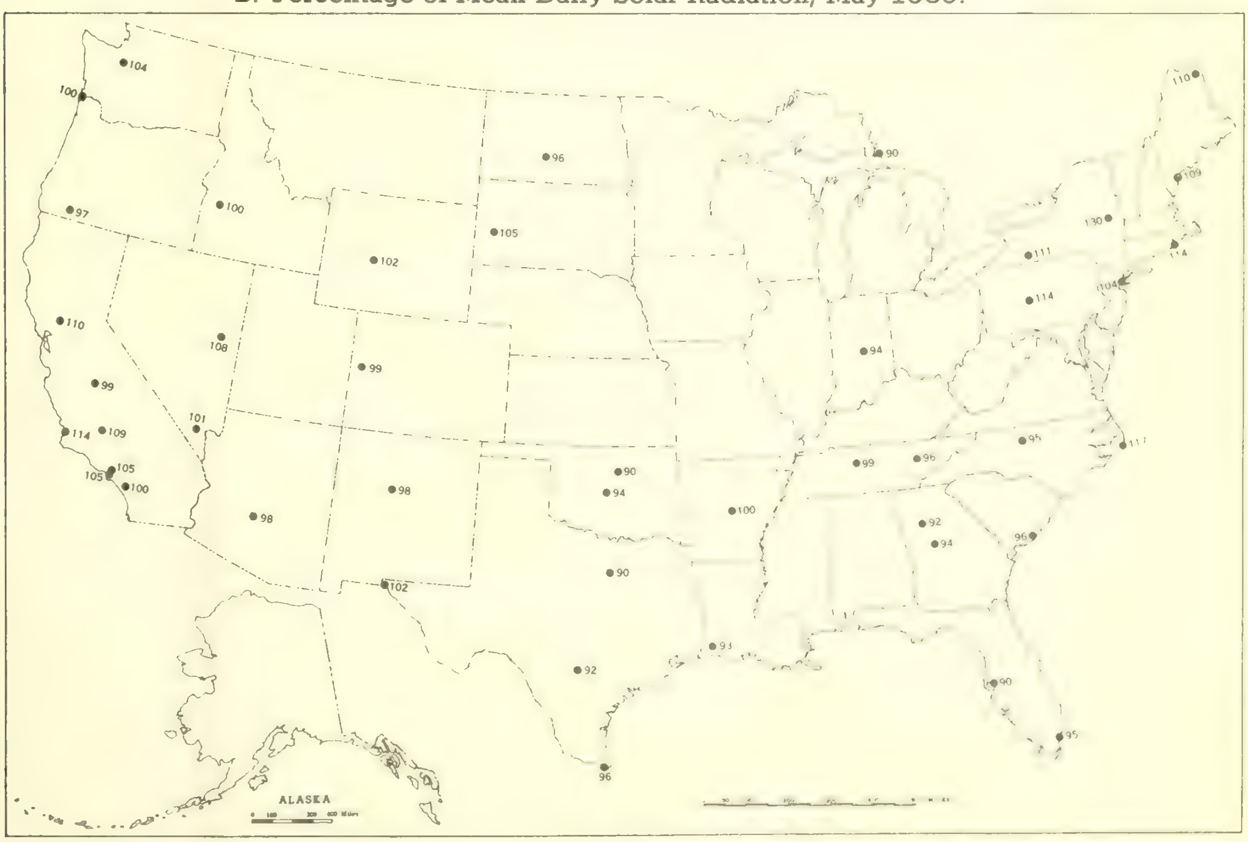


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, May 1959.



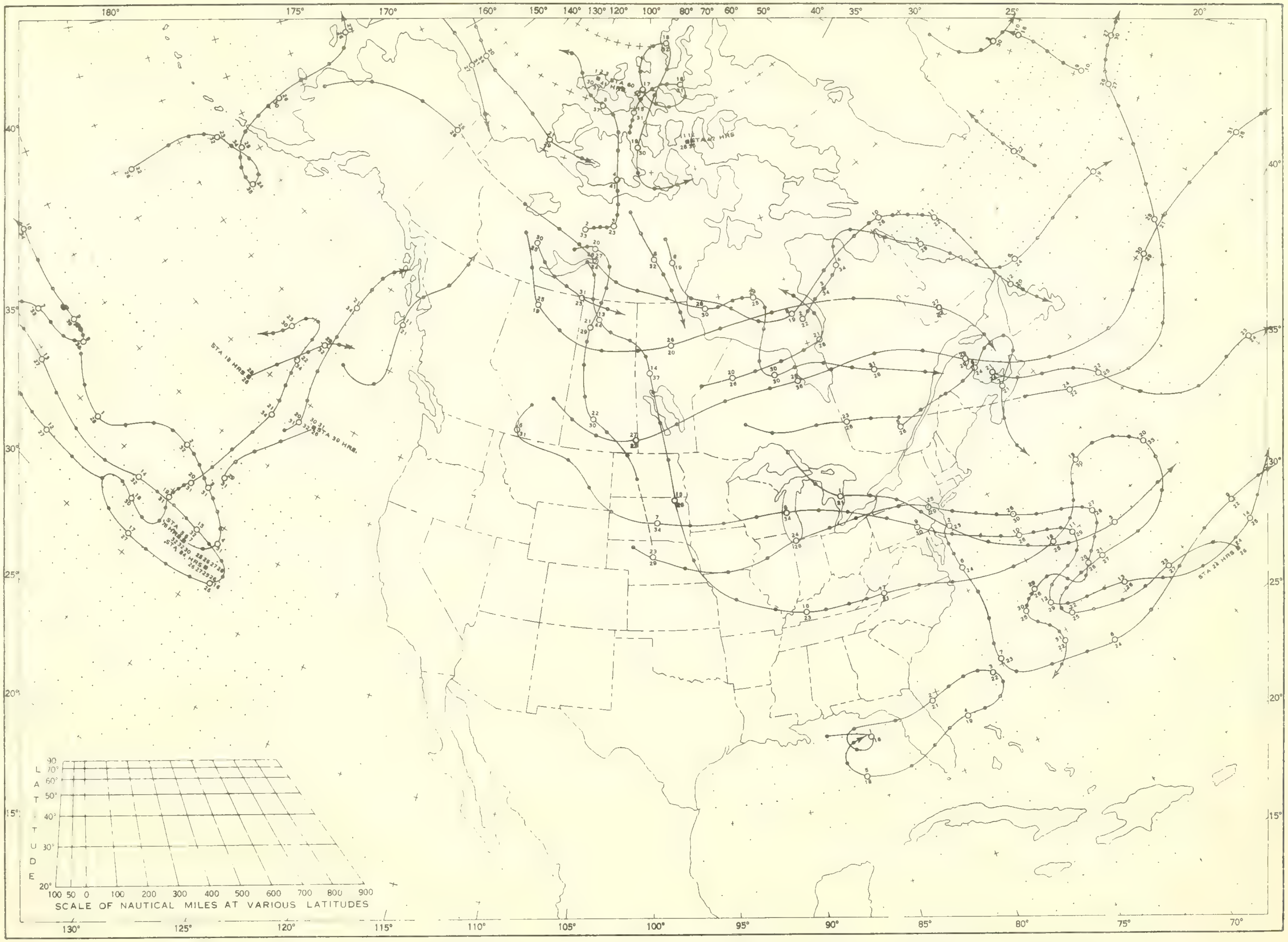
B. Percentage of Mean Daily Solar Radiation, May 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.$^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

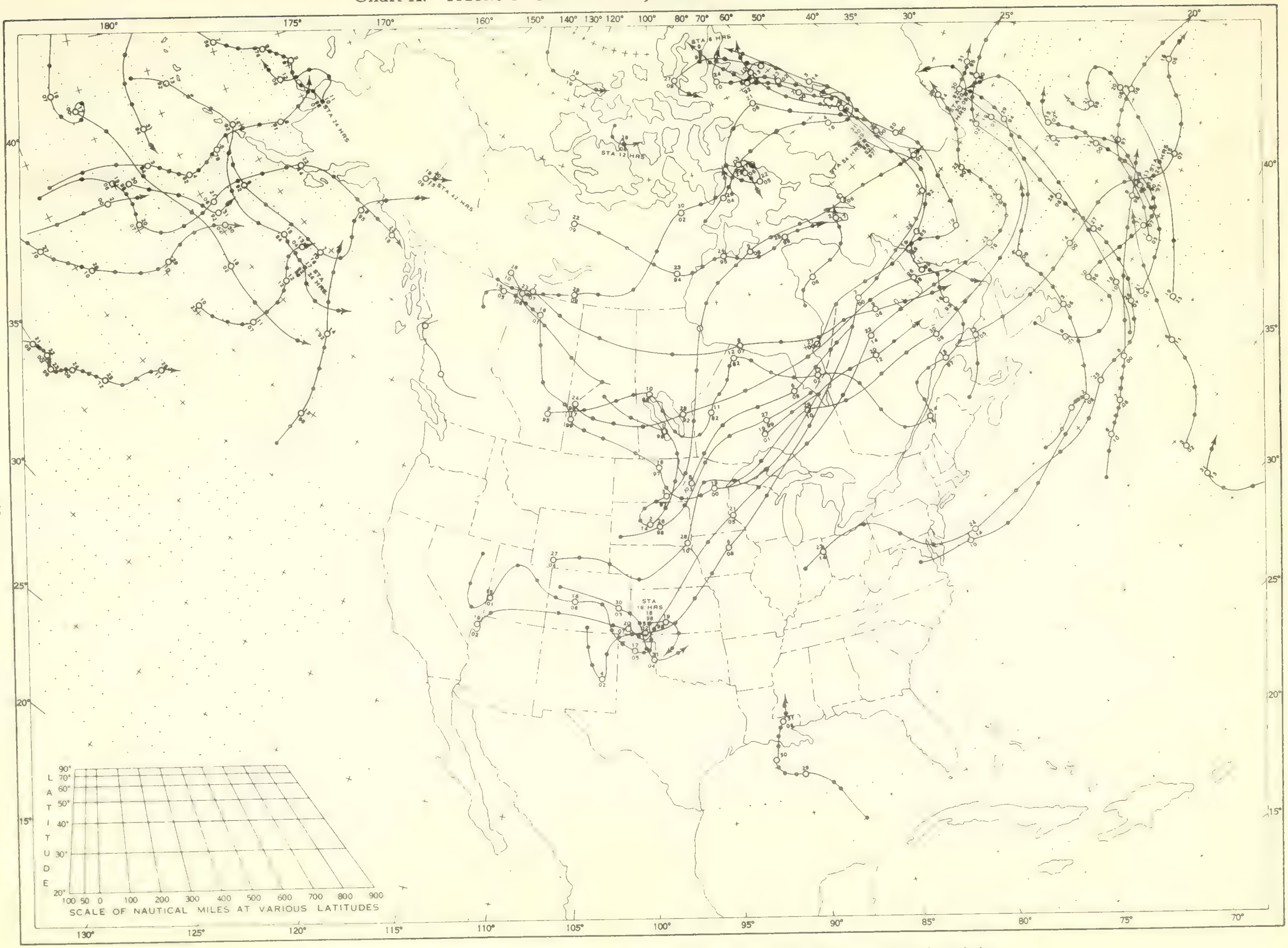
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, May 1959.



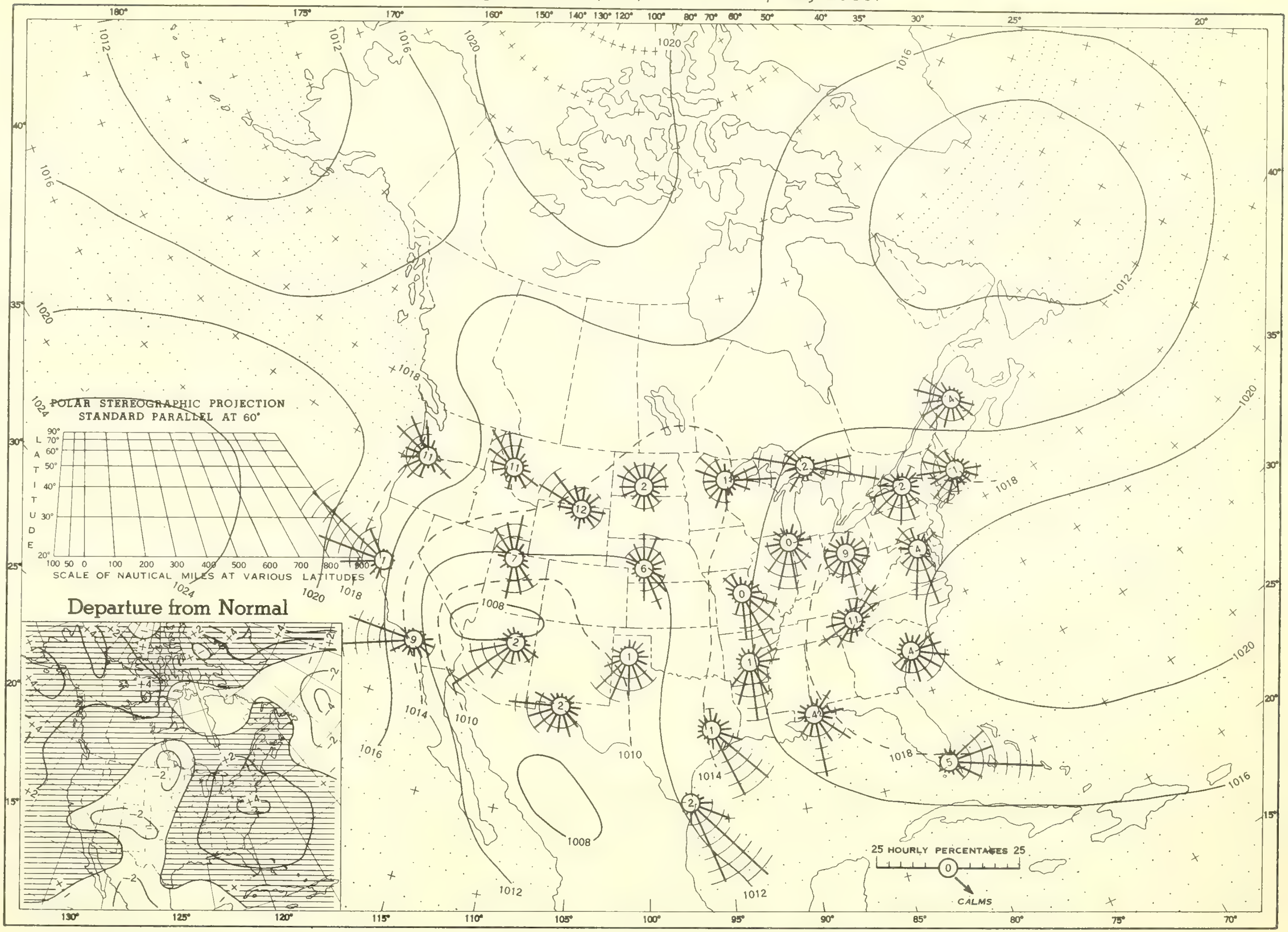
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, May 1959.



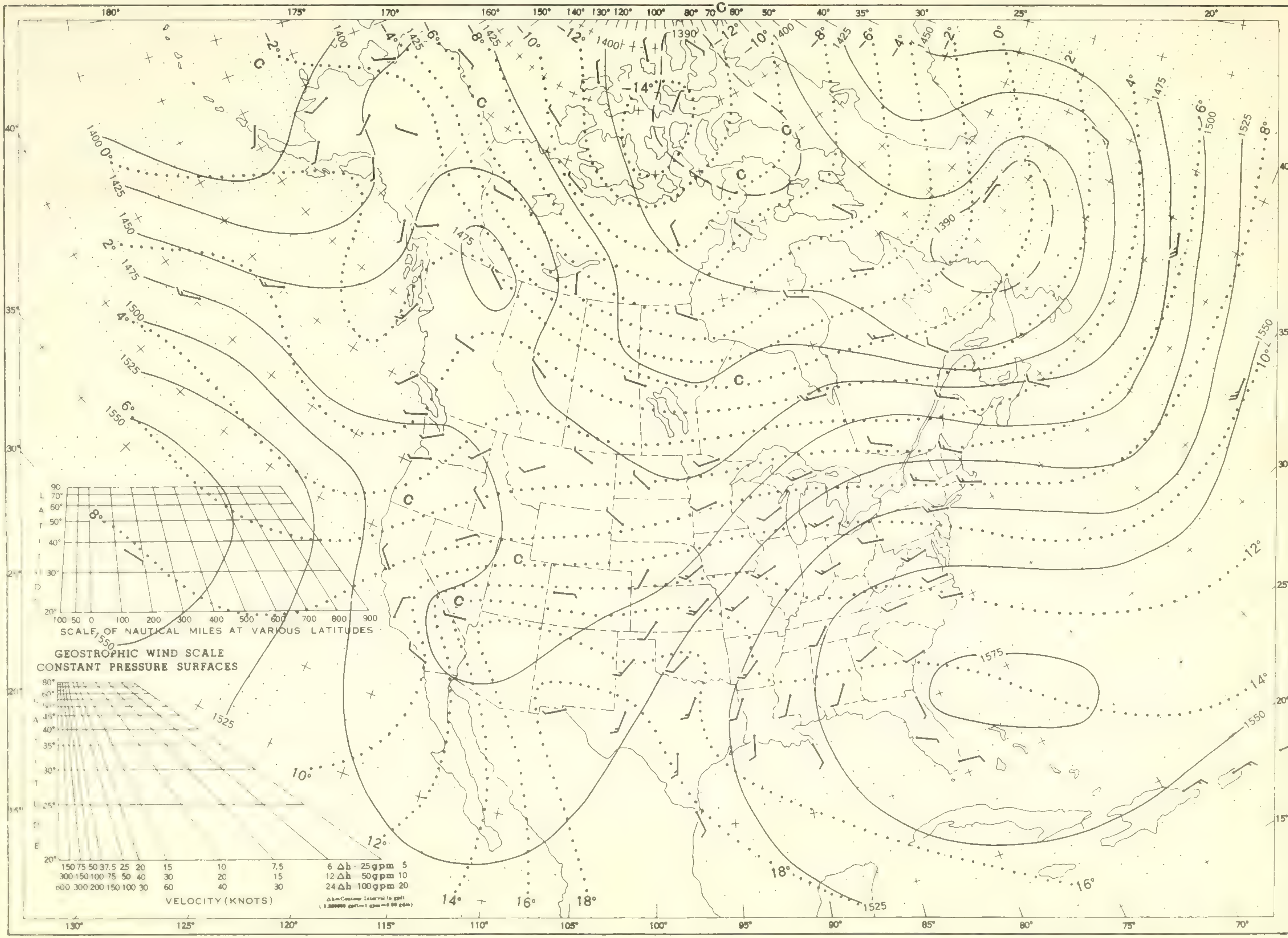
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, May 1959. Inset: Departure of Average Pressure (mb.) from Normal, May 1959.



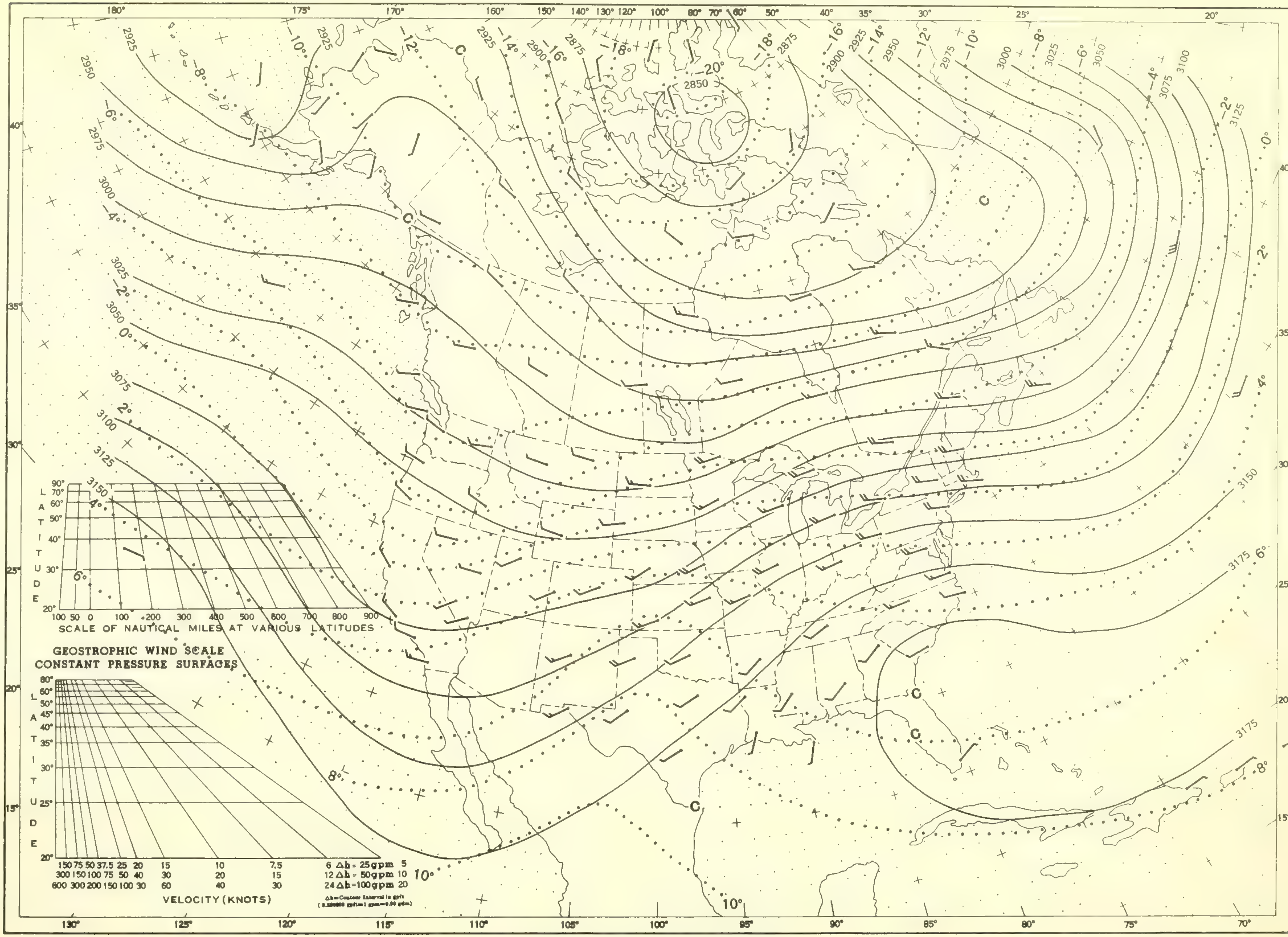
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940

Chart XII. 850-mb. Surface, 1200 GMT, May 1959. Average Height and Temperature, and Resultant Winds.



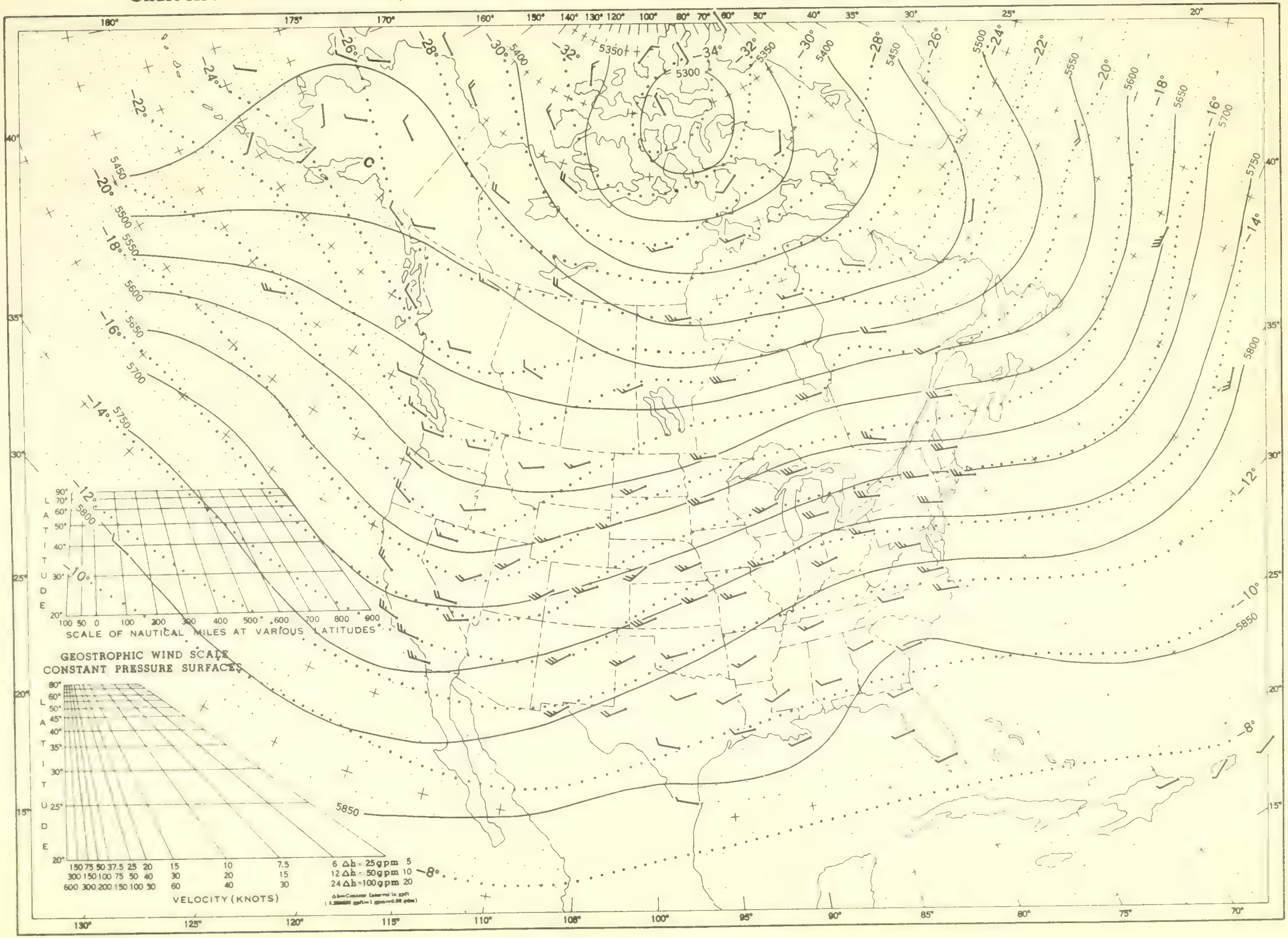
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, May 1959. Average Height and Temperature, and Resultant Winds.



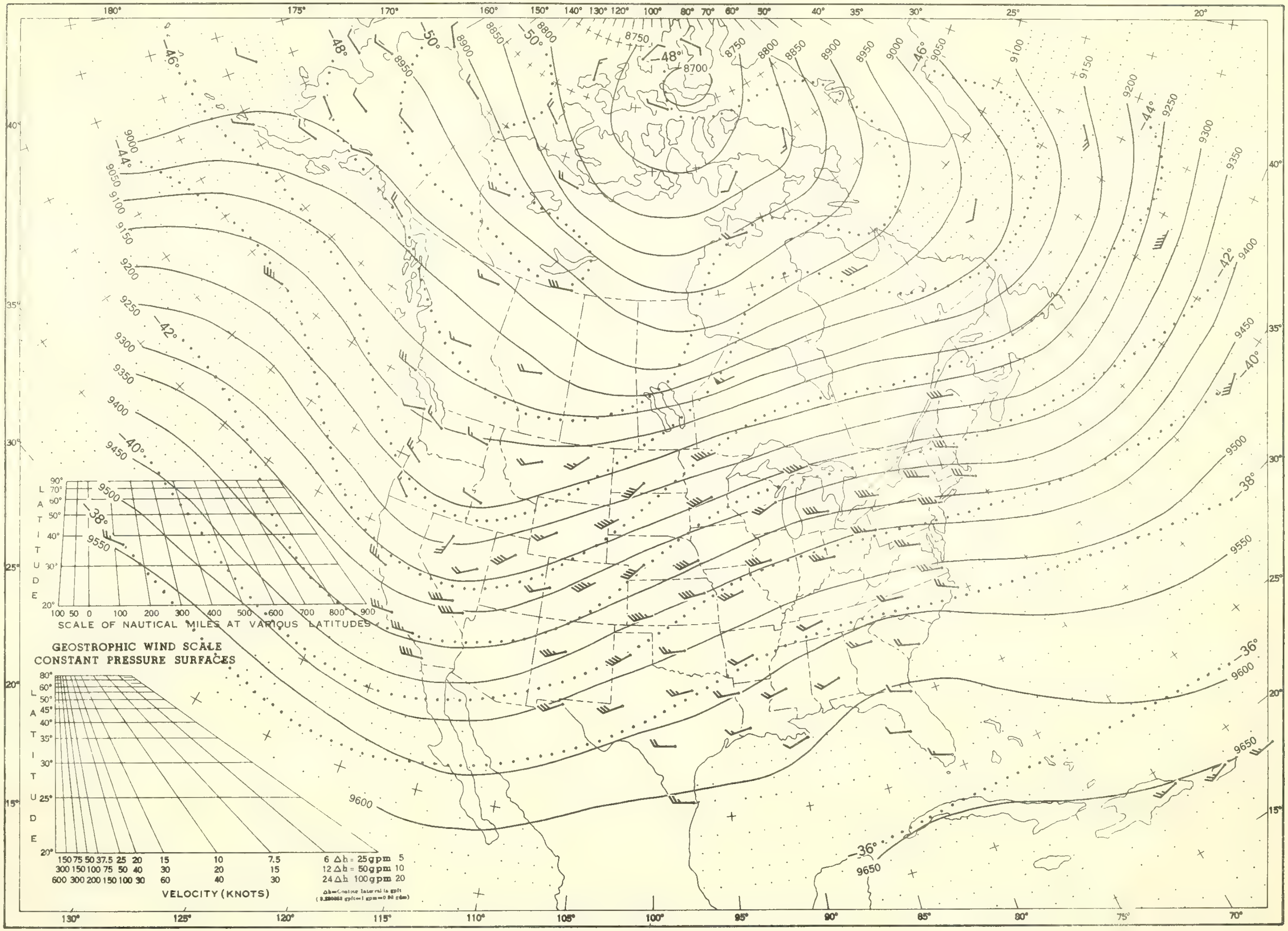
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, May 1959. Average Height and Temperature, and Resultant Winds.



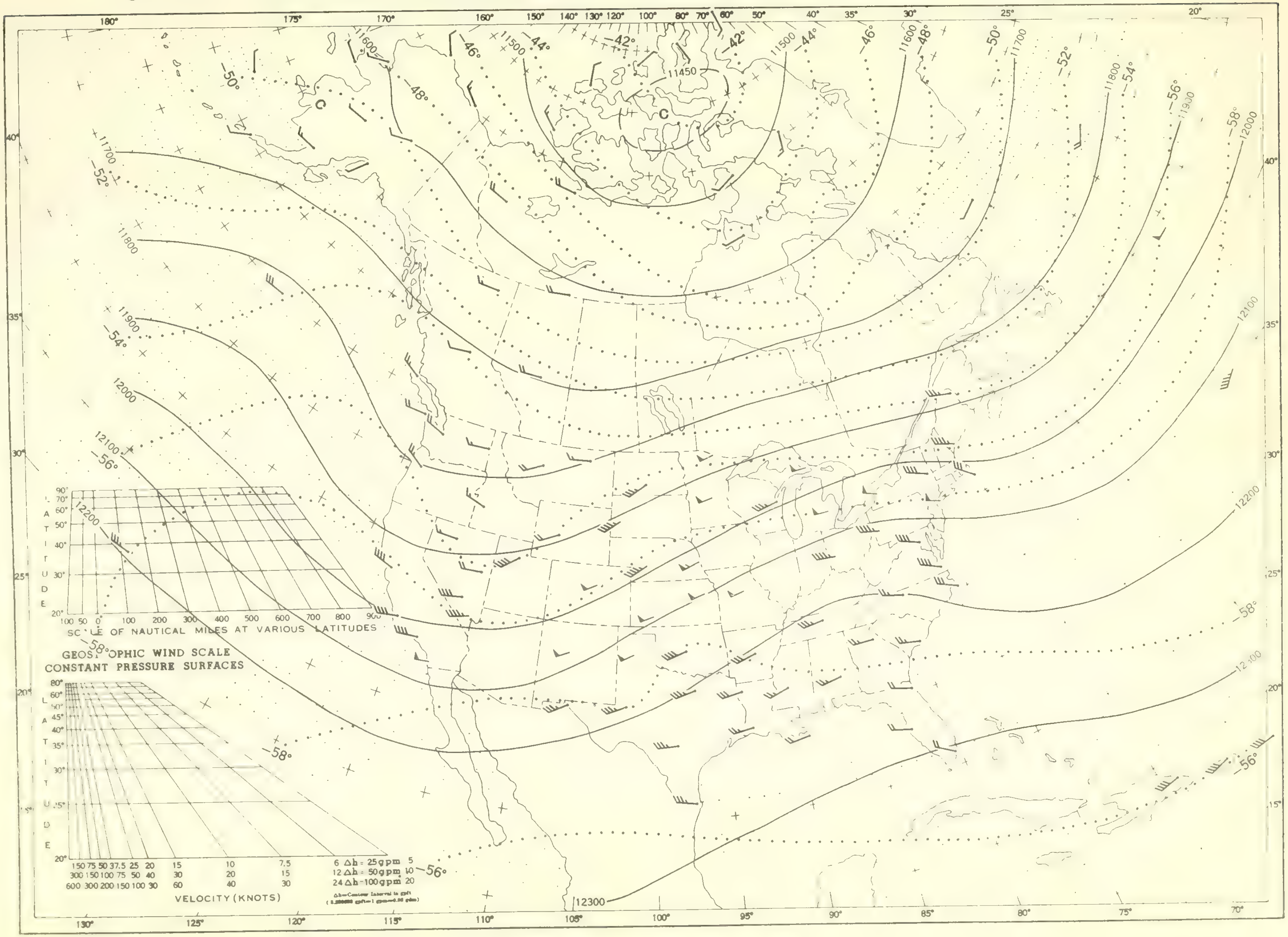
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, May 1959. Average Height and Temperature, and Resultant Winds.



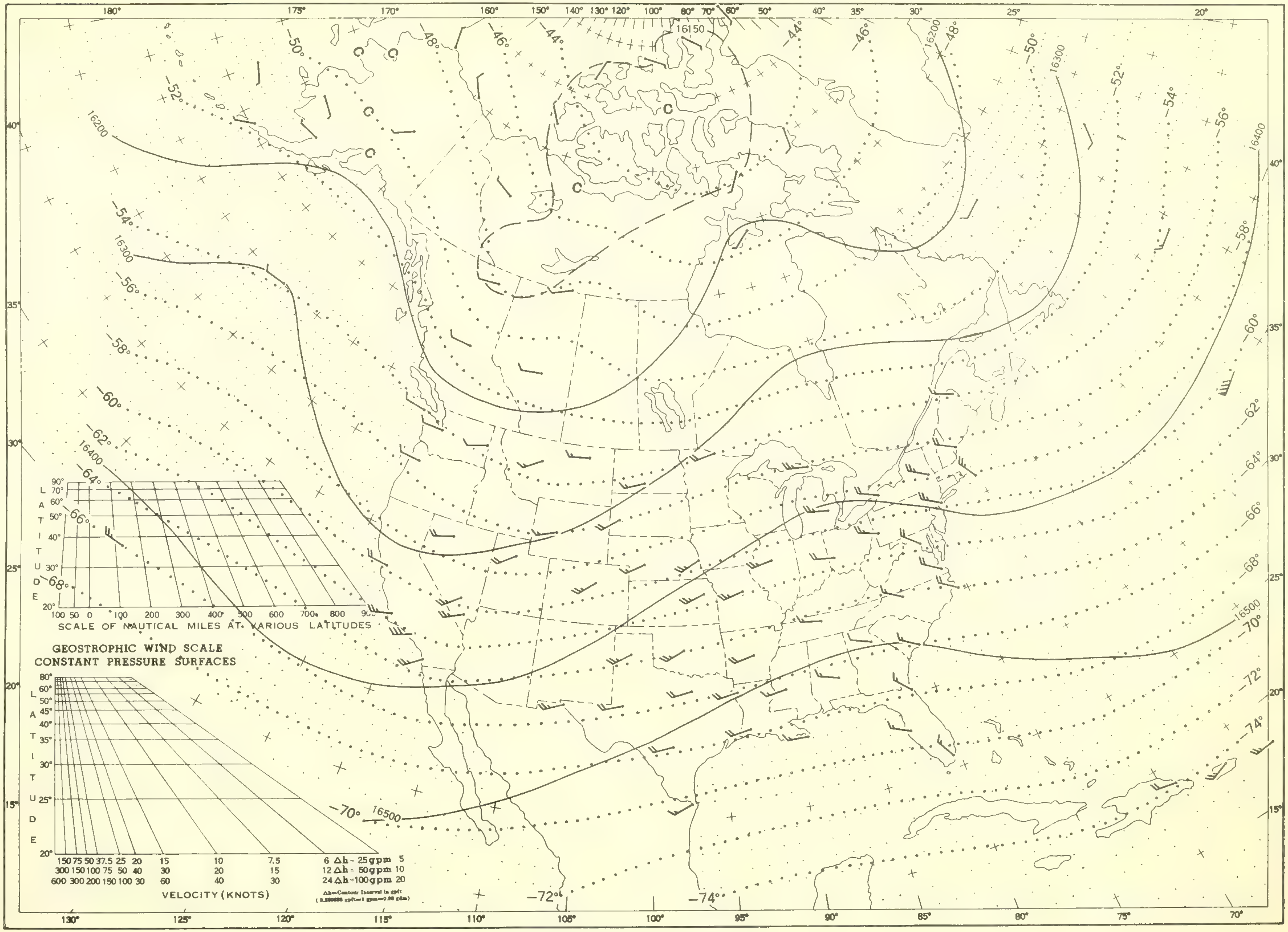
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, May 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, May 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 7/27/59 - 2225

U. S. DEPARTMENT OF COMMERCE
FREDERICK H. MUELLER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

JUNE 1959
Volume 10 No. 6

ASHEVILLE: 1959

C O N T E N T S

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, \$2.50 domestic, \$3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 6 JUNE 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

June was characterized by extreme heat and drought in California and most of the central and southern Rocky Mountain States; cool, cloudy weather in the Pacific Northwest; extreme drought through much of the central Great Plains, Great Lakes, and Ohio Valley; relatively heavy precipitation in most of Texas; near normal temperature and precipitation along the Gulf coast, except for excessive rainfall in the southern half of Florida; a heat wave and inland moisture deficiency in the Middle Atlantic States; and cloudy, cool weather in the Northeast.

Freezing temperatures were confined mostly to a few scattered spots in the Northwest. Snow fell in the mountains of Wyoming and New Hampshire. Flooding occurred only in extremely localized areas as a result of heavy thundershowers. Severe storm damage occurred mostly in Florida, where several tornadoes struck. At the close of the month soil moisture was short in many areas of the interior Southeast, Midwest, Southwest, and Far West. The forest fire danger was becoming great in many areas of the West.

TEMPERATURE.--Temperatures were well above normal from California through the Rocky Mountain States into the northern and central Great Plains, setting a number of new records. New high average temperature records for June were established at Ely, Nev., and Los Angeles, Calif.; the average temperature for Los Angeles was 69.7° and for Ely it was 63.3°. Persistence was characteristic of the heat wave over much of the Far West. For example, it was the hottest June of record for Yuma, Ariz., with the maximum temperature 109° or higher for15 consecutive days. Salt Lake City, Utah, experienced 14 consecutive days of 90° or above, the second longest such June period of record there.

Temperatures were near or slightly below normal throughout most of the South and lower Great Plains and slightly above normal in the Great Lakes region. The middle and southern Atlantic coast and lower Appalachian regions experienced a month of temperature extremes. A dry, cool air mass pushing southward in the middle of June caused exceptionally low temperatures throughout these areas, with the mountains of Tennessee and North Carolina experiencing temperatures in the low 40's. On June 15, 54° at Augusta, Ga.; 49° at Raleigh, N. C.; and 53° at Columbia, S. C., were record lows for so late in the season. Then, a heat wave struck the middle Atlantic coast the last week in June, creating some unusually high temperature readings. Maxima of 96.1° on the 29th at New York City and 101° on the 30th at Washington, D. C., were the highest temperatures for those places since July 22, 1957. 100° on the 30th was the hottest June day for Roanoke, Va., since 1952.

New England also experienced a month of temperature extremes. Temperatures were near normal the first week of June, but hot, humid weather during the middle of the second week reached as far north as central New England, where it was 96° at Boston on the 10th. However, a cold air mass moved in immediately afterwards, producing record low temperatures in the 40's. In the third week, reduced insolation due to cloudiness associated with a stagnant Low off the New England coast produced average temperature departures as much as 9° below normal, and snow was reported in the mountains of New Hampshire. For a further contrast, during the last week 90° readings were common, even in northern Vermont. The net result for New England was a remarkably cool and cloudy month. Hartford, Conn., had 22 cloudy days, a new high record for June. Similarly, Portland, Maine, had 24 cloudy days, equalling the record set in 1878. It was also the coolest June in Portland since 1918.

Cool, cloudy, and showery weather predominated in the Pacific Northwest, where Olympia, Wash., reported only one clear day. A cool spell the second week of June resulted in a few freezing temperatures, with 32° at Burns, Oreg., on the 10th and 30° at Kalispell, Mont., on the 11th. Snow fell in the Big Horn Mountains of Wyoming on the 29th and 30th, with unofficial reports of 7 inches at an elevation of 9,000 feet.

Temperatures were generally above normal in the Great Lakes region, but a cold spell at the middle of the month caused spotty frost damage in St. Joseph County, Indiana, on the 14th.

PRECIPITATION.--During June drought continued in the Far West with the exception of the Pacific Northwest. Many drought records were shattered. Oakland, Calif., experienced its driest June of record. Sacramento, Calif., recorded its driest spring in 110 years of record, and had no rain at all in June. Las Vegas, Nev., has had no measurable precipitation since February 21, 1959, and Tucson, Ariz., has had only 0.32 inch since January 1, 1959. At Phoenix, Ariz., June was the eighth consecutive month with below-normal precipitation. At San Francisco, Calif., the seasonal precipitation from July 1, 1958, to June 30, 1959, equalled the same amount in 1919-20 for the driest such season since 1897-98.

Lack of precipitation, above-normal temperatures, and low relative humidity in California, Nevada, and Colorado, with relatively high average wind speeds in northern California created a widespread forest fire danger. A few fires started by thunderstorms burned over a considerable area around Reno, Nev.

Frequent light showers occurred in Washington and Oregon. The southern portions of Idaho and Montana were also under the influence of the rather general Far Western drought, as Billings, Mont., had its third driest June in 25 years. In direct contrast were the frequent thundershowers over northern Montana, with 2.94 inches on the 26th and 27th at Havre being the heaviest 24-hour rainfall of record there.

Drought conditions also extended from the southern Rocky Mountains and central Great Plains into the central Mississippi Valley, Great Lakes region, and Ohio Valley, setting numerous records of precipitation deficiency throughout the area Columbia, Mo., with only 0.12 inch; Springfield, Ill., 0.23

inch; and Grand Rapids, Mich., 0.59 inch had their driest June of record. Only 1.01 inches at Detroit, Mich., was the least June total there since 1895. Heavy rainfall in Iowa, southern Minnesota, northern Illinois, and southwestern Wisconsin during the last week alleviated the drought in those areas and even caused some flooding by the Root River at Houston and Hokah, Minn., on the 27th and 28th. 4.58 inches at Chicago, Ill., on the 25th caused considerable flooding of basements and viaducts and set June precipitation records for the greatest rainfall in 1-, 2-, 3-, and 24-hour periods. Locally heavy rain caused considerable flooding in the suburbs of Cleveland, Ohio, on the 1st. Toledo, Ohio, had some street flooding from local thunderstorms on the 11th and 26th.

Precipitation averaged near normal over the lower Mississippi Valley and Gulf coast, with the exception of southern Florida, as heavy rains the first 2 weeks of June were balanced by little rainfall the last 2 weeks. Excessive rainfall in southern Florida during the third week totaled 6 inches or more, with 15 inches falling at Fort Myers. There was considerable flooding of pastures and farmlands.

Abundant rainfall occurred over much of Texas. Abilene, with 7.22 inches, had its second greatest June rainfall since 1886 and 7.25 inches at Lubbock was the greatest June precipitation there since 1921. Local flash flooding from thunderstorms occurred at Fort Worth on the 22d and at Corpus Christi on the 5th.

Rainfall along the mid-Atlantic coast and in the Northeast was near normal, but interior sections of Alabama, Georgia, Virginia, and the Carolinas suffered from extreme dryness. Winston-Salem, N. C., had no measurable rain for 12 consecutive days, a record for June. On the 12th, locally heavy rains amounted to 2.00 inches in 1 hour and 15 minutes at Colden, N. Y., a station south of Buffalo.

SEVERE STORMS.--Florida made most of the storm news for June, as hail, heavy rains, high winds, funnel clouds, and tornadoes occurred frequently. At Miami, Fla., on the 17th a severe tornado injured 100 persons, felled thousands of trees and utility poles, and caused extensive damage to dwellings, stores, and automobiles in its path. Miami had waterspouts on the 8th and 25th and 78 m.p.h., gusts on the 3d. Tornadoes were also reported at Fort Myers on the 27th and in Palm Beach County on the 18th. Hail 1/2 inch in diameter fell at Orlando on the 5th.

In numerous other localities scattered throughout the country small hail occurred in conjunction with local thunderstorms, and there were some reports of unusually large hail. Grapefruit-size hailstones accompanied by winds of at least 83 m.p.h., were reported at Grand Island, Neb., on the 27th. On the 3d, Selden, Kans., unofficially measured 15 to 18 inches of hail on a level surface over approximately a 10-square-mile area. Residents of Selden reported that pea-sized hail fell steadily for 2 hours, and was accompanied by little wind. The Fargo-Moorhead area of North Dakota had winds up to 115 m.p.h., large hail, and a tornado on the 9th. Tornadoes also occurred in Green Bay, Wis., on the 10th; Celeron, N. Y., on the 12th; and Port Arthur, Tex., on the 14th. Corpus Christi, Tex., reported six waterspouts.

CONDENSED CLIMATOLOGICAL SUMMARY

JUNE 1959

Section	Temperature: Monthly extremes						Precipitation: Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	2 Stations	102	30	2 Stations	49	18+	Citronelle	14.32	Dayton	1.07
Arizona	Bouse	119	23	do	21	1	Santa Rita Exp Range	4.43	33 Stations	.00
Arkansas	Monticello 3S	99	29	Eureka Springs	46	3	Alum Fork	15.01	St. Charles	1.14
California	Cow Creek	124	23	White Mountain 2	20	29+	Jess Valley	.79	420 Stations	.00
Colorado	Gateway 1SW	104	23	3 Stations	21	2+	Limon 8SSW	4.67	La Junta FAA AP	.04
Connecticut	4 Stations	96	30+	Coventry	38	1	Groton	6.76	Baltic	3.19
Delaware	2 Stations	102	30+	Selbyville	42	18	Wilmington Porter Res.	6.06	Milford	1.41
Florida	4 Stations	101	30+	3 Stations	60	13+	Loxahatchee	22.71	Cedar Key	1.40
Georgia	Warrenton	110	30	Blairsville Exp Sta.	43	20	Lincolnton	9.15	Jonesboro	.74
Idaho	3 Stations	106	20	2 Stations	20	10+	Sugar	3.61	Shoshone 1WNW	.06
Illinois	Lincoln	100	29	Danville	40	14	Chicago WB AP	5.94	Barry	.00
Indiana	Terre Haute 8S	101	30	2 Stations	37	14	Warsaw	7.16	Henryville	.44
Iowa	Lake Park	99	16	Saratoga 2E	38	23	Oelwein 2SE	10.34	Keokuk L and D 19	1.16
Kansas	2 Stations	106	27+	Russell Springs	40	2	McFarland	9.12	Marion	.25
Kentucky	Louisville WB AP	100	29	Blaine	40	19+	Delphia 1E	6.24	Gest Lock 3	.39
Louisiana	Donaldsonville	100	30	2 Stations	57	21	Buras 2SE	18.14	Point Au Fer Reef	.36
Maine	Portland	94	10	Squa Pan Dam	32	24	Millinocket FAA AP	9.69	Caribou WB AP	3.59
Maryland	Keedysville	103	30+	New Germany	35	18	Clear Spring 1ENE	5.50	2 Stations	.99
Massachusetts	2 Stations	97	30+	Weston	37	1	Spot Pond	10.48	Petersham 3N	2.35
Michigan	Charlotte	99	28	3 Stations	29	23+	Bergland Dam	5.90	Muskegon WB Airport	.19
Minnesota	2 Stations	101	17+	Hoyt Lakes 5N	33	30	Preston	8.51	Long Prairie	.70
Mississippi	Charleston	101	30	Ripley	52	19	Merrill	17.43	White Oak	1.05
Missouri	Berryman 6NW	99	30	Berryman 6NW	39	15+	Zalma	6.36	Troy	T
Montana	Lambert	107	14	Dell 12SSW	19	3	Medicine Lake 3SE	8.97	Drummond FAA AP	.47
Nebraska	Beaver City	105	14	2 Stations	36	2+	Herman	7.36	Haigler	.75
Nevada	North Las Vegas Dox	118	23	Rand Ranch Palisade	23	2+	Deeth	2.74	22 Stations	.00
New Hampshire	Manchester	96	29+	Fabyan	33	24	Dixville Notch	8.50	Grafton	2.65
New Jersey	4 Stations	100	30+	Charlotteburg	41	20	High Point Park	7.14	Cape May 3W	.90
New Mexico	Jal	108	11	Luna RS	22	1	Dawson	6.56	9 Stations	.00
New York	Poughkeepsie	102	30	2 Stations	32	17+	Croton Lake	6.61	Watertown FAA AP	.49
North Carolina	Lake Michie	107	30	Celo 2S	31	15	Clingmans Dome	11.28	Manteo	.51
North Dakota	Velva	104	6	Willow City	28	13	Amenia	7.34	Pretty Rock	1.13
Ohio	Cincinnati WB City	99	29	2 Stations	35	14	Apco Ravenna Arsenal	7.04	Pleasant Hill 1NW	.55
Oklahoma	Blackwell 1W	108	18	Kenton	44	2	Wewoka 3W	9.49	Regnier	.25
Oregon	2 Stations	107	20+	Fremont	19	[illegible]	Cloverdale 1NW	6.67	3 Stations	T
Pennsylvania	Everett 1SW	102	30	Donegal	30	17	Matamoras	7.51	Hyndman	1.15
Puerto Rico	2 Stations	96	26+	Garzas Dam	51	2	Coloso	20.08	2 Stations	.00
Rhode Island	do	92	30+	Kingston	42	15	Kingston	6.92	Block Island WB AP	4.26
South Carolina	Aiken	106	30	Landrum 5ENE	46	15	Great Falls	8.39	Pickens 2SE	.70
South Dakota	Usta 9WNW	106	15	Deerfield 5NW	25	1	Deerfield 5NW	6.39	Aberdeen FAA AP	.50
Tennessee	Rogersville 1NE	99	30	Mountain City 2	35	15	Monte Le Conte	10.99	Chickamauga Dam	1.20
Texas	Presidio	114	22	Dumas	46	2	Slidell	13.46	Sanderson	.00
Utah	Zion NP	108	23	Soldier Summit	20	1	Castle Rock	2.47	Cisco	.00
Vermont	Vernon	96	30	Somerset	37	15	Bloomfield	6.97	St. Albans Bay	.94
Virginia	Warsaw 2N	105	30	Chilhowie 1S	35	15	Falls Church 2SW	6.20	Meadows of Dan 5SW	.60
Washington	2 Stations	100	20+	Blue Glacier	23	10	Carbonado 8SSE	7.21	Quincy 3S	.03
West Virginia	Berkely Springs	102	30	Kumbrabow State Forest	31	18	Pickens 1	6.15	Bluefield Mercer Co AP	.75
Wisconsin	2 Stations	94	26+	Laona 4SSW	31	17	Genoa Dam 8	8.35	Washington Island 1N	.58
Wyoming	Redbird	104	15	2 Stations	20	11+	Fort Laramie 11NNW	6.02	Cody 23SW	.01
Hawaii	2 Stations	91	27+	Haleakala Summit	34	13+	Mountain View 91	7.35	21 Stations	.00

+ And also on an earlier date or dates.

Note: Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

JUNE 1959

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Date	Temperature: Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.		#		°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Birmingham	610	990.5	1015.6	87	67	77.2	-0.2	98	30	59	20+	12	0	66	73	2.09	-2.12	0.69	10	3	0.0	0	7.8	N	40	SW	23	3	13	14	6.8	71
Huntsville	605	992.8	1015.6	88	65	76.6	----	98	30	56	15	11	0	65	71	3.65	----	1.89	8	4	.0	0	6.0	ESE	*20	WNW	23	7	11	12	6.1	---
Mobile	211	1012.5	1014.8	87	71	78.9	-.7	96	29	67	29+	13	0	70	77	9.47	3.38	3.32	10	9	.0	0	9.2	S	*44	NE	29	4	14	12	6.4	---
Montgomery	195	1006.9	1015.0	90	70	79.9	.1	101	30	64	4	18	0	69	74	1.91	-2.78	.66	8	6	.0	0	5.4	S	28	SW	23	5	11	14	6.5	59
ALASKA																																
Anchorage	92	1007.5	1013.2	66	47	56.6	2.9	77	18	40	5	9	0	45	64	.26	-.63	.23	3	1	.0	0	6.9	WNW	*22	S	23	7	14	9	6.0	60
Annette	110	1009.5	1013.7	60	49	54.3	.0	70	24	43	5	1	0	48	81	6.33	1.64	2.58	15	0	.0	0	10.7	S	*44	SSE	4	0	6	24	8.7	---
Barrow	22	1016.9	1017.8	38	30	34.0	.1	62	26	15	3	0	19	31	91	.19	-.09	.08	5	0	.1	3	12.0	E	29	E	16	7	3	20	7.1	---
Barter Island	39	1015.9	1017.7	37	27	31.8	-3.5	48	10	18	2	0	28	29	89	.13	-.29	.13	1	0	T	3	12.4	E	*28	E	4	7	8	15	6.7	---
Bethel	125	1013.2	1014.8	60	42	51.4	-1.2	86	19	35	5	3	0	43	75	.85	-.35	.44	7	0	.0	0	11.8	NW	*32	S	16	4	4	22	7.9	---
Cold Bay	90	1012.5	1016.5	48	39	43.2	-2.5	56	22	34	11	0	0	40	87	2.08	-.56	.84	15	0	.0	0	16.1	NW	*63	SSE	15	0	3	27	9.5	---
Cordova	40	1011.9	1013.6	63	46	54.2	4.9	79	12	39	5	5	0	47	76	.80	-3.39	.46	11	0	.0	0	3.9	ENE	*17	W	4+	4	8	18	7.5	---
Fairbanks	436	995.3	1012.5	75	48	61.5	2.2	86	19+	34	11	24	0	45	58	1.19	-.18	.38	9	5	.0	0	5.9	NNE	*20	W	8	3	14	13	6.8	---
Juneau	15	1011.5	1012.5	65	46	55.2	1.6	77	19	40	6+	9	0	46	73	1.36	-1.82	.48	15	1	.0	0	8.5	NNW	*26	ESE	8	3	6	21	7.9	45
King Salmon	44	1012.2	1014.3	63	41	52.1	.7	80	18	33	6	6	0	43	76	.26	-1.38	.17	7	0	.0	0	9.8	SW	*25	S	16	2	9	19	7.9	---
Kotzebue	10	1014.2	1014.6	51	37	44.0	.7	67	27+	27	1	0	9	39	86	.52	.03	.35	5	0	T	T	11.9	W	*30	W	7	8	12	10	5.5	---
McGrath	334	1000.7	1013.2	70	46	58.2	2.5	84	20	36	9+	18	0	43	60	1.08	-.98	.42	11	9	.0	0	5.9	WNW	*22	N	4	4	10	16	7.1	---
Nome	13	1014.2	1014.7	52	40	45.7	-.1	69	27	31	18	0	1	40	81	.78	-.30	.40	10	0	T	T	11.7	WSW	*29	WSW	29+	3	9	18	7.6	43
St. Paul Island	22	1015.6	1016.6	44	37	40.3	-1.2	48	18	30	2	0	2	38	90	1.06	-.25	.35	12	0	.0	0	----	---	--	---	--	1	2	27	9.3	---
Yakutat	28	1012.2	1013.4	61	46	53.3	3.8	72	19+	35	8	2	0	48	80	.68	-4.28	.22	5	0	.0	0	7.7	WSW	*23	SSE	3	4	7	19	7.4	---
ARIZONA																																
Flagstaff	6993	------	------	79	45	61.8	3.5	87	17	30	1	0	1	--	--	.77	.24	.30	8	9	.0	0	----	---	--	---	--	17	10	3	3.6	---
Phoenix	1109	968.5	1006.2	105	76	90.3	6.4	112	23	63	2+	30	0	46	23	T	-.06	T	0	0	.0	0	7.2	NE	*35	ENE	13	20	8	2	2.1	93
Prescott	5014	846.3	1009.4	90	57	73.5	3.4	99	17	46	1	15	0	33	--	.39	.16	.29	2	7	.0	0	11.1	S	42	SW	10	19	9	2	2.9	83
Tucson	2584	921.4	1006.7	100	71	85.4	3.3	107	24+	59	5	30	0	39	22	T	-.30	T	0	5	.0	0	9.7	S	34	NW	19	19	7	4	3.0	87
Winslow	4880	850.7	1007.7	92	58	75.1	3.7	101	24	47	1	24	0	34	26	.36	.07	.17	6	6	.0	0	10.6	SW	*39	SE	25	17	8	5	3.3	---
Yuma	199	1001.0	1005.9	107	77	92.0	4.2	116	23	66	1	30	0	46	24	.00	-.01	.00	0	0	.0	0	8.6	S	27	W	27	28	2	0	.7	97
ARKANSAS																																
Fort Smith	458	997.3	1013.8	88	67	77.3	-1.0	96	30+	56	3	13	0	67	74	5.70	1.39	2.93	9	6	.0	0	7.5	NE	57	NE	11	13	6	11	5.3	64
Little Rock	257	1002.0	1014.9	86	69	77.4	-1.1	95	30	61	15+	8	0	66	72	6.16	2.73	1.91	11	7	.0	0	8.5	S	33	W	11+	9	8	13	5.5	75
Texarkana	361	------	1014.1	87	69	77.5	-2.4	94	18	60	15	11	0	--	--	5.57	1.72	1.90	11	5	.0	0	6.8	ENE	--	---	--	--	--	--	---	---
CALIFORNIA																																
Bakersfield	494	992.6	1010.2	94	65	79.6	2.7	108	20	54	7	22	0	50	37	.00	-.09	.00	0	0	.0	0	9.0	NW	*35	NNW	6	25	5	0	.9	---
Bishop	4108	871.0	1008.5	95	52	73.6	4.2	105	22	42	1	27	0	--	--	.01	-.09	.01	1	3	.0	0	----	---	--	---	--	25	4	1	1.8	---
Blue Canyon	5280	839.1	1011.2	73	54	63.5	4.5	85	23+	42	7	0	0	--	--	T	-1.04	T	0	1	.0	0	7.2	SSW	24	ENE	18	22	7	1	1.9	---
Burbank	699	985.4	1011.8	83	60	71.0	3.5	91	20	54	2	4	0	57	67	T	-.07	T	0	0	.0	0	3.8	ESE	*13	S	29	21	8	1	2.4	---
Eureka (U)	43	1015.6	1018.0	61	51	56.0	.4	66	17	47	14+	0	0	--	--	.25	-.41	.12	5	0	.0	0	7.0	N	23	N	28+	5	12	13	6.7	56
Fresno	331	998.3	1010.0	93	60	76.4	.7	106	21+	50	7	19	0	46	37	.00	-.11	.00	0	0	.0	0	8.5	NW	24	NW	6	27	3	0	.8	100
Long Beach	34	1010.8	1011.8	79	61	69.9	----	87	14	55	2	0	0	59	72	T	----	T	0	0	.0	0	7.1	S	*20	SE	28	15	14	1	3.7	---
Los Angeles (U)	312	------	------	81	62	71.5	3.7	88	23	57	2	0	0	59	70	T	-.07	T	0	0	.0	0	5.4	W	17	W	18	16	12	2	3.2	78
Los Angeles	99	1007.8	1011.6	77	62	69.7	5.0	82	30+	57	2	0	0	61	77	T	-.07	T	0	0	.0	0	7.6	WSW	*18	WSW	18+	15	14	1	3.6	---
Mt. Shasta (U)	3544	891.0	1013.2	78	48	62.8	3.0	93	19	37	10	4	0	--	--	.47	-1.76	.24	4	1	.0	0	----	---	--	---	--	18	8	4	3.0	---
Oakland	3	1013.2	1013.4	73	54	63.5	1.9	87	21	48	9	0	0	52	70	.00	-.15	.00	0	0	.0	0	10.7	W	*32	W	8+	22	7	1	2.5	---
Red Bluff	341	998.0	1010.2	94	65	79.5	3.5	109	18	53	7	21	0	41	28	.05	-.41	.03	2	2	.0	0	11.2	SSE	26	NW	29+	20	7	3	2.8	95
Sacramento	17	1009.5	1009.2	91	57	74.2	3.9	105	21+	50	7	15	0	52	51	.00	-.11	.00	0	0	.0	0	11.2	SW	32	S	8	24	5	1	1.6	100
Sandberg (R)	4517	861.5	1010.2	81	58	69.1	4.3	93	20+	43	7	6	0	--	--	.00	-.04	.00	0	0	.0	0	14.3	NNW	*64	NNW	25	28	2	0	.6	---
San Diego	19	1008.5	1011.4	74	63	68.2	2.6	80	22	59	1	0	0	59	75	T	-.04	T	0	0	.0	0	7.2	SSW	21	S	26	16	9	5	4.2	65
San Francisco (U)	52	------	------	66	53	59.4	.3	78	29	50	15	0	0	--	--	T	-.15	T	0	0	.0	0	11.7	W	33	W	24	--	--	--	---	89
San Francisco	8	1013.2	1013.7	71	53	61.6	1.9	87	29	49	10	0	0	51	72	T	-.13	T	0	0	.0	0	15.9	W	40	W	24+	20	7	3	2.5	---
Santa Maria	238	1003.4	1011.9	70	49	59.4	-.7	79	21+	43	7	0	0	50	76	T	-.14	T	0	0	.0	0	8.6	WNW	*32	WNW	7	25	4	1	2.3	---
COLORADO																																
Alamosa	7536	774.1	1010.6	80	45	62.3	3.7	86	23	34	2	0	0	--	--	.18	-.31	.10	4	6	.0	0	----	---	--	---	--	10	14	6	4.8	---
Colorado Springs	6173	812.4	1012.0	83	53	68.1	2.6	91	26+	42	2	7	0	43	49	1.61	-.18	.51	9	13	.0	0	10.2	N	*32	WNW	20	8	17	5	4.6	---
Denver	5292	838.1	1011.3	85	57	70.9	4.5	94	23	45	1	12	0	43	42	.44	-1.20	.14	8	10	.0	0	9.2	S	40	S	12	11	16	3	4.6	72
Grand Junction	4849	857.1	1009.0	91	61	75.7	4.5	99	23	51	1	19	0	30	23	.09	-.36	.05	2	6	.0	0	11.0	ESE	43	NW	27	15	11	4	3.6	87
Pueblo	4639	855.7	1010.8	89	56	72.5	3.4	97	25+	46	2	19	0	46	47	1.14	-.26	.65	7	10	.0	0	8.7	SE	43	N	16	9	15	6	4.4	80
CONNECTICUT																																
Bridgeport	7	1012.6	------	75	59	67.0	.1	94	30	49	20	4	0	--	--	4.15	.68	1.12	14	5	.0	0	----	---	--	---	--	4	10	16	7.5	---
Hartford	169	1006.4	1012.5	76	57	66.4	-2.5	95	29	47	20+	4	0	57	76	3.64	.02	1.55	17	4	.0	0	6.6	S	26	NW	6	2	6	22	8.2	43
New Haven	6	1012.3	1012.9	73	58	65.4	-.4	88	30	47	20	0	0	--	--	4.88	1.07	1.18	13	6	.0	0	6.8	---	26	NW	14	3	10	17	7.4	50
DELAWARE																																
Wilmington	78	1010.2	1013.6	83	61	72.0	.2	98	30+	49	18	8	0	60	68	4.23	.21	2.44	9	7	.0	0	8.3	WNW	*32	WSW	30+	7	9	14	6.2	---
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	86	64	74.9	1.0	101	30	50	18+	12	0	--	--	3.69	.27	2.33	7	5	---	--	7.0	---	26	NW	14	--	--	--	---	---
Wash. Nat'l. AP	14	1009.8	1014.3	86	66	76.0	2.6	100	30+	52	18+	10	0	60	61	5.35	1.94	2.76	6	5	.0	0	8.3	NNW	28	WNW	15	8	13	9	5.4	68
FLORIDA																																
Apalachicola (U)	13	1013.2	------	85	74	79.4	-.5	96	30	70	18	3	0	--	--	6.44	.97	1.74	13	6	.0	0	6.4	---	32	N	29	6	16	8	6.1	74
Daytona Beach	31	1014.4	1016.2	88	71	79.2	.1	95	29	67	17+	11	0	71	83	8.13	1.44	4.14	12	9	.0	0	7.5	SW	*23	SSE	16	7	9	14	6.6	---
Fort Myers	15	1014.8	------	90	73	81.3	.7	96	28	69	12	19	0	--	--	16.10	6.90	6.67	14	13	.0	0	7.2	---	*40	SW	18	5	13	12	6.4	---
Jacksonville	24	1014.5	1015.8	90	72	80.6	.3	98	30	65	12+	15	0	70	77	2.94	-3.88	1.12	12	10	.0	0	8.7	SW	30	W	28	5	11	14	6.8	50
Key West	4	1014.3	------	87	78	82.4	-.2	90	29+	71	12	3	0	--	--	5.17	1.16	2.13	13	10	.0	0	9.5	---	35	SW	17	5	13	12	6.5	60
Lakeland (U)	214	------	------	89	72	80.8	.7	97	29	68	17+	14	0	--	--	7.25	-.86	3.11	14	16	.0	0	5.6	---	--	---	--	2	18	10	6.6	60
Miami	7	1014.4	1015.5	87	73	80.3	-1.0	93	29	70	6+	5	0	73	81	20.56	13.74	7.43	15	16	.0	0	6.3	ESE	*35	SW	18	3	12	15	6.7	---
Miami Beach	9	------	------	87	76	81.1	-.4	92	6	68	6	3	0	--	--	14.56	9.53	6.28	13	--	.0	0	----	---	¢36	¢W	18	11	4	15	---	¢57
Orlando	106	1011.4	1015.8	91	72	81.0	.2	95	29+	68	18+	20	0	71	77	7.95	.10	3.69	10	7	.0	0	6.7	E	*36	SW	15	6	11	13	6.4	---
Pensacola (U)	13	------	------	86	74	80.1	.5	95	30	70	5+	4	0	--	--	7.34	2.17	2.76	12	10	.0	0	†8.1	---	25	SE	9	--	--	--	---	59
Tallahassee	64	1012.6	1015.2	88	70	79.0	-.7	99	30	67	3	12	0	71	82	8.99	2.27	3.16	14	11	.0	0	4.6	S	--	---	--	2	15	13	6.9	---
Tampa	19	1014.3	1015.8	90	73	81.4	1.0	95	30+	70	18+	14	0	72	78	9.13	1.36	3.70	14	9	.0	0	7.9	ENE	*35	S	18	3	18	9	6.3	45
West Palm Beach	15	1015.0	1016.0	90	73	81.3	.7	96	30	69	6	19	0	72	79	13.63	5.74	4.86	16	16	.0	0	8.0	ESE	*46	WSW	18	5	11	14	6.8	---
GEORGIA																																
Athens	798	987.4	1016.3	88	66	76.5	-2.4	98	30	59	19+	11	0	65	72	1.97	-1.87	.51	8	5	.0	0	7.9	NW	*23	NE	18	5	15	10	6.0	---
Atlanta	975	974.7	1015.4	86	67	76.6	-1.1	96	30	62	14+	7	0	65	71	1.50	-2.52	.77	4	1	.0	0	8.1	NW	*20	SSW	23	7	10	13	6.5	68
Augusta	143	1008.2	1014.8	90	65	77.6	-1.6	100	30+	54	15	16	0	66	73	2.63	-1.11	.84	6	6	.0	0	5.1	SE	*35	W	24	4	11	15	6.8	---
Columbus	385	1001.6	------	89	68	78.4	-.6	100	30	64	19+	11	0	--	--	6.16	2.21	3.88	11	7	.0	0	6.9	---	*39	SSW	1	2	14	14	7.1	---
Macon	356	1001.6	1015.2	91	69	80.0	-.9	103	30	63	15	16	0	66	69	4.05	.30	2.42	7	6	.0	0	7.7	WSW	35	W	2	4	13	13	6.6	74
Rome	637	992.3	------	87	63	75.3	-2.1	97	30	55	15	9	0	64	72	2.90	-1.17	2.09	7	5	.0	0	3.0	---	--	---	--	9	11	10	5.5	---
Savannah	48	1013.0	1015.6	89	69	78.7	-.3	101	29	63	15+	13	0	68	73	3.07	-2.10	.96	7	5	.0	0	7.0	SW	39	NW	3	5	12	13	6.4	70
Thomasville	283	------	------	91	70	80.5	.8	99	30+	67	18+	19	0	--	--	3.22	-1.63	1.35	9	8	.0	0	----	---	--	---	--	--	--	--	---	---
HAWAII																																
Hilo	31	1015.6	1017.2	83	67	75.1	.7	87	8	63	19	0	0	65	73	3.12	-3.63	.80	23	0	.0	0	8.7	WSW	*26	E	7+	4	15	11	6.4	52
Honolulu	7	1016.3	1017.0	86	72	79.0	1.1	88	18	66	19	0	0	65	65	T	-.23	T	0	0	.0	0	14.9	NE	30	E	30	10	17	3	4.8	87
Lihue	115	1012.2	1017.3	85	72	78.8	2.6	88	23	66	18	0	0	68	71	.69	-.96	.18	14	0	.0	0	11.5	NE	21	E	26	8	19	3	5.2	72

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: ø Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
IDAHO																																
Boise	2842	917.0	1011.1	84	54	68.6	3.5	99	20+	37	10	11	0	42	43	0.27	-0.57	0.15	3	3	0.0	0	7.8	NW	23	W	20+	10	13	7	4.8	79
Idaho Falls 46W (R)	4933	847.3	1011.5	80	47	63.5	3.9	94	12	35	30+	8	0	--	--	1.45	.64	.55	7	4	.0	0	9.6	SW	a32	WSW	9	--	--	--	---	---
Idaho Falls 42NW (R)	4790	------	------	81	46	63.8	4.2	95	12	34	2+	9	0	--	--	1.88	.80	.71	6	--	---	--	9.6	SW	a36	N	6	--	--	--	---	---
Lewiston	1413	962.4	1013.4	79	52	65.4	-.9	94	20+	43	10	2	0	--	--	1.65	-.10	.97	7	5	.0	0	----	---	--	---	--	7	12	11	6.1	---
Pocatello	4444	861.2	1011.0	83	50	66.5	3.5	95	12	38	30+	9	0	40	43	.34	-.68	.19	6	3	.0	0	11.6	SW	36	W	9	15	10	5	4.0	81
ILLINOIS																																
Cairo (U)	314	1002.0	------	86	68	76.9	-.9	97	30+	55	14	6	0	--	--	2.69	-1.15	.90	9	6	.0	0	7.7	S	26	S	10	10	7	13	5.7	69
Chicago (O'Hare)	656	990.9	1015.3	81	61	71.1	----	92	7	48	17+	7	0	56	61	1.68	----	.98	5	6	.0	0	11.0	SW	*32	SW	27	8	10	12	6.0	---
Chicago (Midway)	610	992.6	1015.1	83	63	72.9	3.5	95	26	50	14	10	0	55	57	5.94	1.79	4.58	7	3	.0	0	9.4	E	36	NW	25	9	11	10	5.5	65
Moline	589	993.2	1014.7	83	61	72.0	1.2	92	25	49	2	5	0	57	63	3.62	-1.01	2.09	8	7	.0	0	7.2	SW	38	SW	28	6	13	11	6.2	67
Peoria	654	992.9	1015.0	85	63	73.6	2.7	93	29+	49	14	8	0	57	60	1.03	-2.85	1.41	6	5	.0	0	8.5	S	49	NW	30	8	10	12	6.1	69
Rockford	728	988.8	1015.3	82	59	70.4	1.1	91	26+	49	14+	5	0	57	65	4.00	-.62	2.32	12	9	.0	0	8.3	SW	*28	SW	27	7	11	12	6.0	---
Springfield	589	991.5	1014.5	86	64	75.1	3.2	97	29	48	14	10	0	57	57	.23	-3.95	.18	4	2	.0	0	9.8	SSW	39	SW	26	9	13	8	5.5	73
INDIANA																																
Evansville	383	1000.3	1016.0	85	64	74.4	-.2	94	30	52	15	7	0	62	68	3.24	-.63	1.25	5	4	.0	0	7.5	SW	30	SE	9	12	6	12	5.6	80
Fort Wayne	801	984.8	1015.5	81	59	70.3	1.3	92	29+	42	14	3	0	57	64	4.60	1.04	3.78	7	4	.0	0	9.8	SW	36	SW	25	4	16	10	6.0	62
Indianapolis	793	985.8	1015.5	84	62	73.0	1.6	96	30	48	14	5	0	59	63	2.30	-1.91	2.03	4	4	.0	0	8.1	SW	30	SW	26	7	9	14	6.3	75
South Bend	768	987.1	1015.1	82	58	69.9	1.2	94	28	43	14	5	0	55	63	1.40	-2.43	.66	7	5	.0	0	8.9	NNW	*29	N	13	10	8	12	5.4	---
IOWA																																
Burlington	694	989.5	1015.0	84	62	73.0	1.3	92	25	50	2	6	0	59	64	4.57	-1.07	2.79	7	6	.0	0	8.4	SSW	34	N	30	10	9	11	5.6	79
Des Moines	948	983.7	1014.7	84	62	72.8	2.2	95	16	51	29+	4	0	58	64	5.71	.72	4.86	5	4	.0	0	11.1	S	33	SW	11	8	12	10	5.9	74
Dubuque	1065	990.2	1015.6	79	58	68.7	.9	88	24	48	14	0	0	57	63	5.95	.86	3.22	7	6	.0	0	----	---	--	---	--	6	12	12	6.3	---
Sioux City	1094	971.9	1012.6	86	63	74.3	4.0	98	17	48	1	11	0	59	62	3.02	-1.39	1.90	9	7	.0	0	12.3	S	32	S	14	11	10	9	4.7	77
Waterloo	870	------	------	82	59	70.8	1.6	93	24	48	23	2	0	--	68	7.94	3.18	2.62	8	6	.0	0	10.1	---	--	---	--	--	--	--	---	---
KANSAS																																
Concordia (U)	1375	963.4	------	86	65	75.4	1.5	97	17	53	2+	12	0	--	66	2.60	-1.63	1.11	8	10	.0	0	7.0	S	33	SW	27	12	12	6	4.5	81
Dodge City	2594	925.8	1011.5	89	63	76.2	2.7	103	27	54	2+	15	0	58	59	2.03	-.98	1.63	6	10	.0	0	14.8	S	49	SW	27	12	12	6	4.8	78
Goodland	3645	886.9	1010.9	89	58	73.9	5.4	99	24	49	30+	19	0	53	56	1.14	-1.88	.43	8	9	.0	0	13.3	SSE	*40	SSW	14	15	10	5	3.9	---
Topeka	877	978.7	1013.9	86	63	74.5	.7	96	17	50	2	7	0	63	70	2.87	-1.67	1.77	5	4	.0	0	10.6	S	38	S	27	6	10	14	6.5	68
Wichita	1321	964.8	1012.4	87	66	76.3	1.0	101	18	52	2	11	0	63	67	2.35	-2.64	.73	8	9	.0	0	12.2	SSE	41	S	26	11	11	8	5.2	76
KENTUCKY																																
Lexington	979	980.9	1016.4	83	62	72.7	-.3	95	30	48	14	4	0	60	69	3.21	-1.00	1.31	8	7	.0	0	8.4	SW	--	---	--	11	7	12	5.3	---
Louisville	474	996.5	1015.5	87	64	75.9	1.7	100	29	52	14	11	0	62	65	1.11	-2.95	.61	8	3	.0	0	8.3	WSW	36	SW	26	12	7	11	5.2	65
LOUISIANA																																
Baton Rouge	64	1011.9	1014.8	91	71	80.8	1.2	96	30+	67	2	19	0	71	78	4.14	-.88	1.90	13	11	.0	0	7.5	NE	--	---	--	5	15	10	6.3	---
Lake Charles	12	1012.2	1013.5	89	73	80.5	-.2	93	29+	68	7+	12	0	70	75	3.49	-1.56	1.28	8	9	.0	0	8.6	S	*29	S	9	9	12	9	5.5	---
New Orleans (U)	9	------	------	89	75	81.8	-.1	94	30+	71	7+	11	0	--	76	5.61	.04	3.02	12	7	.0	0	5.1	---	18	E	8	7	12	11	5.7	49
New Orleans	3	1012.2	1014.2	88	74	81.3	.8	94	30+	70	2	12	0	72	77	6.76	1.13	3.73	11	3	.0	0	8.3	SSE	*25	SSE	24+	8	13	9	5.5	---
Shreveport	252	1004.7	1013.9	88	69	78.4	-2.8	94	28	61	15	15	0	67	74	3.35	.71	1.14	11	7	.0	0	9.2	S	--	---	--	8	12	10	5.5	68
MAINE																																
Caribou	624	988.8	1012.0	66	48	57.0	-1.4	86	5	40	24+	0	0	49	78	3.59	-.36	.97	12	0	.0	0	10.2	SSE	*32	WNW	30	1	8	21	8.4	---
Portland	61	1008.1	1012.3	68	50	59.1	-2.7	92	10	41	1	1	0	53	85	4.72	1.40	1.30	18	2	.0	0	9.0	S	23	N	21+	3	3	24	8.5	36
MARYLAND																																
Baltimore (U)	14	------	------	87	68	77.2	2.9	101	29	53	17	11	0	--	--	2.88	-.64	2.03	9	--	---	--	----	---	--	---	--	--	--	--	---	---
Baltimore	146	1009.5	1014.4	85	63	73.6	1.4	100	30	48	18	10	0	61	66	3.68	.16	2.37	9	6	.0	0	11.6	WNW	40	W	26	11	10	9	5.0	74
Frederick	294	------	------	84	59	71.4	-1.2	100	30	44	18	10	0	--	--	3.85	-.11	2.32	9	--	.0	0	----	---	--	---	--	--	--	--	---	---
MASSACHUSETTS																																
Blue Hill Obs.	629	------	------	71	53	61.8	2.2	90	10	42	15+	1	0	--	77	8.02	3.84	1.50	17	--	.0	0	12.8	S	32	NW	6	--	--	--	---	37
Boston	15	1007.3	1012.0	73	56	64.6	-2.6	96	10	47	15+	2	0	56	79	8.63	5.15	2.11	15	3	.0	0	10.3	SW	40	NW	6	1	6	23	8.4	45
Nantucket	43	1011.8	1012.6	67	53	59.9	-1.0	88	30	47	15+	0	0	54	84	4.82	1.58	3.00	13	4	.0	0	11.5	SW	32	NE	3	2	8	20	8.1	59
Pittsfield	1153	970.5	------	74	54	63.7	.7	90	29	43	20+	1	0	--	--	2.75	-1.84	.87	15	6	.0	0	----	---	--	---	--	--	--	--	---	---
Worcester	986	978.0	------	72	54	63.0	-2.4	91	29	43	15	1	0	--	--	5.28	1.34	1.58	16	4	.0	0	11.2	---	*32	WNW	6	2	7	21	8.3	---
MICHIGAN																																
Alpena (U)	587	992.6	------	75	55	64.8	3.3	94	28	41	2	4	0	--	63	.90	-1.65	.75	7	4	.0	0	9.8	NW	34	NW	13	9	14	7	5.1	67
Detroit	619	989.2	1015.5	81	59	70.1	2.0	93	29	47	14+	6	0	54	58	1.01	-1.89	.38	6	5	.0	0	9.4	N	29	NW	12	8	15	7	5.3	73
Detroit (Willow Run)	722	987.1	1015.2	81	59	70.0	1.4	93	29+	45	14	7	0	55	61	2.77	-.49	1.88	5	4	.0	0	9.9	SW	*28	NNW	13	7	16	7	5.6	---
Escanaba (U)	594	992.2	------	72	55	63.1	2.4	87	28	43	14	0	0	--	73	1.34	-1.46	.77	6	5	.0	0	9.2	---	32	N	12	6	17	7	5.6	61
Flint	761	987.8	1015.5	78	55	66.6	-.8	91	28	41	14	2	0	55	65	1.14	-1.87	.65	9	5	.0	0	6.3	SW	*18	NW	13	7	16	7	5.5	---
Grand Rapids	681	990.5	1015.2	81	58	69.7	3.0	94	27	43	14	2	0	54	60	.59	-2.76	.23	6	2	.0	0	9.0	W	27	SW	27+	10	12	8	5.3	72
Inkster(Wayne Co.)	630	991.2	1015.1	80	57	68.6	----	91	29+	45	14	6	0	55	64	2.12	----	1.01	8	4	.0	0	9.3	SW	--	---	--	6	14	10	5.8	---
Lansing	852	983.7	1015.3	80	55	67.4	.0	92	28	39	14	2	0	57	70	1.15	-2.22	.39	9	5	.0	0	9.0	W	38	NW	13	9	13	8	5.4	69
Marquette (U)	677	987.1	------	73	53	63.1	3.5	93	9	44	6	4	0	--	66	1.93	-1.53	1.18	8	3	.0	0	7.3	E	27	SW	7	4	14	12	6.4	73
Muskegon	627	992.6	1015.7	79	57	67.7	3.3	91	27	42	14	2	0	53	57	.19	-2.68	.10	6	4	.0	0	----	---	--	---	--	9	11	10	5.3	---
Sault Ste. Marie	721	992.6	1015.2	72	49	60.9	2.8	89	10	34	2	0	0	51	73	3.75	.73	2.23	8	5	.0	0	9.3	WNW	*25	WNW	13+	4	18	8	6.3	59
MINNESOTA																																
Duluth	1409	972.9	1014.1	72	49	60.9	1.2	88	8+	40	4	0	0	50	69	4.06	-.27	1.54	12	5	.0	0	12.2	E	43	NW	12	5	13	12	6.3	65
Intern'l Falls	1179	971.6	1012.4	76	51	63.4	3.3	91	7+	35	30	2	0	51	68	1.66	-2.07	.67	14	11	.0	0	7.4	SE	*29	W	11+	2	12	16	7.2	---
Minneapolis	830	980.4	1013.5	80	61	70.8	2.6	94	9	48	1	6	0	56	61	4.07	-.19	2.27	10	5	.0	0	11.4	S	*28	SW	4	11	9	10	5.1	69
Rochester	1017	977.7	1014.4	79	58	68.1	1.3	90	26	43	23	1	0	57	68	5.86	1.53	3.80	12	9	.0	0	9.4	S	--	---	--	10	8	12	5.8	---
St. Cloud	1034	975.3	1012.9	78	57	67.6	2.6	92	9+	41	1	4	0	55	66	2.42	-1.43	.92	6	7	.0	0	----	---	--	---	--	9	8	13	5.7	---
MISSISSIPPI																																
Jackson	305	1002.5	1014.3	88	68	78.1	-1.8	93	30+	60	4	13	0	68	75	2.16	-1.56	1.14	7	6	.0	0	5.0	S	28	NW	11	5	15	10	6.1	64
Meridian	294	1001.2	------	89	68	78.6	-.5	97	29	60	21+	18	0	--	--	3.75	-.58	1.40	7	3	.0	0	----	---	--	---	--	6	18	6	5.4	---
Vicksburg (U)	234	1005.4	------	86	69	77.7	-1.8	93	29	65	20+	6	0	--	--	2.49	-.82	1.00	10	8	.0	0	6.6	---	23	NW	11	6	10	14	6.4	56
MISSOURI																																
Columbia	778	986.8	1014.9	86	63	74.5	1.6	95	30	52	3	10	0	61	66	.12	-4.78	.06	3	1	.0	0	9.2	S	25	SW	27	7	11	12	5.7	55
Kansas City	741	979.3	1013.5	87	68	77.2	1.8	95	29+	55	2	9	0	61	59	1.38	-3.64	.95	5	2	.0	0	9.8	S	49	N	11	5	9	16	6.3	64
St. Joseph	809	979.3	------	86	64	74.9	.5	93	24	52	2	8	0	--	--	5.50	-.96	3.23	9	7	.0	0	10.2	S	*46	W	30	10	8	12	5.5	---
St. Louis RFC	465	------	------	85	68	76.3	.5	94	29	54	14	7	0	--	--	.50	-3.30	.32	3	--	.0	0	----	---	--	---	--	--	--	--	---	---
St. Louis	552	994.6	1014.9	86	67	76.4	1.3	98	29	54	14	11	0	61	62	.47	-3.90	.37	4	2	.0	0	6.8	S	28	SW	27	8	11	11	5.9	67
Springfield	1265	967.8	1014.7	83	63	73.2	.3	92	11	50	3	2	0	63	74	3.19	-2.37	1.48	8	5	.0	0	11.7	SSE	57	N	11	7	12	11	6.0	77
MONTANA																																
Billings	3567	889.3	1011.0	80	53	66.5	2.5	98	14+	45	30+	5	0	48	54	.97	-1.64	.47	7	8	.0	0	10.0	SW	38	NW	20	8	13	9	5.2	65
Butte	5530	829.3	1014.1	71	41	55.8	1.3	86	19+	29	11	0	4	39	--	2.86	.58	1.17	15	11	.0	0	7.9	SSE	*35	S	13	8	7	15	6.5	---
Glasgow	2277	937.7	1011.6	78	53	65.6	2.0	96	14	43	29	3	0	--	54	2.79	-.69	.81	12	11	.0	0	----	---	--	---	--	7	11	12	6.3	---
Great Falls	3664	886.9	1012.0	75	51	63.0	2.3	92	12	42	29	2	0	41	51	1.88	-1.08	.89	13	8	.0	0	8.0	SW	34	SE	13+	10	7	13	6.1	73

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure		Temperature								No. of days				Precipitation			No. of days		Snow, Sleet		Wind		Fastest mile			No. of days (sunrise to sunset)				
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	.01 inch or more	With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb.	°F.	°F	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
MONTANA (Cont'd.)																																
Havre (U)	2488	924.1	1011.9	78	52	65.0	2.1	95	14	43	29	2	0	--	--	4.37	1.39	2.94	10	6	.0	0	8.2	W	35	W	10	6	13	11	6.2	70
Helena	3893	872.7	1012.4	76	48	61.9	2.5	93	12	38	8	2	0	43	54	1.90	-.25	.42	13	11	.0	0	7.9	NW	54	W	12	9	7	14	5.9	62
Kalispell	2965	------	------	72	46	59.2	.8	86	19	32	11	0	1	--	--	1.58	-.85	.49	13	6	.0	0	----	---	--	---	--	6	11	13	6.4	---
Miles City	2629	928.2	1011.5	83	56	69.5	4.3	99	14	42	11	8	0	49	--	1.59	-1.25	.57	11	10	.0	0	10.5	NW	*46	NW	9	8	12	10	5.7	---
Missoula	3200	900.8	1014.1	76	47	61.6	1.4	92	20+	37	11+	3	0	44	59	1.69	-.18	.49	10	5	.0	0	6.2	NW	42	NW	8	7	8	15	6.3	61
NEBRASKA																																
Grand Island	1841	947.2	1012.2	85	61	73.1	1.5	97	17+	49	30+	8	0	59	64	4.09	.43	1.55	9	9	.0	0	14.3	S	--	---	--	13	8	9	4.8	---
Lincoln (U)	1166	------	------	85	65	75.0	2.2	98	17+	52	1	11	0	--	--	4.91	.81	1.60	8	8	.0	0	11.2	S	54	NW	21	10	13	7	5.1	76
Norfolk	1544	957.7	1012.4	85	62	73.3	4.0	99	17+	47	1	10	0	57	59	2.45	-2.33	1.53	7	8	.0	0	----	---	--	---	--	14	10	6	4.4	---
North Platte	2779	914.0	1010.6	86	59	72.5	3.7	98	16	44	2	12	0	57	64	3.91	.99	1.12	12	12	.0	0	9.6	SSE	54	N	18	12	14	4	4.2	77
Omaha	978	974.3	1013.8	84	64	74.0	1.4	95	17+	51	1	8	0	60	65	5.53	1.02	1.81	9	6	.0	0	11.1	SSE	37	N	21	10	13	7	4.8	74
Omaha N.Omaha AP	1323	966.1	------	82	63	72.1	1.6	93	16	51	30+	4	0	--	--	3.74	-.77	.90	9	11	.0	0	----	---	--	---	--	9	14	7	5.3	---
Scottsbluff	3950	877.4	1010.0	86	57	71.3	4.8	97	7	40	1	13	0	52	57	4.14	1.36	1.95	11	15	.0	0	11.4	ESE	*35	WNW	27+	13	14	3	4.3	---
Valentine	2587	921.4	------	86	58	72.2	5.4	102	15+	43	2+	12	0	--	59	1.80	-1.36	.55	66	11	.0	0	10.6	S	38	SW	16	10	14	6	4.6	75
NEVADA																																
Elko	5075	843.2	1010.4	85	46	65.4	5.1	96	22	33	10+	12	0	30	29	.79	.09	.30	6	4	.0	0	6.8	SW	*29	SSE	13	10	15	5	4.3	---
Ely	6257	808.3	1009.5	83	44	63.3	3.7	95	23	28	1	2	3	30	30	.17	-.33	.14	3	6	.0	0	12.4	SSW	50	SE	15	10	19	1	4.0	95
Las Vegas	2162	942.1	1005.6	102	72	86.8	3.2	113	23	61	2+	30	0	31	15	T	-.13	T	0	2	.0	0	10.7	S	*29	SSW	6	25	4	1	1.8	93
Reno	4397	860.8	1012.0	87	44	65.3	3.8	99	21	34	7	10	0	34	36	.00	-.42	.00	0	0	.0	0	6.7	WNW	40	W	9	18	9	3	2.8	99
Winnemucca	4299	865.9	1010.8	87	46	66.3	2.3	98	22+	32	1	13	1	28	28	.39	-.40	.22	3	1	.0	0	8.0	W	31	N	20	13	13	4	4.1	74
NEW HAMPSHIRE																																
Concord	339	1001.7	1012.4	74	53	63.4	-.7	95	10	44	24+	2	0	55	78	3.68	.06	.88	14	3	.0	0	7.5	NW	30	NW	6	2	10	18	7.9	39
Mt. Washington	6262	805.9	------	49	39	44.1	-.3	63	29	24	15+	0	7	--	96	7.46	1.20	1.36	19	2	8.1	5	26.8	W	‡84	SW	12	0	3	27	9.3	15
NEW JERSEY																																
Atlantic City (U)	10	------	------	79	64	71.5	2.8	96	29	54	19+	5	0	--	--	1.14	-1.85	.74	7	--	---	--	10.0	---	34	NW	15	--	--	--	---	37
Atlantic City	58	1010.7	1013.4	82	61	71.4	1.7	98	29	49	18	7	0	60	71	1.29	-1.70	.80	7	3	.0	0	10.9	W	--	---	--	7	9	14	6.5	---
Newark	11	1011.8	1013.1	81	62	71.6	1.1	100	29	52	18	5	0	58	65	3.60	-.20	1.52	11	6	.0	0	9.0	WNW	*31	NNW	14	5	12	13	6.7	---
Trenton (U)	56	1005.8	1012.5	83	62	72.2	1.4	98	29	51	18+	9	0	--	--	4.48	.61	1.79	11	6	.0	0	8.4	---	33	NW	14	5	11	14	6.2	59
NEW MEXICO																																
Albuquerque	5310	847.6	1008.3	91	63	77.0	2.1	97	25+	51	4	23	0	42	34	.78	.06	.56	5	6	.0	0	9.9	E	44	S	28	20	9	1	2.9	79
Clayton	4969	845.6	1010.5	86	57	71.5	1.9	94	18+	44	2	8	0	--	--	.78	-1.13	.13	10	14	.0	0	----	---	--	---	--	11	12	7	4.7	---
Raton	6379	807.0	1011.9	82	49	65.7	1.8	89	25+	38	2	0	0	--	--	1.06	-.66	.29	10	21	.0	0	----	---	--	---	--	10	11	9	5.0	---
Roswell	3612	891.0	1008.5	94	63	78.8	2.0	104	11	52	4	27	0	53	45	.82	-.65	.54	5	13	.0	0	12.0	---	47	W	8	17	7	6	4.0	---
NEW YORK																																
Albany	277	1008.8	1012.7	77	58	67.6	.6	94	29	45	15	3	0	57	71	1.75	-1.62	.45	12	4	.0	0	9.4	WNW	32	NW	15	1	10	19	7.7	45
Binghamton	1590	955.4	1013.9	74	57	65.3	1.1	88	29+	43	14	0	0	55	70	4.61	.96	2.26	14	8	.0	0	8.3	NNW	41	NW	15	3	11	16	7.2	60
Buffalo	693	986.9	1014.9	76	58	66.8	1.3	92	11	45	14	1	0	55	69	1.94	-.76	.94	8	2	.0	0	10.9	SW	40	SW	28	9	7	14	6.0	67
New York (U)	10	1011.3	------	77	62	69.8	.0	96	29	52	18+	4	0	--	--	3.36	-.34	.59	12	5	.0	0	11.9	NW	47	NW	14	5	12	12	6.4	56
New York	19	1011.2	1013.2	80	63	71.6	.6	98	29	53	17	5	0	57	65	4.76	1.38	1.73	12	5	.0	0	12.2	WNW	45	NW	14	4	13	13	7.0	---
Rochester	543	994.9	1014.0	78	57	67.5	.9	93	11	46	14	4	0	57	69	2.06	-.79	1.43	8	2	.0	0	10.7	SW	35	NW	15	8	11	11	5.5	66
Schenectady	217	------	------	77	59	68.1	.1	92	29	47	15	4	0	--	--	1.44	-2.42	.39	13	1	.0	0	----	---	--	---	--	16	6	8	4.6	---
Syracuse	424	991.7	1013.5	77	58	67.6	-.2	91	28+	46	15+	4	0	57	70	2.53	-1.15	.75	10	4	.0	0	9.3	WNW	37	NW	15	7	9	14	6.7	60
NORTH CAROLINA																																
Asheville (U)	2203	938.0	------	82	58	69.9	-1.4	93	30	47	15	2	0	--	--	1.53	-1.99	.61	5	1	.0	0	6.3	---	24	SE	17	10	12	8	4.9	72
Cape Hatteras (R)	9	1013.7	1014.5	82	68	75.2	-.4	94	30	54	18	3	0	67	77	1.76	-2.61	.61	6	6	.0	0	9.7	SW	--	---	--	12	9	9	5.1	---
Charlotte	725	987.7	1015.4	89	65	77.0	.4	102	30	55	15	12	0	62	65	1.62	-1.89	.80	5	3	.0	0	8.7	NNW	34	NW	4	10	10	10	5.6	77
Greensboro	891	984.3	1016.0	86	62	74.0	-.6	101	30	48	15	8	0	60	65	2.47	-1.15	1.45	8	1	.0	0	6.2	SW	31	N	14	11	11	8	4.9	86
Raleigh	433	1001.2	1015.3	86	62	74.3	-1.4	102	30	48	15	10	0	63	70	2.59	-1.50	1.67	6	5	.0	0	5.6	SSW	*21	SSW	30	12	10	8	4.7	59
Wilmington	30	1013.5	------	88	66	77.1	-.5	101	29	53	19+	11	0	--	--	1.41	-3.08	.93	8	5	.0	0	10.4	---	48	SW	2	6	15	9	5.8	75
Winston-Salem	967	980.8	1015.7	87	64	75.3	.4	100	30+	52	15	10	0	59	59	1.72	-1.88	1.36	5	2	.0	0	7.0	WNW	*28	N	14	12	10	8	4.6	---
NORTH DAKOTA																																
Bismarck	1650	952.6	1011.3	82	55	68.5	4.2	100	6	39	13	8	0	51	58	2.54	-.79	1.19	9	15	.0	0	12.8	ESE	55	W	11	9	9	12	5.8	67
Devils Lake (U)	1471	958.7	------	77	54	65.5	3.1	98	6	39	13	3	0	--	62	2.83	-.35	1.38	11	7	.0	0	8.2	SE	30	NW	11	9	13	8	5.7	67
Fargo	895	978.3	1012.0	79	57	68.2	3.6	99	7+	43	29	4	0	55	66	4.78	1.74	1.95	9	10	.0	0	14.8	S	115	NW	9	6	11	13	6.4	56
Williston (U)	1877	944.5	1011.3	79	55	66.7	3.7	98	14	44	29	5	0	49	55	4.93	1.34	1.86	11	7	.0	0	8.1	SW	40	W	27	5	16	9	6.2	68
OHIO																																
Akron	1210	978.1	1016.1	79	57	67.9	-.5	92	29	43	14	1	0	57	70	1.95	-1.89	.63	9	7	.0	0	9.4	N	---	---	--	5	15	10	5.9	---
Cincinnati Obs.	761	------	------	84	63	73.5	.7	95	30	50	14	5	0	--	--	4.16	.11	1.70	8	7	.0	0	4.5	---	19	S	26	--	--	--	---	66
Cincinnati	869	984.4	1016.0	83	62	72.6	.8	94	30+	49	19+	6	0	59	66	5.85	1.81	3.25	8	5	.0	0	7.3	SW	*30	WSW	26	9	9	12	6.1	---
Cleveland	787	987.8	1015.5	80	60	70.0	.6	92	29+	47	14	5	0	57	66	1.82	-1.23	.81	8	6	.0	0	10.4	S	31	N	16	9	13	8	5.0	61
Columbus (U)	724	------	------	83	63	73.1	1.1	95	30+	49	14	8	0	--	--	1.13	-2.53	.52	6	6	.0	0	----	---	--	---	--	--	--	--	---	---
Columbus	815	986.4	1016.3	84	59	71.5	.8	96	29	44	14	8	0	59	66	1.55	-2.78	.55	7	6	.0	0	5.9	S	40	NW	22	6	12	12	6.1	57
Dayton	1002	979.8	1015.8	82	62	72.1	1.2	93	30	47	14	4	0	57	63	1.16	-2.74	.38	7	6	.0	0	8.3	SSW	37	W	22	5	13	12	6.2	78
Sandusky (U)	603	993.4	------	81	62	71.8	1.9	94	29+	51	3	7	0	--	--	1.38	-2.35	.67	9	10	.0	0	6.6	---	33	NW	30	12	12	6	4.1	81
Toledo	676	990.4	1015.5	82	58	70.0	1.4	92	28+	44	14	7	0	57	67	2.37	-1.18	1.22	7	7	.0	0	6.4	SW	26	NW	26	7	15	8	5.9	66
Youngstown	1178	973.4	1015.7	78	55	66.7	-1.3	92	29	42	14	1	0	56	71	3.76	.05	1.38	7	8	.0	0	9.5	SW	*30	NNW	13	7	12	11	5.9	---
OKLAHOMA																																
Oklahoma City	1280	970.2	1012.9	85	66	75.7	-1.8	96	18	58	3	9	0	66	77	2.93	-1.00	1.30	11	8	.0	0	12.5	SSE	45	E	11	12	10	8	5.1	59
Tulsa	672	989.5	1013.4	87	68	77.1	-.4	96	17	58	3	12	0	66	72	3.30	-1.85	1.16	11	4	.0	0	7.2	SSE	43	NE	11	9	8	13	6.0	49
OREGON																																
Astoria	8	1016.3	1016.9	64	50	56.8	-.8	72	30+	41	15+	0	0	51	83	3.77	1.11	1.13	18	0	.0	0	8.2	WNW	*21	NW	15	0	5	25	8.7	---
Burns (U)	4140	872.0	1012.9	79	46	62.4	1.9	95	19	32	10	4	1	37	42	.06	-.79	.05	2	2	T	T	----	---	--	---	--	12	9	9	4.9	---
Eugene	361	1003.4	1017.0	73	50	61.1	-.2	88	19	40	15	0	0	--	--	.80	-.57	.45	6	0	.0	0	7.7	---	*23	WSW	8+	3	9	18	7.4	---
Meacham	4050	------	------	66	45	55.6	1.5	81	19	33	10	0	0	--	--	1.19	-1.42	.78	7	1	.0	0	----	---	--	---	--	9	9	12	6.0	---
Medford	1312	968.2	1015.2	81	50	65.6	.7	96	19+	41	15	7	0	47	55	.27	-.70	.15	4	0	.0	0	5.8	WNW	*18	N	28+	10	9	11	5.4	---
Pendleton	1492	960.7	1013.9	79	53	66.2	-.5	94	20	42	10	3	0	44	49	1.19	-.02	1.03	5	1	.0	0	11.0	WNW	*39	W	2	7	15	8	5.6	---
Portland	21	1010.5	1016.1	72	54	62.8	.2	86	19+	45	15	0	0	52	72	2.38	.66	.62	12	0	.0	0	6.7	WNW	24	SW	14	1	6	23	8.4	36
Roseburg	505	998.0	1016.6	76	48	62.0	-.1	90	30+	38	15	3	0	--	--	.54	-.81	.35	4	0	.0	0	5.0	---	18	NW	28	4	14	12	6.4	58
Salem	195	1009.5	1016.9	73	50	61.6	-1.2	89	19+	40	15	0	0	51	73	1.41	.19	.48	8	0	.0	0	6.5	S	*18	SW	9	2	8	20	7.9	---
Sexton Summit (R)	3836	884.2	1014.9	67	45	55.6	-.4	82	19	34	9	0	0	--	--	.68	-.82	.21	7	0	.0	0	6.0	---	--	---	--	10	10	10	5.0	---
PACIFIC AREA																																
Canton Island	9	1009.8	1010.2	90	79	84.2	-.1	91	26+	75	10	21	0	73	74	.43	-2.37	.25	5	0	.0	0	12.9	E	*24	NNE	8	5	10	15	7.0	---
Guam (R)	361	------	------	89	72	80.5	.5	91	16+	66	10+	9	0	--	--	2.27	-2.80	.43	20	0	.0	0	6.2	---	19	E	23	--	--	--	---	85
Johnston Island	7	1013.5	1014.2	85	76	80.5	----	87	8	72	7	0	0	70	72	.88	----	.34	9	0	.0	0	14.5	---	29	E	16	1	23	6	6.0	82
Koror (R)	94	1006.4	1010.2	88	76	81.8	.6	90	3+	74	24+	2	0	77	85	12.26	-.19	2.24	26	1	.0	0	----	---	--	---	--	0	7	23	8.7	---
Majuro	10	1010.2	1010.5	86	77	81.1	----	88	25	73	23+	0	0	75	82	14.17	----	5.73	21	4	.0	0	9.4	E	27	NE	20	0	3	27	9.2	52
Ponape (R)	120	1005.4	1010.8	87	75	80.5	-.5	90	28	72	14	1	0	76	87	15.61	-.76	3.54	28	3	.0	0	5.3	---	21	SE	6	0	4	26	9.0	40
Truk, Moen Island	5	1010.8	1011.5	88	77	82.5	2.0	90	26	75	26+	1	0	76	82	7.97	-5.25	1.95	26	0	.0	0	----	---	16	SE	12+	0	3	27	9.3	---
Wake Island	11	1013.9	1014.2	87	77	81.8	.5	88	30+	73	20	0	0	73	76	2.10	.30	1.07	12	0	.0	0	13.1	ENE	*30	E	20	10	15	5	4.9	---
Yap (R)	55	1008.5	1010.4	88	77	82.8	.7	91	13+	75	29+	5	0	77	83	4.69	-5.70	.91	21	1	.0	0	5.5	E	*20	ENE	18	0	3	27	9.3	---

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station ø	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb.	°F.	°F.	°F.	°F.	°F		°F.				°F	%	In.	In.	In.			In.	In.	M p h		M p. h			0–3	4–7	8–10	0–10	%
PENNSYLVANIA																																
Allentown	376	999.8	1013.9	82	60	70.6	1.0	97	29	49	18+	6	0	58	69	3.32	-0.73	1.38	10	9	0.0	0	9.7	WNW	*40	WNW	15+	8	8	14	6.1	--
Erie	732	------	------	77	58	67.2	1.7	89	11	45	18	0	0	--	--	3.40	.53	1.52	6	3	.0	0	3.5	--	*15	SSW	28+	7	13	10	5.8	---
Harrisburg	335	1000.2	1013.8	83	62	72.2	1.1	96	30+	52	17+	8	0	57	65	4.81	1.17	2.74	12	9	.0	0	6.6	WNW	30	NW	14	6	12	12	6.2	68
Philadelphia (U)	35	------	------	84	65	74.4	1.8	99	30+	53	18	10	0	--	--	----	----	---					----	---	--	---	--	--	--	--	---	---
Philadelphia	7	1008.8	1013.3	83	62	72.2	.1	97	30+	50	18	9	0	59	67	5.28	1.41	2.96	9	5	.0	0	9.6	WSW	40	NW	14	6	11	13	6.4	69
Pittsburgh (U)	749	------	------	82	61	71.3	-.4	95	29	49	18+	7	0	-	--	2.34	-1.49	.63	7	--	.0	-	-					-	--	--	-	55
Pittsburgh	1151	985.7	1016.2	79	58	68.6	.0	92	29	44	14	2	0	56	66	3.70	-.37	1.26	8	7	.0	0	7.5	NW	*23	NNW	16+	5	12	13	6.3	71
Reading (U)	266	1001.5	1013.2	83	63	73.1	1.8	97	30+	52	14	9	0	-	--	3.89	.13	1.68	9	7	.0	0	9.3	--	44	NW	14	5	11	14	6.7	57
Scranton	940	980.3	1014.2	80	58	68.6	.8	96	29	45	14	7	0	58	72	3.23	-1.20	1.05	11	6	.0	0	8.0	SSW	26	NW	15+	4	13	13	6.7	51
Williamsport	527	995.6	------	81	59	69.6	.4	96	29	48	14	8	0	--	--	4.24	.82	1.18	12	--	.0	0	-	---		--	--	5	14	11	6.5	-
RHODE ISLAND																																
Block Island	110	1007.6	1011.9	69	56	62.1	-.9	82	30	49	20+	0	0	--	--	4.24	1.38	1.07	12	4	.0	0	--	--	--	---	--	6	8	16	7.0	--
Providence	55	1006.3	1012.5	73	56	64.6	-1.0	92	10	47	15	3	0	56	76	4.83	1.66	1.19	14	4	.0	0	10.6	SW	*27	W	15+	3	9	18	7.6	44
SOUTH CAROLINA																																
Charleston (U)	9	------	------	86	73	79.3	-.3	100	29+	65	4+	8	0	-	--	1.19	-3.10	.81	6	--	.0	0	—	--	--	---	-	-	--	--	--	--
Charleston	41	1013.7	1015.7	86	66	75.9	-2.0	99	30+	55	15	8	0	69	82	1.36	-3.36	.88	6	6	.0	0	8.5	SW	30	S	2	2	11	17	6.9	81
Columbia	217	1002.4	1014.9	91	66	78.3	-1.2	103	30	53	15	16	0	64	68	2.67	-1.38	1.31	5	7	.0	0	6.8	SW	32	WNW	24	8	11	11	5.9	78
Florence	146	1008.8	1014.7	88	67	77.5	-1.5	101	30	55	15	12	0	66	70	3.55	-1.33	1.80	7	10	.0	0	6.6	SW	*17	NE	30+	6	17	7	5.5	--
Greenville	1018	978.7	1015.5	87	65	76.2	-.4	100	30	57	15	8	0	61	63	1.41	-1.59	.88	6	3	.0	0	6.8	N	27	E	3	6	13	11	6.0	62
Spartanburg	801	------	------	87	65	75.6	-1.6	99	30	55	15	8	0	--	--	3.02	.02	2.55	5	5	.0	0	5.8		*23	NW	23	--	--		---	
SOUTH DAKOTA																																
Huron	1282	965.1	1011.4	86	60	73.1	4.9	101	14	47	13+	13	0	56	60	3.59	.53	1.56	12	14	.0	0	12.8	S	51	S	10	9	13	8	5.1	80
Rapid City	3165	899.4	1011.5	84	56	70.1	6.4	97	14+	43	30+	11	0	50	54	2.79	-.57	.65	13	13	.0	0	10.0	SE	40	SW	15	12	10	8	5.0	68
Sioux Falls	1420	961.7	1012.5	84	61	72.4	4.4	99	16	45	1	7	0	56	58	2.02	-2.23	.63	10	6	.0	0	10.7	S	*34	SSW	17	11	12	7	4.9	
TENNESSEE																																
Bristol	1519	962.6	------	84	59	71.8	-.5	95	30	45	15	10	0	-	-	1.35	-2.32	.61	5	3	.0	0	---	-	--	---	--	11	10	9	5.2	-
Chattanooga	670	985.3	1015.4	86	63	74.5	-1.3	97	30	54	15	6	0	63	74	2.00	-2.21	.97	8	4	.0	0	5.3	NNE	26	SW	24	9	8	13	6.0	67
Knoxville	950	981.1	1016.1	86	64	75.0	-.8	96	30+	55	15	6	0	61	67	2.78	-.69	1.05	6	5	.0	0	5.8	NE	29	NE	14	10	9	11	5.7	56
Memphis (U)	271	------	------	86	70	77.6	-1.1	94	30+	61	15+	8	0	--	--	2.99	-.26	1.29	6	--	.0	0		---	--	--		--	--	--	---	---
Memphis	263	1000.4	1015.0	87	68	77.4	-.9	95	30+	59	4	9	0	65	69	4.82	1.49	1.87	8	4	.0	0	7.2	S	29	E	11	7	12	11	5.9	72
Nashville	577	995.8	1015.6	85	64	74.9	-2.0	96	30	53	15	7	0	64	71	2.41	-.78	1.21	5	3	.0	0	6.7	S	29	NW	23	9	9	12	5.7	69
Oak Ridge	905	983.2	------	84	62	72.9	-1.3	94	30	52	15	5	0	--	--	3.85	-.06	1.48	6	6	.0	0	4.9	-	‡38	--	23	14	6	10	5.0	--
TEXAS																																
Abilene	1759	951.6	1011.1	90	68	79.0	-.8	101	19	61	5+	18	0	65	65	7.22	4.43	3.66	11	9	.0	0	10.2	S	47	W	11	15	6	9	4.5	70
Amarillo	3590	887.9	1010.3	88	62	74.6	1.0	101	11	51	2	13	0	56	58	2.19	-1.06	.77	11	12	.0	0	11.1	SSE	42	SE	29	13	11	6	4.7	82
Austin	615	990.9	1012.3	93	72	82.6	1.1	99	19	66	8+	26	0	69	69	3.30	.10	1.88	5	5	.0	0	9.0	SSE	34	S	26	12	10	8	4.7	61
Brownsville	16	1009.1	1011.6	89	75	81.9	-.7	93	13+	70	20	14	0	74	81	4.90	1.85	1.87	9	4	.0	0	11.0	SSE	34	S	25+	11	9	10	5.6	65
Corpus Christi	41	1011.2	1012.5	89	74	81.6	-.6	93	20	68	5	13	0	73	79	5.69	2.81	3.35	7	7	.0	0	11.0	SSE	30	SE	26+	11	11	8	5.2	63
Dallas	487	994.9	1013.1	90	72	80.6	-1.3	99	19	65	2	15	0	68	69	3.16	-.29	.86	11	10	.0	0	11.1	SSE	46	NE	12	10	10	10	5.1	61
Del Rio (U)	957	------	------	94	72	83.0	.3	100	21+	64	6	28	0	--	--	6.65	4.23	2.52	9	9	.0	0	---	---	-	---	--		--	--	---	--
El Paso	3920	883.5	1008.0	97	69	83.0	2.8	104	24	57	1	28	0	44	29	.46	-.16	.41	3	5	.0	0	11.4	ESE	40	SW	28	22	5	3	2.7	87
Fort Worth	544	992.6	1013.0	91	71	80.7	-.7	102	19	63	3	20	0	68	69	5.27	1.88	2.58	8	10	.0	0	11.9	S	*50	N	20	14	6	10	4.7	--
Galveston (U)	7	------	------	85	77	81.3	-.2	91	19+	70	5	2	0	--	--	3.16	-.19	1.07	6	--	.0	0	12.4	---	32	SE	24	-	--		---	75
Galveston	5	1011.2	1013.5	88	77	82.4	.6	93	19	71	5	6	0	73	75	2.66	-.69	.91	10	5	.0	0	13.0	SSE	--	---	--	7	15	8	5.5	---
Houston (U)	41	1007.8	------	90	75	82.4	.6	96	19	69	8	20	0	--	-	6.52	2.44	3.27	7	8	.0	0	9.7	S	34	SE	1	8	16	6	5.3	85
Houston	50	1010.5	1012.9	91	74	82.3	1.8	96	19+	70	9+	21	0	72	75	2.78	-.91	1.72	7	7	.0	0	11.4	SSE	--	---	-	5	16	9	5.8	
Laredo	500	995.3	1010.4	99	74	86.6	.8	103	4	67	6	30	0	67	59	3.14	1.05	2.94	4	6	.0	0	14.0	SSE	*30	SSE	25	11	15	4	4.4	---
Lubbock	3243	901.8	1010.8	89	64	76.6	.2	103	11	52	2	16	0	60	62	7.25	4.72	2.38	8	10	.0	0	12.5	SSE	*50	WNW	3	14	9	7	4.4	---
Midland	2854	913.6	1010.4	92	66	78.8	-1.3	104	11	58	6	21	0	61	60	1.89	-.07	.73	4	6	.0	0	9.6	ESE	*31	SSE	1	13	9	8	4.5	---
Port Arthur	16	1011.9	1013.1	90	73	81.3	1.2	95	18	67	5+	15	0	73	79	3.84	-.94	.96	14	8	.0	0	10.8	NNE	37	SE	24	4	17	9	6.1	69
San Angelo	1903	945.1	1010.9	91	69	79.6	-1.0	101	20	61	6	17	0	63	62	4.17	2.35	2.17	10	6	.0	0	10.6	S	*35	NE	12+	14	7	9	4.7	
San Antonio	792	987.1	1011.7	93	73	82.9	.9	100	20	67	7	26	0	68	66	1.32	-1.88	1.23	5	1	.0	0	10.3	SSE	43	SE	5	11	14	5	4.6	73
Victoria	110	1007.5	1012.1	91	73	82.1	-1.0	96	20	68	6	22	0	72	73	3.39	.15	1.66	7	8	.0	0	8.7	SSE	‡40	SE	25	6	18	6	5.3	-
Waco	500	991.9	1012.4	91	71	80.7	-1.1	99	19	65	2	19	0	69	71	5.74	2.55	1.70	9	9	.0	0	12.0	S	*44	NE	12	14	8	8	4.9	---
Wichita Falls	1020	975.6	1011.4	90	70	80.0	.4	101	19+	61	2	17	0	64	64	5.93	2.53	2.25	7	8	.0	0	9.8	SSE	*35	NW	21	13	8	9	4.9	
UTAH																																
Milford	5028	842.9	1010.5	89	51	70.0	4.2	97	23+	36	2+	16	0	-	—	.07	-.38	.06	2	5	.0	0	--	---	--	---	-	15	9	6	3.9	-
Salt Lake City	4220	863.9	1010.1	87	56	71.5	4.4	99	22	41	1	17	0	41	39	1.38	.47	.51	7	6	.0	0	8.8	SSE	42	W	15	14	9	7	4.3	69
VERMONT																																
Burlington	331	997.4	1012.0	75	57	65.5	.0	93	29	43	15	2	0	56	73	3.41	-.16	1.20	15	3	.0	0	7.2	SSW	31	SW	12	2	8	20	7.9	45
VIRGINIA																																
Lynchburg	947	981.8	------	85	62	73.5	.7	98	29	48	17	10	0	--	--	1.85	-2.03	1.37	5	3	.0	0	6.4		24	NW	13	14	11	5	4.3	71
Norfolk	26	1013.3	1014.7	86	67	76.4	1.7	98	29	55	18+	12	0	64	68	2.49	-1.67	1.47	5	4	.0	0	8.1	SW	48	NW	13	12	11	7	4.4	80
Richmond	162	1008.9	1015.1	86	63	74.8	.5	100	29	50	18+	12	0	62	67	3.45	-.42	2.18	4	5	.0	0	6.5	NW	23	NW	14	10	13	7	4.9	75
Roanoke	1174	974.5	1016.0	86	61	73.8	1.1	100	30	46	18	13	0	57	61	2.82	-.88	2.39	5	5	.0	0	6.9	NW				11	13	6	4.5	—
WASHINGTON																																
Olympia	190	1008.8	1016.2	70	48	59.2	.3	90	19	39	13	1	0	48	67	1.85	.57	.48	12	0	.0	0	6.0	SW	*21	SW	11	1	10	19	7.9	-
Seattle (U)	14	------	------	70	54	61.9	.1	86	19+	50	10+	0	0	--	--	1.53	.28	.32	12	--	.0	0	-		30	SW	24					[illegible]
Seattle	14	1014.9	1015.8	--	--	----	---	--	--	--	--	--	--	48	64	--	--			1			7.6	SW								
Seattle-Tacoma	386	1002.0	1016.1	68	52	59.6	-.3	85	19	46	15	0	0	49	72	1.82	.52	.53	11	1	.0	0	9.1	SSW	*22	WSW	24+	1	9	20	7.9	—
Spokane	2357	945.1	1013.4	73	50	61.7	.3	90	19	40	10	1	0	43	54	.39	-.78	.30	3	2	.0	0	8.9	SSW	36	SW	8	1	11	15	6.9	66
Stampede Pass (R)	3958	879.4	1017.3	57	42	49.2	-1.2	78	19	33	9	0	0		--	2.93	-1.04	.64	18	1	T	28	—	---			-	1	6	23	8.8	
Tatoosh (R)	101	1018.3	1016.1	59	51	55.0	1.0	64	18+	48	7	0	0	51	86	2.78	.20	.70	15	0	.0	0	10.4	WSW	32	S	11	3	9	18	7.8	46
Walla Walla (U)	949	977.7	1012.9	79	57	67.8	-.1	95	20+	48	10	2	0	--	--	1.19	-.02	.89	5	0	.0	0	6.1		26	W	8	6	13	11	5.7	75
Yakima	1061	974.9	1013.4	79	48	63.5	-1.9	94	19	34	10	4	0	42	49	.20	-.39	.11	7	1	.0	0	7.8	NW	*46	W	8	3	12		6.9	
WEST INDIES																																
San Juan, P.R.(U)	47	------	------	85	76	80.4	.9	89	14+	74	12+	0	0	-	-	2.91	-2.25	1.18	11	—	.0	0	—									
San Juan P. R.	15	1014.2	1017.2	88	74	80.7	1.0	91	23+	70	11	6	0	73	78	3.02	-2.35	1.18	17	1	.0	0	8.4	ENE	26	E	16	2	17		6.5	74
Swan Island	31	1011.0	------	88	78	82.9	.8	89	30+	71	14	0	0	-	--	2.07	-4.08	1.28	7	5	.0	0						2	13	15	7.1	
WEST VIRGINIA																																
Charleston	950	980.9	1016.1	83	59	70.7	-1.3	94	30	47	18	4	0	58	68	1.90	-2.03	.87	10	8	.0	0	4.9	SW	*31	SW	26	2	17	11	6.6	
Elkins	1970	------	------	77	51	64.3	-2.2	88	30	37	19+	0	0	56		3.16	-2.10	1.32	7	1	.0		5.3	NW	*23	W	22	3	14	13	6.9	
Huntington (U)	565	------	------	85	60	72.5	-1.6	95	30	48	14	7	0	--		2.01	-2.33	.68	8		.0	0										
Parkersburg (U)	615	------	------	83	60	71.6	-.8	96	30	46	15	5	0			2.37	-1.81	1.31	7	6	.0	0	5.2	—	23	NW	13	10	11	9	5.3	44
WISCONSIN																																
Green Bay	689	992.9	1015.5	77	54	65.8	1.1	89	9	41	17+	0	0	57	73	1.26	-2.31	.36	11	3	.0	0	10.2	SW	30	SW	28	9	10	11	5.5	65
La Crosse	652	989.5	1013.9	80	60	69.7	1.1	90	9	47	23	1	0	57	65	4.05	.18	1.26	10	7	.0	0	9.4	S	*31	NW	12	9	10	11	5.7	
Madison	857	980.4	1015.2	82	57	69.0	1.6	91	9+	43	17	5	0	55	63	3.86	-.16	1.57	11	8	.0	0	8.2	WSW	36	SW	28	8	8	14	6.3	61
Milwaukee	672	991.2	1016.0	77	57	67.3	2.4	91	26	45	14+	3	0	55	66	1.67	-1.55	.60	11	7	.0		9.0	SE	27	SW	28+	9	13	8	5.5	69
WYOMING																																
Casper	5319	836.4	1009.5	83	50	66.8	4.8	95	24	39	1	8	0	40	47	1.79	.31	1.40	7	8	.0	0	11.6	WSW	*52	N	22	11	12	7	[illegible]	
Cheyenne	6131	812.7	1011.6	80	50	65.4	5.1	90	24+	35	1	2	0	42	49	.71	-1.39	.34	13	12	.0	0	12.4	W	36	W	27	13	12		4.7	71
Lander	5563	834.4	1010.6	81	51	66.0	4.5	94	24	38	1	3	0	42	45	.44	-.91	.32	3	8	.0	0	7.3		40	SW	26	10	13	7	4.9	86
Sheridan	3942	882.8	1011.9	80	51	65.4	4.0	96	13	39	11+	5	0	47	57	2.07	-.53	.83	9	8	.0	0	7.8	WNW	45	NW	9		11	9	5.3	64

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This [illegible] wind instrument.
\+ And also on an earlier date or dates.
a Maximum hourly average.
ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
\# Number of days maximum 70° or above for Alaskan Stations.

City Office Data
† [illegible]
‡ [illegible]

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°)

1958 - 1959

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
ALABAMA														
Birmingham	0	0	0	107	319	711	696	466	400	124	12	0	2835	2780
Mobile	0	0	0	37	170	466	525	293	254	71	0	0	1816	1612
Montgomery	0	0	0	59	213	571	573	363	314	78	2	0	2173	2137
ALASKA														
Anchorage	260	290	552	1094	1357	1531	1700	1229	1575	931	530	245	11294	10789
Annette	104	227	368	544	800	809	942	817	810	648	494	318	6881	7096
Barrow	820	685	878	1406	1865	2289	2557	2059	2847	2029	1400	923	19758	19994
Barter Island	602	613	841	1531	1837	2204	2561	1985	2805	2060	1372	989	19400	-----
Bethel	285	398	630	1125	1410	1755	1913	1236	2101	1399	703	407	13362	12880
Cold Bay	482	458	521	752	933	1041	1117	902	1407	1009	741	646	10009	-----
Cordova	355	385	556	886	1024	1119	1398	1000	1273	850	607	320	9773	9615
Fairbanks	102	257	660	1555	1910	2238	2643	1650	2225	1166	544	135	15085	14158
Juneau	230	316	521	736	928	1076	1449	1022	959	781	582	285	8885	8888
King Salmon	313	345	542	999	1332	1374	1689	1090	1839	1003	634	378	11538	-----
Kotzebue	221	430	718	1465	1740	2018	2135	1652	2405	1781	948	625	16138	16151
McGrath	224	348	696	1404	1802	2347	2388	1520	2202	1228	590	212	14961	14390
Nome	346	455	722	1239	1519	1818	1815	1420	2184	1577	829	574	14498	14086
St. Paul	580	537	601	811	927	1080	1085	941	1427	1093	917	734	10733	10839
Yakutat	299	347	522	775	973	1050	1268	1030	1085	823	632	342	9146	9354
ARIZONA														
Flagstaff	27	11	235	508	894	879	1034	1054	850	572	466	98	6628	7525
Phoenix (U)	0	0	0	1	112	172	244	249	65	0	4	0	847	1492
Phoenix	0	0	0	4	124	271	341	306	66	0	3	0	1115	1698
Prescott	0	0	53	196	583	620	747	741	548	261	169	0	3918	4533
Tucson	0	0	0	27	215	284	340	370	205	8	10	0	1459	1776
Winslow	0	0	28	193	657	781	875	704	595	228	100	0	4161	4702
Yuma	0	0	0	0	88	106	151	188	[illegible]	0	0	0	542	951
ARKANSAS														
Ft. Smith	0	0	15	140	361	826	864	607	421	179	11	0	3424	3188
Little Rock	0	0	10	115	314	755	776	550	364	146	4	0	3034	2982
Texarkana	0	0	4	110	263	678	659	454	327	147	1	0	2643	2362
CALIFORNIA														
Bakersfield	0	0	0	7	264	385	406	367	140	14	41	0	1624	2115
Bishop	0	0	20	161	529	639	737	735	440	207	154	0	3622	4222
Blue Canyon	43	1	103	187	538	499	784	821	645	389	508	107	4625	5719
Burbank	0	0	1	7	140	179	229	319	84	55	58	0	1072	1808
Eureka (U)	227	220	176	317	373	385	458	487	478	428	386	262	4197	4632
Fresno	0	0	2	21	313	470	488	422	218	38	59	0	2031	2532
Los Angeles (U)	0	0	0	2	80	132	155	237	49	29	24	0	708	1451
Los Angeles	0	0	0	0	64	118	148	209	55	15	15	0	624	2015
Mt. Shasta (R)	25	0	158	269	669	670	863	807	655	420	443	121	5100	5913
Oakland	31	2	16	81	269	346	415	385	240	146	169	70	2170	3163
Red Bluff	0	0	3	26	297	352	507	420	222	36	57	0	1920	2546
Sacramento (U)	0	0	3	19	257	377	451	405	203	45	67	0	1827	2600
Sacramento	0	0	0	27	310	447	486	429	237	51	66	0	2053	2822
Sandberg (R)	11	0	63	148	469	401	656	714	438	241	369	34	3544	4243
San Diego	0	0	0	1	93	108	156	216	73	29	25	0	701	1574
San Francisco (U)	178	121	39	112	205	224	333	315	209	213	247	165	2361	3069
San Francisco	25	1	9	74	225	295	351	322	213	157	181	110	1963	3421
San Jose	4	0	5	29	230	283	354	349	200	95	133	42	1724	2410
Santa Maria	83	10	26	75	251	268	329	399	250	193	269	162	2315	2934
COLORADO														
Alamosa	33	37	245	643	1053	1193	1475	1167	1077	703	437	91	8154	8659
Colorado Springs	16	7	123	399	740	919	1099	937	881	628	258	30	6037	6254
Denver	14	4	106	342	724	898	1081	968	841	572	273	25	5848	6132
Grand Junction	0	0	62	278	726	904	1096	814	728	369	104	0	5081	5796
Pueblo	1	0	61	312	707	908	1143	871	772	486	140	10	5411	5709
CONNECTICUT														
Bridgeport	0	1	80	369	590	1163	1114	1004	849	448	155	54	5827	5896
Hartford	3	10	136	473	680	1326	1243	1143	928	462	180	72	6656	6139
New Haven	3	3	98	396	606	1179	1124	1034	871	485	193	68	6060	6026
DELAWARE														
Wilmington	0	0	64	297	565	1123	1051	890	734	325	103	22	5174	4910
DISTRICT OF COLUMBIA														
Washington (U)	0	0	23	208	451	983	923	722	607	235	46	11	4209	4258
Washington	0	0	22	203	447	987	926	721	601	222	39	[illegible]	4176	4333
FLORIDA														
Apalachicola (U)	0	0	0	21	76	354	409	170	177	40	0	0	1247	1307
Daytona Beach	0	0	0	9	18	182	276	58	125	25	0	0	693	868
Fort Myers	0	0	0	0	0	93	165	2	49	8	0	0	317	405
Jacksonville	0	0	0	30	59	326	393	152	149	33	0	0	1142	1243
Key West	0	0	0	0	0	4	38	0	4	0	0	0	46	77
Miami	0	0	0	0	0	26	82	0	16	2	0	0	126	178
Miami Beach	0	0	0	0	0	11	57	0	11	0	0	0	79	123
Orlando	0	0	0	6	9	150	236	36	98	15	0	0	550	650
Pensacola (U)	0	0	0	26	115	402	457	233	220	51	0	0	1504	1435
Tallahassee	0	0	0	33	118	404	437	190	202	49	0	0	1433	1519
Tampa	0	0	0	3	2	135	213	11	78	10	0	0	452	674
West Palm Beach	0	0	0	0	0	35	112	0	28	0	0	0	175	248
GEORGIA														
Athens	0	0	2	146	292	717	701	488	460	117	14	0	2937	2800
Atlanta	0	0	0	117	268	681	701	480	422	108	10	0	2787	2826
Augusta	0	0	1	134	239	667	610	384	352	92	5	0	2484	2138
Columbus	0	0	0	86	221	622	599	396	356	95	5	0	2380	2396
Macon	0	0	0	78	176	587	565	376	315	75	1	0	2173	2049
Rome	0	0	5	175	394	797	812	544	514	174	21	0	3436	3138
Savannah	0	0	0	84	144	517	537	285	257	60	0	0	1884	1710
IDAHO														
Boise	2	3	143	299	735	870	896	771	737	421	382	43	5302	5890
Lewiston	2	0	128	360	707	798	903	786	654	419	324	63	5144	5483
Pocatello	7	5	174	421	867	937	1114	952	842	512	472	75	6378	6976
ILLINOIS														
Cairo (U)	0	0	18	156	428	941	945	695	487	190	26	0	3886	3756
Chicago	0	4	67	255	659	1315	1437	1083	853	466	114	12	6265	6310
Chicago University	0	6	74	251	646	1291	1397	1061	866	500	135	26	6253	----
Moline	4	21	93	289	685	1319	1523	1096	861	462	114	8	6475	6364
Peoria	1	11	72	274	652	1296	1435	1057	800	418	103	5	6124	6087
Springfield	2	5	59	276	602	1187	1309	961	719	364	89	2	5575	5693
INDIANA														
Evansville	0	3	39	256	529	1103	1048	768	624	264	58	0	4692	4360
Ft. Wayne	1	11	106	343	691	1366	1353	1029	885	470	140	27	6422	6287
Indianapolis	2	6	77	318	640	1257	1239	925	803	397	104	6	5774	5611
South Bend	1	16	121	325	683	1370	1428	1099	897	512	158	36	6646	6524

Data from airport unless otherwise specified.
U indicated Urban, R indicated Rural, sites.

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°)

1958 - 1959

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
IOWA														
Burlington	2	14	82	288	664	1289	1471	1069	817	432	110	9	6247	6101
Des Moines	4	27	78	304	694	1294	1503	1148	877	467	140	15	6551	6446
Dubuque	11	42	130	349	805	1490	1631	1327	1054	557	166	26	7588	7271
Keokuk (U)	1	7	65	262	606	1208	1420	1018	784	374	88	4	5837	-----
Sioux City	4	11	74	315	790	1333	1539	1261	807	470	166	21	6791	7012
KANSAS														
Concordia (U)	0	0	50	236	585	1067	1278	979	658	363	108	8	5332	5323
Dodge City	2	0	48	240	623	1003	1189	871	662	370	108	3	5119	5058
Goodland	0	4	103	374	768	1023	1192	986	842	525	197	14	6028	6367
Topeka	0	5	49	244	553	1078	1265	926	622	361	92	4	5199	5209
Wichita	0	0	35	206	491	984	1187	870	555	300	62	0	4690	4571
KENTUCKY														
Lexington	0	1	39	272	538	1082	1043	766	692	284	63	5	4785	4979
Louisville	0	0	23	229	492	1040	1001	723	627	222	51	0	4408	4439
Pikeville (U)	0	0	18	193	444	951	878	561	564	195	36	7	3867	-----
LOUISIANA														
Baton Rouge	0	0	0	42	157	448	502	291	194	54	0	0	1688	1595
Lake Charles	0	0	0	35	142	437	511	302	181	56	0	0	1664	1543
New Orleans (U)	0	0	0	29	95	355	421	230	144	27	0	0	1301	1175
New Orleans	0	0	0	28	119	378	454	241	162	29	0	0	1411	1317
Shreveport	0	0	0	85	261	621	609	402	287	127	0	0	2392	2117
MAINE														
Caribou	88	109	339	727	1053	1841	1648	1628	1372	813	360	240	10218	10173
Greenville (U)	87	105	292	700	985	1704	1612	1553	1324	823	361	272	9818	-----
Portland	28	421	210	586	782	1449	1349	1305	1053	653	295	187	8318	7681
MARYLAND														
Baltimore (U)	0	0	21	226	466	988	927	738	602	218	32	6	4224	4203
Baltimore	0	0	52	261	528	1081	1015	815	691	276	67	16	4802	4787
Frederick	0	3	73	331	585	1138	1083	862	752	322	114	23	5286	4854
MASSACHUSETTS														
Blue Hill Obs. (R)	16	23	170	488	691	1316	1234	1148	972	573	222	146	6999	----
Boston	4	2	84	386	547	1190	1118	1065	862	476	142	92	5968	5791
Nantucket	15	11	117	393	544	1080	1081	998	899	624	333	167	6262	6102
Pittsfield	32	40	222	570	798	1425	1381	1243	1064	595	287	112	7769	7694
MICHIGAN														
Alpena (U)	63	61	201	462	793	1447	1508	1389	1194	704	344	105	8271	8073
Detroit	1	8	98	323	657	1313	1349	1093	945	486	159	34	6466	6404
Detroit (Willow Run)	1	12	105	333	686	1346	1369	1107	935	484	147	33	6558	6469
East Lansing (U)	1	17	126	329	701	1359	1426	1163	998	516	*164	*62	----	----
Escanaba (U)	44	76	230	471	849	1519	1662	1442	1245	773	391	103	8805	8657
Grand Rapids	5	22	151	374	722	1373	1462	1187	1091	580	164	27	7158	7075
Marquette (U)	91	95	208	477	843	1467	1617	1378	1165	787	326	145	8599	8529
Muskegon	9	29	153	379	716	1338	1421	1196	1072	617	194	49	7173	7089
S. Ste. Marie	141	116	273	575	908	1661	1665	1543	1306	864	436	167	9655	9475
MINNESOTA														
Duluth (U)	124	111	279	603	1070	1808	1937	1543	1185	793	467	185	10105	9574
Duluth	98	114	285	607	1070	1822	1947	1552	1223	813	439	161	10131	9937
International Falls	87	161	325	622	1178	2017	2191	1725	1304	848	408	122	10988	10600
Minneapolis	12	37	108	370	871	1519	1686	1334	956	530	192	28	7643	7853
Rochester	40	62	164	400	894	1575	1720	1452	1110	557	200	46	8220	8095
St. Cloud	36	70	188	489	981	1644	1832	1464	1028	663	280	63	8738	8893
MISSISSIPPI														
Jackson	0	0	0	83	276	632	663	395	321	127	3	0	2500	2202
Meridian	0	0	0	82	274	638	650	389	335	107	2	0	2477	2333
Vicksburg (U)	0	0	1	79	224	609	603	383	273	102	0	0	2274	2000
MISSOURI														
Columbia	0	4	48	224	516	1065	1246	861	623	318	70	3	4978	5113
Kansas City	0	2	25	176	455	1017	1187	856	569	273	56	0	4616	4888
St. Joseph	0	5	44	244	576	1123	1339	981	666	363	87	3	5431	5336
St. Louis (U)	0	0	28	170	437	1057	1146	813	589	258	57	0	4555	4469
St. Louis	0	2	41	214	482	1072	1190	813	594	273	63	0	4744	4699
Springfield	2	1	49	247	483	994	1094	763	591	305	63	9	4601	4693
MONTANA														
Billings	44	11	162	403	848	1116	1297	1200	755	616	436	68	6956	7106
Glasgow	42	21	234	540	1167	1540	1842	1735	1018	670	439	78	9326	8690
Great Falls	106	13	235	400	944	1081	1297	1347	828	637	505	109	7502	7555
Havre (U)	60	11	226	512	1017	1312	1686	1596	815	628	407	78	8348	8213
Helena	99	14	263	561	1018	1253	1367	1405	886	651	540	126	8183	8250
Kalispell	59	31	330	656	1016	1171	1305	1180	945	636	537	185	8051	8055
Miles City	26	6	150	431	965	1355	1648	1558	866	625	377	43	8050	7850
Missoula	47	30	295	608	964	1098	1201	1159	872	613	505	134	7526	7873
NEBRASKA														
Grand Island	0	9	74	331	760	1183	1384	1152	823	474	180	22	6392	6311
Lincoln (U)	0	4	45	249	640	1106	1331	1071	746	393	141	14	5740	5865
Norfolk	0	6	84	361	809	1277	1503	1231	883	507	206	25	6892	7065
North Platte	3	6	110	416	840	1183	1292	1137	871	550	224	22	6654	6546
Omaha	0	9	[illegible]	272	678	1184	1431	1114	790	426	135	22	6113	6160
Scottsbluff	5	1	126	398	821	1228	1258	1097	928	597	302	36	6797	6841
Valentine	6	12	130	449	854	1273	1409	1262	901	597	315	33	7241	7075
NEVADA														
Elko	21	1	231	505	876	1004	1020	986	898	557	505	70	6674	7335
Ely	34	3	227	534	903	958	1115	1085	901	598	537	98	6993	7443
Las Vegas	0	0	0	42	338	497	571	477	239	21	19	0	2204	2425
Reno	20	0	155	377	782	839	875	867	686	435	415	58	5509	6036
Tonopah	0	0	64	279	705	806	952	910	655	353	294	3	5021	5813
Winnemucca	16	0	198	462	790	891	936	941	804	533	484	61	6116	6369
NEW HAMPSHIRE														
Concord	21	24	182	544	811	1459	1353	1279	1044	577	235	107	7636	7612
Mt. Washington Obs.	480	548	742	1133	1368	1985	1895	1789	1758	1222	850	622	14392	----
NEW JERSEY														
Atlantic City (U)	0	0	39	266	476	1091	1019	852	759	451	154	12	5119	4741
Newark	0	0	37	323	520	1103	1036	928	761	343	101	27	5179	5252
Trenton (U)	0	0	54	329	540	1105	1027	907	744	334	108	23	5171	5068
NEW MEXICO														
Albuquerque	0	0	35	249	562	722	948	706	587	249	60	[illegible]	4118	4389
Clayton	7	0	75	309	648	880	1089	807	760	454	157	17	5203	5138
Roswell	0	0	[illegible]	217	471	753	789	594	466	212	11	0	3551	3424
NEW YORK														
Albany	8	8	142	499	745	1415	1354	1249	1010	502	220	68	7220	6962
Binghamton	23	27	191	513	759	1405	1339	1167	1053	544	240	94	7355	7537

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.
* Data from Lansing Airport.

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°)

1958 - 1959

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
NEW YORK (Cont'd.)														
Buffalo	2	19	124	395	687	1318	1317	1134	1050	562	216	63	6887	6838
New York (U)	0	0	39	296	492	1073	1031	917	768	365	129	43	5153	5050
New York	0	0	26	296	478	1076	1029	916	765	351	107	27	5071	4989
Rochester	5	31	139	428	700	1344	1327	1182	1073	545	235	67	7076	6863
Schenectady	1	2	122	460	700	1349	1319	1196	974	479	179	59	6840	7050
Syracuse	7	17	133	451	683	1408	1357	1201	1045	516	222	56	7106	6520
NORTH CAROLINA														
Asheville (U)	0	0	41	292	449	860	877	635	624	249	58	3	4088	4072
Cape Hatteras (R)	0	0	0	77	180	623	658	450	412	164	7	3	2574	2392
Charlotte	0	0	2	178	331	783	741	528	482	145	13	0	3203	3205
Greensboro	0	0	21	253	424	912	860	632	565	208	33	2	3910	3810
Raleigh	0	0	23	217	355	864	780	591	504	179	26	4	3543	3369
Wilmington	0	0	2	126	221	674	627	427	370	131	9	0	2587	2323
Winston-Salem	0	0	13	220	393	861	814	615	538	179	27	1	3661	3721
NORTH DAKOTA														
Bismarck	49	39	185	535	1066	1621	1914	1645	980	643	397	56	9130	9033
Devils Lake (U)	71	78	258	580	1167	1761	2050	1669	1079	731	458	90	9992	9940
Fargo	38	56	174	498	1054	1684	1903	1555	1051	649	342	63	9067	9274
Grand Forks	50	70	215	551	1150	1824	2069	1700	1170	694	397	79	9969	----
Pembina	48	84	224	531	1170	1945	2131	----	1270	692	391	74	----	----
Williston (U)	55	36	227	517	1104	1508	1839	1653	941	658	403	65	9006	9068
OHIO														
Akron	5	29	116	407	680	1373	1306	1006	931	484	157	62	6556	6203
Cincinnati (U)	0	0	22	214	474	1064	1013	753	648	272	70	0	4530	4532
Cincinnati	1	2	49	282	561	1171	1102	815	736	292	76	9	5096	5195
Cleveland	0	21	86	316	608	1288	1261	998	877	451	133	43	6082	6006
Columbus	1	7	63	326	632	1284	1201	898	809	366	98	34	5719	5615
Dayton	2	7	69	323	639	1302	1227	920	820	383	110	17	5819	5597
Sandusky (U)	1	8	67	299	614	1323	1283	1007	887	449	151	11	6100	5859
Toledo	4	19	117	367	681	1354	1359	1064	914	485	136	31	6531	6394
Youngstown	1	40	131	428	675	1362	1309	1023	958	489	172	75	6663	6172
OKLAHOMA														
Oklahoma City	0	0	17	158	410	876	983	692	481	248	27	0	3892	3644
Tulsa	0	0	18	146	345	853	969	652	416	196	21	0	3616	3584
OREGON														
Astoria	86	91	190	303	552	531	654	611	616	460	389	237	4720	4995
Burns (U)	25	5	239	403	806	921	992	898	838	513	525	129	6298	6918
Eugene	0	2	116	349	531	575	667	615	574	413	348	127	4317	4779
Meacham	42	35	329	440	904	912	1094	986	962	701	649	284	7338	7888
Medford	1	0	90	234	576	671	727	647	570	333	302	63	4214	4547
Pendleton	1	0	100	326	686	814	891	757	609	393	295	53	4925	5204
Portland (U)	0	2	71	187	516	565	676	600	520	336	259	84	3816	4143
Portland	3	5	105	295	579	657	755	618	559	375	280	89	4320	4632
Roseburg	0	1	100	287	472	546	608	607	566	366	326	113	3992	----
Salem	0	2	110	296	539	593	662	612	579	417	333	119	4282	4574
Sexton Summit (R)	22	15	265	319	662	671	918	870	834	569	580	291	6016	6217
PENNSYLVANIA														
Allentown	0	2	100	397	667	1256	1141	996	838	372	133	30	5932	5880
Harrisburg	0	0	62	336	596	1177	1095	904	773	307	103	23	5376	5258
Philadelphia (U)	0	0	33	278	494	1046	963	782	677	277	70	12	4632	4523
Philadelphia	0	0	64	296	547	1096	1030	884	721	311	91	24	5064	4866
Pittsburgh (U)	0	2	64	312	540	1179	1116	835	779	338	95	30	5290	5048
Pittsburgh	4	20	117	393	625	1295	1224	924	861	407	130	54	6054	5905
Reading (U)	0	0	57	313	568	1132	1045	903	740	294	85	16	5153	5060
Scranton	0	15	157	463	711	1316	1243	1095	911	429	167	55	6562	6047
Williamsport	1	7	116	408	693	1274	1184	1021	905	432	138	33	6212	5898
RHODE ISLAND														
Block Island	6	3	86	369	535	1070	1050	988	868	561	276	112	5924	5843
Providence	2	6	108	415	595	1225	1134	1063	879	473	180	88	6168	6125
SOUTH CAROLINA														
Charleston (U)	0	0	0	66	114	502	526	313	274	55	0	0	1850	1769
Charleston	0	0	0	113	183	568	574	330	314	100	3	0	2185	1973
Columbia	0	0	3	148	249	702	630	412	370	95	5	0	2614	2435
Florence	0	0	3	133	221	678	631	424	360	104	6	0	2560	2507
Greenville	0	0	6	160	286	734	723	529	469	141	19	0	3067	3060
Spartanburg	0	0	8	176	308	742	732	527	482	133	17	0	3125	3044
SOUTH DAKOTA														
Huron	14	18	117	426	895	1500	1738	1525	890	543	259	20	7945	7902
Pierre	8	5	96	418	872	1402	1648	1388	859	551	305	25	7580	----
Rapid City	30	7	127	412	826	1168	1374	1206	833	643	352	47	7025	7535
Sioux Falls	7	17	104	397	901	1465	1646	1430	918	540	236	27	7688	7848
TENNESSEE														
Bristol	0	0	22	264	488	948	959	646	640	252	45	3	4267	4148
Chattanooga	0	0	8	174	403	819	829	580	540	171	25	0	3549	3384
Knoxville	0	0	5	169	412	847	854	589	550	182	30	0	3638	3590
Memphis	0	0	11	138	344	795	781	570	410	155	15	0	3219	3137
Nashville	0	0	16	187	420	886	861	634	526	191	35	0	3756	3513
TEXAS														
Abilene	0	0	6	133	319	690	689	507	299	183	8	0	2834	2657
Amarillo	0	0	37	233	546	852	1008	716	584	321	74	3	4374	4345
Austin	0	0	0	74	184	505	530	346	183	112	0	0	1934	1713
Brownsville	0	0	0	32	53	212	268	153	84	27	0	0	829	617
Corpus Christi	0	0	0	38	93	292	382	227	105	39	0	0	1176	1011
Dallas	0	0	0	78	225	634	664	443	259	141	0	0	2444	2272
Del Rio (U)	0	0	0	68	184	439	486	288	133	71	0	0	1669	
El Paso	0	0	16	120	343	549	523	434	335	86	3	0	2409	2641
Ft. Worth	0	0	0	82	247	659	690	452	276	143	4	0	2553	2361
Galveston (U)	0	0	0	35	102	334	418	263	134	43	0	0	1329	1211
Galveston	0	0	0	32	107	347	433	254	137	41	0	0	1351	1233
Houston (U)	0	0	0	52	133	363	426	254	133	69	0	0	1430	1276
Houston	0	0	0	48	145	375	452	254	163	58	0	0	1495	1388
Laredo	0	0	0	58	92	294	345	223	91	46	0	0	1149	781
Lubbock	0	0	24	197	446	779	835	622	490	246	35	1	3675	3587
Midland	0	0	10	161	338	664	686	501	341	179	6	0	2886	----
Port Arthur	0	0	0	46	170	422	469	289	183	59	0	0	1638	1517
San Angelo	0	0	2	143	297	616	614	458	264	156	6	0	2556	2107
San Antonio	0	0	0	75	171	451	497	311	179	90	0	0	1774	1579
Victoria	0	0	0	51	122	385	426	263	139	66	0	0	1452	1126
Waco	0	0	0	71	208	577	604	411	231	132	0	0	2234	2025
Wichita Falls	0	0	4	120	308	724	818	540	329	166	4	0	3013	3025
UTAH														
Milford	0	0	131	399	930	936	1040	935	796	459	316	21	5963	6445
Salt Lake City	0	0	116	300	778	887	956	804	722	404	296	34	5297	5866

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°)

1958 - 1959

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
VERMONT														
Burlington	20	21	191	543	810	1603	1478	1430	1145	594	260	97	8192	7865
VIRGINIA														
Lynchburg	0	0	34	264	444	964	891	683	595	230	53	11	4169	4153
Norfolk	0	0	7	132	282	855	778	591	478	180	37	4	3344	3454
Richmond	0	0	24	212	409	973	847	650	542	212	44	10	3923	3955
Roanoke	0	0	30	256	436	948	893	668	597	218	49	8	4103	4152
WASHINGTON														
Olympia	7	21	201	383	652	650	777	680	660	495	386	181	5093	5501
Seattle (U)	1	13	105	265	573	541	684	597	575	378	280	104	4116	4438
Seattle-Tacoma	15	19	165	338	640	617	742	667	637	456	355	166	4817	5275
Spokane	5	10	226	452	868	1005	1111	960	794	517	441	131	6520	6852
Stampede Pass (R)	109	182	455	615	1069	1087	1244	1087	1083	866	761	470	9028	9149
Tatoosh Island (R)	243	214	257	386	569	564	688	614	638	497	425	293	5388	5724
Walla Walla (U)	0	0	101	303	632	813	855	727	544	335	260	31	4601	4848
Yakima	3	12	192	452	821	964	1047	835	702	426	365	101	5920	5845
WEST VIRGINIA														
Charleston	0	1	54	289	511	1032	988	710	674	282	73	19	4633	4417
Elkins	2	28	145	432	674	1209	1136	881	860	442	145	95	6049	5773
Huntington (U)	0	0	34	257	490	1024	976	703	651	255	55	7	4452	4073
Parkersburg (U)	0	2	55	305	541	1127	1078	788	724	303	79	23	5025	4750
WISCONSIN														
Green Bay	27	52	194	437	856	1543	1741	1466	1236	663	213	72	8500	8259
La Crosse	4	30	116	350	818	1521	1694	1417	1114	519	142	33	7758	7650
Madison (U)	10	24	107	316	786	1472	1669	1306	1079	551	153	22	7495	7300
Madison	12	26	137	371	814	1499	1684	1357	1098	557	152	32	7739	7417
Milwaukee	13	16	133	348	768	1429	1594	1273	1049	592	215	73	7503	7205
WYOMING														
Casper	37	11	183	465	924	1108	1276	1169	899	684	441	63	6360	7638
Cheyenne	61	23	203	467	854	1052	1195	1086	1045	767	441	71	7265	7562
Lander	51	9	193	472	1005	1192	1373	1228	990	641	487	74	7715	8303
Sheridan	56	14	210	491	930	1212	1397	1270	934	690	488	83	7775	7903

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

Note: "Heating Degree Days" has been discontinued in the June issues of this publication, the data appearing therein being shown in the last three columns of the above Table.

STORM SUMMARY

JUNE 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ø ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS
Alabama										0	0	4	1	1	0	0	0												
Arizona										0	0	4	0													1	0	0	0
Arkansas	1	1	0	0	0					0	0	°5	0																
California						0	0	3	4																	0	0	4	4
Colorado						0	0	0	4	0	0	3	0	0	9	3	0									0	9	3	3
Connecticut														0	1	4	1												
Delaware										0	0	4	0	0	0	4	0									0	0	4	0
Florida	5	4	0	77	6					0	0	4	0																
Georgia	1	1	0	0	3	0	0	4	5	0	0	3	3																
Idaho														0	2	0	0												
Illinois	1	1	0	0	1	0	0	0	*	0	0	*	*	0	0	*	0												
Indiana						0	0	0	3					1	5	4	0									0	0	4	3
Iowa	2	2	0	0	4	0	0	4	4	0	1	5	4	2	0	4	0									0	0	4	4
Kansas	4	3	0	0	3	0	2	6	6	0	4	5	4	0	3	4	0									R4	R12	R3	0
Louisiana	3	3	0	2	4					0	0	4	3																
Maryland										2	0	4	0	0	0	4	0									2	0	4	0
Massachusetts						0	0	0	2					0	1	5	0												
Michigan										0	0	4	0	0	1	4	0												
Minnesota	F8	4	0	0	5	0	0	5	5					1	1	4	0									0	0	0	4
Mississippi	4	3	1	0	4					0	0	4	0																
Missouri	1	1	0	0	4	0	0	5	4	0	4	6	5																
Montana	1	1	0	0	3	0	0	5	6	0	0	5	4	2	1	0	0												
Nebraska	E9	5	0	0	5	0	2	6	7	0	0	4	1	0	0	5	0												
New Hampshire														0	0	4	0												
New Jersey						0	0	0	2	0	2	3	0	2	1	5	0									3	1	4	0
New Mexico	4	3	0	0	4	0	0	3	5																				
New York	1	1	0	3	5					1	7	3	0	3	4	4	0									1	0	4	0
North Carolina	3	2	0	0	4	0	0	5	6	0	0	5	4	L2	0	5	0									H2	0	5	5
Ohio						0	0	0	4	0	0	5	4	0	0	4	0									0	0	6	3
Oklahoma	G2	1	0	0	3	0	0	3	4	0	3	5	0	0	1	0	0									4	2	3	0
Oregon										2	0	3	2	0	0	4	2												
Pennsylvania						0	0	0	4	0	0	3	0	3	4	5	0									2	6	0	0
Rhode Island														0	2	3	0												
South Carolina	2	1	0	0	4	0	0	3	4					1	0	0	0									1	0	0	0
South Dakota	4	3	0	0	4	0	0	4	5	0	0	4	3	0	6	4	3									0	1	3	0
Tennessee	1	1	0	0	1									2	2	0	0									1	0	0	0
Texas	14	7	0	0	5	0	0	5	6	0	5	5	6	2	3	4	0												
Utah										0	0	4	0																
Vermont						0	0	0	4	0	0	4	0																
Washington						0	0	0	4	0	0	3	3	0	0	4	0												
Wisconsin	4	4	0	0	3					0	0	°4	C																
Wyoming	2	2	1	1	4	0	0	3	5																				

° Includes crop damage.
* Not estimated.
R Heavy rain.
F Includes 4 funnels aloft.
E Funnel clouds aloft not included.
L One direct, one in fire set by lighting.
H Heat prostration.
C Crop Damage.
G Includes one funnel aloft.
‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JUNE 1959

Flooding that occurred along principal rivers of the Nation during June was mostly light and resulted largely in damage to crops and pasturelands situated in low-lying areas. Flash flooding occurred in a number of localities and was rather severe in places.

The most severe flash flooding occurred in southeastern Mississippi, where excessive rains resulting from the passage of tropical storm "Arlene" fell over streams tributary to the Leaf and Pascagoula Rivers.

Heavy local rains also produced severe flash flooding in western Pennsylvania in the headwaters of the Allegheny and Beaver Rivers and caused an estimated $100,000 damage in Sharon, Pa., alone.

ATLANTIC SLOPE DRAINAGE

Moderate to heavy rains which fell over the North Carolina coastal drainages during the first 4 days of June caused sharp rises in some streams, but the only flooding was of a minor nature and occurred briefly on the Cape Fear River at Elizabethtown, N. C., and on the Neuse River at Smithfield, N. C. No damage resulted from the light overflow.

On June 18 light to moderate flooding by sea water occurred along the coastal areas of South Carolina. The tide reached a height of 7.8 feet above mean low water in the Charleston, S. C., harbor and was generally about 2 feet above normal all along the coast. The tide at Charleston was the highest since 1947, and numerous yards and intersections were in shallow water for an hour or so. Considerable erosion in isolated areas along the beach and dune line resulted, but no direct property damage occurred.

Light flooding occurred in the upper reaches of the Saluda River in the Pelzer, S. C., area during the first 4 days of the month as a result of rains totaling up to 2 inches which fell during the period May 31 to June 2. Lake Greenwood contained this water so that no overflow occurred downstream. Light flooding occurred also during this period on the Broad River at Blair, S. C. Lowland flooding occurred below Columbia, S. C., on the Congaree. Damage was confined to overflow of lowland pastureland and evacuation of livestock.

Scattered heavy to excessive rains fell in the Savannah River drainage during the first week of the month, with accumulated amounts varying from 1.5 to 7.25 inches. Much of the runoff was impounded by Clark Hill Dam, with the result that only minor overflow occurred for a few days in the lower portion of the river at Millhaven and Clyo, Ga. No damage was reported.

Light flooding occurred on the Ocmulgee and Oconee Rivers in the upper Altamaha River drainage, and on the Satilla River, due to heavy rains during the latter part of May and the first few days of June. The Oconee River rose unusually fast at Milledgeville, Ga., when the gates at Sinclair Dam were opened. No serious damage resulted from the light overflow.

EAST GULF OF MEXICO DRAINAGE

Rainy conditions in the Apalachicola River System throughout the last decade of May had pretty well saturated the soil in the basin. During the period May 30 to June 2 rains totaling 2 to 7 inches fell. These heavy rains caused rapid rises of most tributaries which crested during the first week. The Flint River rose to near bankfull all along its course, but flood stage was exceeded only at Albany, Ga., and by less than 1 foot at that point. The rise in the Chattahoochee River was about to the one-half to three-fourths bankfull level. The Apalachicola River inundated low-lying areas, chiefly in the Blountstown, Fla., vicinity where flood stage was exceeded by 5 feet.

Heavy rains which fell in the latter part of May caused sharp rises in the Black Warrior and lower Tombigbee Rivers, but flood stage was exceeded only at Whitfield, Ala., where the banks are quite low. Moderate rains, occurring from the 9th to the 13th, caused minor overflow in the upper Tombigbee River basin on the East and West Forks. Damage from the overflow was negligible.

Excessive rains resulting from the remnants of tropical storm "Arlene" fell in southeastern Mississippi from May 31 intermittently through the early afternoon of June 1. The heaviest rains occurred after midnight on May 31 and produced a period total of 12.35 inches at Merrill, Miss. An unofficial reading in the DeSota National Forest at Carrie, Miss., indicates that more than 15 inches fell there, and according to local residents it was the heaviest rainfall in memory. Serious flash flooding occurred on streams tributary to the Leaf and Pascagoula Rivers. Losses from the flooding were estimated to be about $136,000, most of which resulted from damage to bridges and highways although there was some damage to other types of both urban and rural property. Moderate flooding of the Pascagoula River in the vicinity of Merrill, Miss., occurred during the night of the 1st and the day following.

Two periods of light overflow occurred on the lower Pearl River from Bogalusa to Pearl River, La., during the first and second decades of the month. No damage was reported from this light overflow.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--General rains with 36-hour totals ranging from 3 to 6 inches fell over southeast Minnesota on the 25th and 26th, resulting in overflow from the 26th to the 28th on the Zumbro River near Theilman, Minn., and the Root River at Rushford and Hokah, Minn. About 1,700 acres of corn and pastureland in the vicinity of Theilman were inundated for a period of 36 hours and water covered nearly 2,000 acres in the Rushford area.

The Turkey River exceeded flood stage on the last day of the month at Garber, Iowa, due to heavy rains in the basin on the 29th and 30th. The rise continued into July.

Heavy rains during the latter part of May produced above flood stage readings on the lower Des Moines River from just below Des Moines to Ottumwa, Iowa, and also on the Raccoon River from Jefferson to Van Meter, Iowa. Damage was relatively minor and was confined to crops in low-lying areas and inconvenience to construction projects on the lower Des Moines River.

From the 28th to the 30th the entire state of Iowa received substantial rains, but the heaviest fell in the south-central portion where several stations in the Des Moines area reported 5 to 6 inches falling during a 24- to 36-hour period. In consequence, the North, Middle, and South Rivers rose to flood levels on the 30th. The South River crested 4.5 feet over flood stage on the 30th, while the rise on the North and Middle Rivers continued into July. Considerable agricultural

lands were flooded along all three streams, but the greater damage was sustained along the North and Middle Rivers.

The middle Mississippi River reached near bankfull level at most points early in the month, as a result of late May rains falling mostly over upstream watersheds. Flood stage was exceeded by a few inches at Dams 24 and 25. There was no significant damage.

Missouri Basin.--Some minor flooding occurred on the Gallatin River along the lowlands south of Manhattan, Mont., on the 15th and 16th. An unseasonably cold spring delayed the spring runoff, and the advent of warm weather brought quick thawing and heavy runoff from the snowpack in the higher elevations. There was minor damage to pasture- and rangeland, one culvert was washed out, and a gravel road suffered some washing damage.

This same condition, i.e., a cold May followed by sudden high temperatures during the first 2 weeks of June, occurred in the Yellowstone River basin. The resulting snowmelt runoff caused the Yellowstone and all its tributaries to rise to bankfull or near bankfull by the 15th, with local lowland flooding occurring through the 20th. Light overflows were noted all along the main stem of the Yellowstone as well as some of the tributaries, especially the Clark Fork at Edgar, Mont., and the Boulder River at Big Timber, Mont. Here, too, the damage was negligible and limited to flooded pastureland and small washouts.

Thunderstorms during the night of May 30-31 produced locally heavy rains (2-4 inches) over the Rock River watershed in northwest Iowa. By the 1st, discharge from the Little Rock River, the principal tributary, was causing light overflow on the Rock below Doon, Iowa. As the Rock River discharged into the Big Sioux River above Hawarden, Iowa, the Big Sioux rose from about 1 to more than 2 feet above flood stage from the mouth of the Rock to below Akron, Iowa, during the period 1st to 3d. Because of the larger channel and depletion of stage enroute, the crest of the Big Sioux passed through Sioux City, Iowa, during the night of 4-5th at about three-fourths bankfull. Losses from the overflow were entirely agricultural, principally drowning of spring plantings and the cost of reseeding.

Light flooding, which developed on the Nishnabotna, Grand, and Chariton Rivers at the end of May as a result of heavy rains in northern Missouri from May 29-31, continued into the first few days of June. Damage was light.

Flash flooding occurred on Lime Creek, a tributary of the Solomon River in the Kansas River basin at Herinton, Kans., on the evening of the 29th. Rainfall of 3.5 to 6 inches preceded the overflow. A number of residences and business places sustained minor damage.

Heavy accumulations of surface water and local flash flooding on Mill Creek, another tributary of the Solomon River, followed rains of 5.1 inches at McFarland, Kans., and 4 to 7 inches in the vicinity of Paxico, Kans., during the afternoon of the 29th. Basements and wells were flooded in McFarland. Damage was of minor nature.

The minor flood crests on the lower Missouri River resulted from moderate to heavy rains during the latter part of May, mostly over upstream watersheds. Little if any damage resulted.

Ohio Basin.--Moderate to heavy showers and thundershowers occurred over the headwater areas of the Allegheny and Beaver River basins during the early morning hours of the 25th. This same area was visited by heavy rains during the afternoon of the same day, with amounts near 3 inches falling in a 45-minute period. Flash flooding ensued in Corry, Sharon, Waterford, Greenville, and Erie (Lake Erie drainage), all in Pennsylvania. According to newspaper reports, the flooding of small tributary streams caused estimated losses totaling $100,000 at Sharon alone.

Locally heavy rain (2 inches) caused flash flooding during the evening of the 1st on Cannon and Johns Creeks in the Vicinity of Pedro, Ohio. Eleven-foot bridges across the two streams were washed away and one family was forced to flee their home. Property damage was light.

The flooding on the Wabash River in the Wabash, Ind., area was caused by an upstream concentration of thunderstorms and heavy rainfall on the 25th and 26th. The rain fell in a 16-hour period and amounts ranged from 3 to 5 inches. Some damage to lowland crops resulted from the overflow.

Arkansas Basin.--Flash flooding occurred in Okmulgee, Okla., on the 2d when Okmulgee Creek overflowed and covered a 54-block area of the town. Losses from the overflow were estimated at $9,000.

No damage was reported as a result of Deep Fork River overflowing slightly at Dewar, Okla., from the 3d to the 6th.

Red Basin.--Flooding on the Sulphur River from Hagansport to Naples, Tex., was caused by heavy rains (up to 5 inches) which fell in the basin on the 22d and 23d. together with the smaller amounts which fell from the 24th to the 26th. Little or no damage occurred since the flooded areas consisted of pasture- and woodland.

Heavy rains over the Ouachita River watershed beginning on the 8th and continuing intermittently through the 12th caused the light overflow of the Ouachita from the 13th to the 17th. Damage was negligible, being limited to a loss of the use of grazing land and a delay in some timbering operations.

WEST GULF OF MEXICO DRAINAGE

Heavy rain fell over the upper Trinity River basin from the 22d to the 26th. The rainfall was excessive over a narrow band extending north-northwest to south-southeast through the center of the basin with most stations in that band reporting 5 to 10 inches for the period. There were several measurements of 6 to 8 inches on the 22d, however. There was no appreciable damage on the main streams, but there was considerable flash flooding, particularly in the city of Fort Worth, Tex., where normal drainage could not carry the volume of water. No major damage occurred in the city, but runoff from streets reached into a number of business establishments and some cars were caught in underpasses. There was some damage to farmland, fences, and roads due to local runoff; but, reservoirs contained all the runoff above the dams, thus preventing major flooding of the Trinity River.

The upper portions of the Medina and San Antonio Rivers and Cibolo Creek in Texas received 2 to 6 inches of rain on the 25th and 26th, while during the same period the upper Guadalupe and Blanco Rivers received 4 to 7 inches. These rains produced only moderate rises in the rivers because of the extremely dry soil which reduced the runoff.

Rainfall over the Lavaca and Navidad Rivers, while much lighter, caused a rise over 5 feet above flood stage on the Navidad at Ganado, Tex. Only minor damage occurred.

Local flooding in the Los Angeles, Fowlerton, and Devine areas of south-central Texas resulted from heavy rains (up to 6.5 inches) which fell on the 24th and 25th. Several persons were evacuated in the Devine, Tex., area.

The heaviest rainfall amounts during the last decade of the month were observed in the headwater areas of the Nueces and Frio Rivers. Twelve inches of rain fell in 24 hours north of Uvalde, Tex., on the Leona River and amounts in excess of 5 inches fell in several places. Flash flooding occurred on most of the streams in the "Hill Country" closing many roads at low-water crossings. The Leona River in the Uvalde area was reported to be the highest in several years. Rising waters on the Frio River at Derby, Tex., forced campers to move from low ground in Frio State Park.

PACIFIC SLOPE DRAINAGE

Columbia Basin.--During the last few days of May maximum temperatures in the low 90's were experienced east of the Cascades and in southern Idaho. Although of short duration, the resultant snowmelt, supplemented by a short rainy period, was sufficient to bring a general rise to the rivers in the area. Another short period of warm temperatures occurred from the 12th to the 23d. Only light overflow resulted with damage limited to the flooding of lowland acreage and seepage into some basements in the Bonners Ferry, Idaho, area.

FLOOD STAGE DATA

(All dates in June unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From—	Above flood stages -dates To—	Crest * Stage	Crest * Date
ATLANTIC SLOPE DRAINAGE	Ft.			Ft.	
Neuse: Smithfield, N. C.	13	6	7	13.6	7
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	5	6	22.5	6
Saluda: Pelzer, S. C.	8	1	4	8.5	1
Broad: Blair, S. C.	14	2	4	16.3	3
Savannah: Millhaven, Ga.	15	11	16	16.3	12-15
Clyo, Ga.	11	11	23	14.3	18
Ocmulgee: Macon, Ga.	18	2	3	20.9	3
Abbeville, Ga.	12	9	11	12.9	10
Oconee: Milledgeville, Ga.	20	1	4	26.4	3
Mount Vernon, Ga.	16	11	11	16.3	11
Satilla: Atkinson, Ga.	13	1	18	15.5	13
EAST GULF OF MEXICO DRAINAGE					
Flint: Albany, Ga.	20	8	8	20.1	8
Apalachicola: Blountstown, Fla.	15	1	14	20.0	5
East Fork Tombigbee: Fulton, Miss.	16	13	13	16.0	13
West Fork Tombigbee: Tupelo, Miss.	21	10	11	23.6	10
Tombigbee: Lock No. 3, Whitfield, Ala.	33	2	5	39.1	4
Pascagoula: Merrill, Miss.	22	1	4	23.1	2
Pearl: Bogalusa, La.	15	May 26 9	5 16	16.3 17.85 17.15	May 28 3 10
Pearl River, La.	12	2	19	13.7 13.6	5 16
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Zumbro: Theilman, Minn.	38	26	27	39.5	27
Root: Hokah, Minn.	45	26	28	49.3	27
Turkey: Garber, Iowa	11	30	1/		
Raccoon: Jefferson, Iowa	10	May 31	6	15.1	3
Van Meter, Iowa	13	5	5	13.2	4
North: Norwalk, Iowa	14	30	1/		
Middle: Indianola, Iowa	15	30	1/		
South: Ackworth, Iowa	15	30	1/	19.5	30
Des Moines: Tracy, Iowa	14	May 30	8	17.9	May 31
Eddyville, Iowa	15	May 29	8	19.95	May 31
Ottumwa, Iowa	9	May 30	7	12.1	1
Mississippi: Dam No. 24, Clarksville, Mo.	23	1	2	23.2	2
Dam No. 25, Winfield, Mo.	23	2	3	23.1	2
Missouri Basin					
Yellowstone: Livingston, Mont.	8	16	16	8.0	16
Billings, Mont.	11	16	17	11.5	17
Rock: Rock Valley, Iowa	11	May 31	2	13.9	1
Big Sioux: Hawarden, Iowa	15	1	3	E17.8	2
Akron, Iowa	16	2	3	17.25	3
MISSISSIPPI SYSTEM (Cont'd.) Missouri Basin (Cont'd.)	Ft.			Ft.	
Floyd: Alton, Iowa	12	May 31	1	12.77	1
Nishnabotna: Hamburg, Iowa	18	May 6 May 19 May 29	May 6 May 19 1	18.5 18.3 23.3	May 6 May 19 May 29
Saline: Lincoln, Kans.	30	29	29	30.0	29
Turkey Creek: Wilber, Nebr.	16	20	21	16.5	20-21
Grand: Chillicothe, Mo.	24	May 31	3	28.4	1
Sumner, Mo.	26	May 12 May 22 May 30	May 12 May 23 5	27.4 27.9 31.9	May 12 May 22 3
Chariton: Novinger, Mo.	20	May 26 May 30	May 29 2	22.1 23.2	May 28 1
Prairie Hill, Mo.	15	May 31	3	16.8	3
Missouri: Lexington, Mo.	22	May 31	2	22.8	1
Waverly, Mo.	18	May 31	1	19.7	1
Hermann, Mo.	21	3	3	21.3	3
Ohio Basin					
Wabash: Wabash, Ind.	12	26	27	18.8	26
Arkansas Basin					
Deep Fork: Dewar, Okla.	18	3	6	18.3	5
Red Basin					
Washita: Carnegie, Okla.	18	May 27	1	20.7	May 28
Ouachita: Camden, Ark.	26	13	17	29.5	15
Sulphur: Hagansport, Tex.	38	24	28	E42.5	24
Naples, Tex.	22	29	1/		
WEST GULF OF MEXICO DRAINAGE					
Trinity: Rosser, Tex.	26	24	24	26.2	24
Long Lake, Tex.	40	May 16	May 19	41.7	May 18
Liberty, Tex.	24	May 21	May 30	25.45	May 26
Navidad: Ganado, Tex.	21	26	28	26.3	28
Frio: Derby, Tex.	6	27	29	9.4	28
Tilden, Tex.	12	26	29	21.4	27
Calliham, Tex.	12	27	29	20.6	28
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
Kootenai: Bonners Ferry, Idaho	31	5	9	32.8	7
Willamette: Portland, Oreg.	18	10 16	12 July 1	18.2 18.9	11 24
Columbia: Vancouver, Wash.	16	4	July 7	20.2	24

* Provisional
1/ Continued at end of month
E Estimated

RAWINSONDE DATA

Average monthly values

JUNE 1959

Standard pressure surface (mb.)	ALBANY, N. Y. (1003 MB.)						ALBUQUERQUE, N. MEX. (838 MB.)						AMARILLO, TEX. (891 MB.)						ANCHORAGE, ALASKA (1009 MB.)						ANNETTE, ALASKA (1010 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	86	16.4	84	242	3.3	30	1,619	18.3	49	72	3.5	30	1,095	17.8	80	189	5.1	30	30	10.6	77	194	1.9	29	37	10.2	88	131	3.9
1,000	30	113			217	3.3	30	75					30	95					30	100	11.5	75	209	2.5	29	118	10.5	86	109	1.9
950	30	546	15.3	76	290	8.5	30	523					30	538					30	526	10.6	66	205	5.4	29	541	8.9	79	127	8.5
900	30	1,004	13.8	74	303	11.9	30	1,002					30	1,010					30	978	8.6	64	193	2.1	29	991	6.4	79	139	8.2
850	30	1,484	11.2	75	309	14.6	30	1,499					30	1,503	18.6	66	204	13.8	30	1,449	6.0	65	65	1.6	29	1,458	3.6	76	141	10.9
800	30	1,989	8.3	73	310	15.9	30	2,023	18.9	41	149	1.0	30	2,022	16.8	54	233	8.9	30	1,943	2.8	64	83	2.5	29	1,949	1.1	71	147	10.1
750	30	2,517	5.3	69	302	17.3	30	2,570	15.7	41	251	3.7	30	2,569	13.7	49	264	5.4	30	2,461	- .6	64	123	2.1	29	2,465	- 1.9	68	141	6.4
700	30	3,081	2.3	67	296	18.5	30	3,156	11.4	44	282	6.0	30	3,149	9.8	48	297	5.4	30	3,011	- 4.0	60	118	2.1	29	3,012	- 5.3	67	149	7.0
650	30	3,674	- .6	58	294	19.2	30	3,765	6.7	47	285	7.8	30	3,751	5.4	48	317	4.1	30	3,588	- 7.7	56	132	2.7	29	3,589	- 8.9	66	156	6.8
600	30	4,313	- 4.3	50	293	21.2	30	4,422	1.3	51	275	9.3	30	4,409	.8	43	302	4.9	30	4,211	-11.5	49	120	3.7	29	4,207	-12.8	61	159	5.6
550	30	4,988	- 8.3	44	290	22.3	30	5,107	- 4.2	54	266	8.5	30	5,093	- 4.0	43	293	4.5	30	4,864	-16.1	44	117	3.5	29	4,862	-17.1	58	143	6.4
500	30	5,729	-12.8	40	288	22.3	30	5,861	- 9.8	54	253	8.0	30	5,848	- 9.1	44	301	5.2	30	5,584	-21.0	40	111	3.5	29	5,575	-21.9	53	136	7.2
450	30	6,517	-18.0	39	288	24.9	30	6,662	-15.0	43	250	7.0	30	6,649	-14.4	40	291	5.8	30	6,345	-26.3	40	117	5.1	29	6,337	-27.6	50	132	8.0
400	30	7,396	-24.2	37	288	26.0	30	7,549	-20.9		245	9.5	30	7,539	-20.3	36	270	7.0	30	7,195	-32.8	42	113	5.2	29	7,180	-34.1	49	120	8.5
350	30	8,356	-31.3	35	288	27.8	30	8,522	-28.0		249	12.4	30	8,514	-27.3		279	8.0	30	8,122	-39.8		109	5.1	29	8,102	-41.3		111	10.9
300	30	9,431	-38.4		285	27.2	30	9,610	-36.2		250	16.9	30	9,606	-35.6		275	10.5	30	9,157	-47.8		80	3.5	29	9,132	-48.3		115	11.9
250	30	10,664	-46.0		284	30.7	30	10,851	-45.6		256	20.0	30	10,849	-45.1		266	14.0	30	10,340	-55.1		61	5.2	29	10,319	-52.5		151	6.8
200	30	12,122	-53.8		292	35.4	30	12,308	-54.5		263	27.0	30	12,307	-54.8		270	21.0	30	11,766	-53.4		60	3.5	29	11,771	-49.1		196	6.2
175	30	12,975	-56.2		296	33.2	30	13,156	-58.7		259	28.8	30	13,153	-58.8		270	25.1	29	12,636	-51.3		30	1.9	28	12,655	-47.9		225	7.2
150	30	13,952	-57.1		291	28.0	30	14,115	-63.0		250	24.5	30	14,112	-62.6		272	23.9	29	13,644	-49.4		129	1.7	28	13,673	-47.7		219	4.1
125	30	15,104	-57.5		292	21.0	30	15,227	-66.5		249	22.9	30	15,227	-65.5		273	18.1	29	14,840	-48.8		187	2.1	28	14,876	-48.4		218	8.5
100	30	16,514	-57.9		296	15.0	30	16,575	-67.6		250	11.1	29	16,579	-67.1		274	8.4	29	16,308	-48.2		148	1.6	28	16,344	-48.5		200	4.9
80	29	17,926	-56.7		317	7.8	29	17,923	-66.8		125	4.1	29	17,924	-66.4		68	1.6	29	17,781	-47.6		136	2.7	28	17,812	-48.9		213	4.7
60	29	19,761	-54.2		35	5.4	29	19,684	-61.4		88	9.3	27	19,687	-61.1		88	10.1	29	19,686	-46.7		94	5.2	27	19,700	-48.7		131	2.9
50	29	20,935	-52.4		62	7.6	28	20,823	-57.9		94	15.0	26	20,828	-57.4		89	13.6	28	20,898	-46.4		102	8.0	27	20,900	-48.4		92	7.0
40	27	22,385	-50.1		81	11.9	[illegible]	22,241	-54.7		85	19.4	24	22,255	-53.8		92	16.1	27	22,391	-45.7		98	9.9	27	22,371	-47.8		85	9.5
30	26	24,269	-48.1		86	13.4	28	24,095	-51.5		90	22.2	23	24,123	-49.7		85	19.4	24	24,329	-44.4		91	15.2	27	24,276	-46.7		92	15.7
25	23	25,473	-46.0		81	13.8	28	25,285	-49.3		86	22.7	23	25,323	-47.4		[illegible]	21.4	24	25,554	-43.3		[illegible]	17.5	26	25,486	-45.7			
20	22	26,966	-43.7		84	17.3	27	26,756	-47.3		90	25.3	14	26,826	-44.5		95	22.9	22	27,072	-41.3		89	21.6	16	26,978	-43.7			
15	16	28,914	-40.4		89	23.5	18	28,672	-44.2		88	29.0	7	28,782	-41.6				19	29,053	-38.3		88	22.2						
10							5	31,356	-41.1										12	31,899	-34.7									
7																			8	34,419	-32.4									

Standard pressure surface (mb.)	ATHENS, GA. (988 MB.)						BARROW, ALASKA (1017 MB.)						BARTER ISLAND, ALASKA (1016 MB.)						BETHEL, ALASKA (1010 MB.)						BISMARCK, N. DAK. (953 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	246	19.5	90	32	3.3	30	8	- 0.3	93	106	6.8	30	15	- 1.6	91	87	7.0	30	4	7.7	87	300	6.0	30	505	14.1	80	169	1.9
1,000	30	143					30	140	.3	89	110	7.8	30	141	- .7	86	95	12.4	30	120			311	6.2	30	94				
950	30	[illegible]	21.2	70	330	1.7	30	554	3.6	77	139	5.8	30	560	3.7	68	105	13.2	30	549	7.5	72	330	1.4	30	535			138	3.3
900	30	1,055	18.6	64	279	1.9	30	995	4.7	54	154	3.5	30	995	4.7	45	101	6.2	30	987	5.3	71	158	3.3	30	993	16.5	61	229	8.2
850	30	1,544	15.3	67	271	4.1	30	1,460	2.9	48	195	3.9	30	1,461	3.4	38	159	.4	30	1,453	3.0	68	173	4.5	30	1,478	14.6	57	252	9.3
800	30	2,056	12.5	60	271	5.1	30	1,949	.4	49	215	4.7	30	1,951	.9	38	288	2.3	30	1,942	.3	65	169	5.2	30	1,989	12.1	53	262	10.5
750	30	2,596	9.9	47	274	7.0	30	2,462	- 2.4	49	225	5.4	30	2,463	- 2.1	39	286	5.8	30	2,459	- 2.8	62	155	4.1	30	2,524	8.8	54	266	13.0
700	30	3,166	6.7	41	287	6.4	30	3,009	- 5.7	50	232	7.2	30	3,013	- 5.6	39	300	7.8	30	3,001	- 6.0	61	169	5.4	30	3,095	5.4	49	272	12.6
650	30	3,769	3.3	39	291	8.0	30	3,583	- 9.1	46	240	6.0	30	3,586	- 9.2	37	303	7.6	30	3,576	- 9.4	56	165	6.4	30	3,695	1.4	48	270	17.1
600	30	4,416	- .5	36	292	8.7	30	4,203	-12.8	44	230	8.2	30	4,206	-13.1	35	309	8.7	30	4,194	-13.0	51	168	6.8	30	4,337	- 2.5	47	270	20.6
550	30	5,102	- 4.7	37	288	8.4	30	4,858	-17.2	44	236	8.0	30	4,858	-17.4		308	9.7	30	4,850	-17.0	43	165	8.5	30	5,014	- 7.4	49	274	23.3
500	30	5,851	- 9.1	33	289	7.8	30	5,571	-22.0	46	244	8.2	30	5,572	-22.3		308	10.7	30	5,562	-21.8	44	172	7.4	30	5,758	-12.3	44	275	26.0
450	30	6,654	-14.6	35	287	9.9	30	6,327	-27.7	45	240	8.5	30	6,334	-27.9		313	12.0	30	6,326	-27.3	44	169	9.3	30	6,551	-17.5	39	276	30.7
400	30	7,540	-20.8	38	293	11.9	30	7,174	-34.2	41	245	7.6	30	7,175	-34.2		317	14.6	30	7,169	-33.4	46	177	11.7	30	7,429	-23.7	38	271	32.4
350	30	8,514	-27.8	33	299	15.0	30	8,096	-41.2		243	8.7	30	8,096	-41.1		315	17.9	30	8,095	-40.3		171	6.4	30	8,391	-30.9		259	32.4
300	30	9,604	-36.0		294	21.0	30	9,127	-48.9		250	8.2	30	9,127	-48.6		326	17.9	30	9,131	-47.5		195	8.4	30	9,467	-39.3		269	32.4
250	30	10,844	-45.7		294	24.7	30	10,309	-54.1		256	4.5	30	10,309	-54.3		314	17.1	30	10,320	-53.1		189	10.7	30	10,691	-48.5		273	29.1
200	30	12,297	-55.8		295	32.3	28	11,743	-49.9		270	3.5	30	11,753	-49.8		317	10.9	30	11,761	-52.0		198	4.5	30	12,130	-57.0		275	33.2
175	30	13,139	-60.0		294	32.6	27	12,619	-48.1		261	1.9	29	12,635	-47.8		320	9.1	30	12,632	-49.6		192	1.4	30	12,972	-58.3		275	43.7
150	30	14,093	-63.7		301	24.9	27	13,637	-47.2		215	1.6	29	13,654	-47.1		331	6.8	30	13,644	-48.8		94	3.3	29	13,941	-57.6		275	41.0
125	30	15,206	-65.5		305	16.5	27	14,845	-46.9		353	.8	28	14,858	-46.6		340	3.3	30	14,842	-49.0		113	4.5	28	15,087	-57.9		278	31.7
100	30	16,559	-66.5		324	8.9	27	16,327	-46.0		96	1.7	28	16,341	-45.7		27	3.1	30	16,308	-48.6		110	3.3	28	16,495	-57.7		284	17.7
80	30	17,915	-64.9		15	6.4	27	17,817	-44.6		104	3.9	27	17,835	-44.4		45	3.3	30	17,779	-47.8		117	3.1	[illegible]	17,905	-56.6		291	9.1
60	30	19,685	-60.8		56	9.9	27	19,748	-43.4		83	7.2	27	19,768	-43.2		78	5.1	30	19,682	-47.1		97	8.7	27	19,738	-54.0		32	3.9
50	29	20,826	-57.8		82	16.5	26	20,982	-42.8		82	9.3	26	21,001	-42.6		78	7.2	29	20,889	-46.7		94	9.1	27	20,912	-52.5		71	4.9
40	28	22,246	-55.0		95	16.5	26	22,490	-42.1		81	10.3	25	22,511	-41.9		83	10.9	29	22,371	-46.0		91	10.1	26	22,358	-50.8		72	11.3
30	28	24,100	-51.5		89	15.5	25	24,449	-41.1		91	14.4	25	24,466	-40.5		96	12.6	27	24,286	-45.3		93	12.0	24	24,238	-48.3		73	14.0
25	25	25,286	-49.5		93	15.3	23	25,692	-40.9		92	14.4	22	25,705	-39.9		[illegible]	12.2	18	25,504	-44.9				21	25,436	-46.7			
20	15	26,727	-47.5				14	27,208	-40.0		94	14.2	22	27,233	-38.8		77	13.8	7	27,035	-43.5				19	26,914	-44.6			
15	5	28,596	-44.4				5	29,221	-36.7				19	29,216	-36.6		79	15.0							13	28,842	-41.4			
10							5	32,048	-33.2				9	32,142	-31.7										8	31,612	-37.3			

Standard pressure surface (mb.)	BOISE, IDAHO (914 MB.)						BROWNSVILLE, TEX. (1011 MB.)						BUFFALO, N. Y. (993 MB.)						BURRWOOD, LA. (1014 MB.)						CAPE HATTERAS, N. C. (1014 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	868	13.2	61	184	2.7	30	7	24.2	94	152	2.9	30	182	16.0	77	253	4.5	30	3	25.6	87	184	3.1	30	4	22.2	85	303	3.5
1,000	30	98					30	99	24.8	[illegible]	151	5.8	30	123	15.0	61			30	125	25.2	83	176	4.3	30	123	22.3	79	299	5.6
950	30	536					30	548	23.0	82	149	12.2	30	560	16.7	64	287	9.7	30	578	22.6	80	182	6.0	30	566	19.9	71	306	7.6
900	30	999	15.5	52	241	2.1	30	1,020	20.8	73	149	11.9	30	1,021	14.1	65	297	12.0	30	1,045	19.7	77	194	7.2	30	1,033	17.1	68	313	6.2
850	30	1,485	16.4	40	318	4.5	30	1,514	18.5	64	146	10.7	30	1,501	11.3	62	294	14.4	30	1,537	17.0	72	201	7.6	30	1,520	14.0	66	315	6.6
800	30	1,999	13.3	40	302	5.6	30	2,032	15.9	56	132	8.0	30	2,006	8.5	58	291	15.9	30	2,053	14.2	66	200	7.0	30	2,029	11.0	64	302	8.4
750	30	2,541	9.4	41	268	6.6	30	2,575	13.0	51	117	6.8	30	2,536	5.7	55	293	16.9	30	2,598	11.3	58	218	7.8	30	2,564	8.3	58	286	9.9
700	30	3,107	5.0	46	252	10.5	30	3,155	9.7	46	104	7.8	30	3,099	2.6	51	294	19.2	30	3,170	8.1	57	224	7.8	30	3,134	5.5	54	286	11.3
650	30	3,703	.6	47	244	15.5	30	3,763	6.1	46	91	6.2	30	3,694	- .5	46	295	21.6	30	3,778	4.8	55	240	7.0	30	3,731	2.5	49	294	12.0
600	30	4,346	- 3.8	43	243	20.6	30	4,419	2.0	46	92	4.1	30	4,331	- 4.1	43	297	22.3	30	4,429	1.3	50	253	7.0	30	4,381	- 1.2	40	291	13.4
550	30	5,017	- 8.3	42	240	22.9	30	5,110	- 2.0	42	30	3.3	30	5,008	- 8.3	44	299	23.9	30	5,121	- 2.6	43	257	6.2	30	5,063	- 5.2	37	291	15.0
500	30	5,762	-13.6	45	242	26.4	30	5,868	- 6.6	43	339	2.5	30	5,747	-12.7	39	297	25.5	30	5,875	- 7.2	41	275	6.6	30	5,814	- 9.6		295	15.0
450	30	6,548	-19.2	42	245	25.1	30	6,678	-11.5	38	298	5.1	30	6,538	-18.1	36	299	26.6	30	6,688	-12.4	42	287	6.2	30	6,616	-14.7		293	16.7
400	30	7,423	-25.5	36	248	25.6	30	7,579	-17.2	35	289	8.0	30	7,414	-24.2	34	300	28.8	30	7,580	-18.4	42	286	7.8	30	7,505	-20.8		291	17.1
350	30	8,378	-32.8		252	19.0	30	8,567	-24.0	36	303	8.9	30	8,374	-31.2		292	29.9	30	8,563	-25.6	40	283	11.1	29	8,473	-27.9		286	18.3
300	29	9,443	-41.0		241	22.2	30	9,674	-32.1		285	12.6	30	9,448	-39.2		293	30.9	30	9,662	-33.8	40	283	15.2	29	9,562	-36.2		277	20.4
250	29	10,660	-49.5		248	22.7	30	10,935	-41.8		281	16.5	30	10,675	-47.6		291	33.6	30	10,915	-43.7		283	16.1	29	10,802	-45.7		279	22.7
200	29	12,098	-56.6		265	29.1	30	12,422	-53.7		292	20.2	30	12,123	-54.8		295	36.3	29	12,379	-54.9		283	20.0	27	12,263	-55.5		279	24.1
175	28	12,937	-56.8				30	13,255	-59.9		299	20.6	30	12,973	-56.8		297	33.2	29	13,222	-60.6		285	25.3	25	13,109	-59.4		285	25.5
150	28	13,915	-56.5				29	14,204	-66.5		296	15.2	30	13,946	-57.9		294	27.8	29	14,170	-65.6		293	20.0	25	14,070	-61.1		296	23.3
125	26	15,063	-56.9				29	15,292	-71.0		318	5.6	30	15,095	-58.2		293	22.2	29	15,267	-69.1		321	13.4	25	15,198	-62.3		300	18.7
100	26	16,472	-58.1				29	16,607	-73.3		61	8.9	30	16,500	-58.0		297	15.2	29	16,597	-70.6		356	11.1	25	16,573	-63.5		303	10.9
80	24	17,878	-57.5				28	17,921	-71.0		78	15.7	30	17,909	-57.2		311	9.1	29	17,924	-68.6		44	10.3	25	17,950	-61.8		330	7.6
60	24	19,705	-55.0				28	19,658	-63.4		81	21.2	29	19,741	-54.7		25	5.2	27	19,673	-61.5		74	17.7	25	19,744	-58.1		58	8.7
50	22	20,866	-53.5				27	20,790	-59.6		84	24.3	28	20,910	-52.9		57	7.8	27	20,810	-58.7		84	19.2	25	20,900	-55.4		66	11.7
40	19	22,289	-51.7				27	22,198	-56.2		86	27.6	27	22,355	-50.6		76	11.1	26	22,220	-56.0		85	21.6	25	22,335	-52.0		74	15.3
30	17	24,146	-49.5				26	24,040	-52.5		89	28.8	24	24,234	-48.1		82	13.8	24	24,061	-52.7		82	21.4	21	24,209	-48.7		87	18.5
25	17	25,346	-47.4				26	25,225	-50.3		86	28.8	21	25,450	-46.0		86	14.8	24	25,244	-50.1		84	25.1	20	25,419	-46.7		80	17.5
20	16	26,820	-44.4				24	26,687	-47.8		82	26.8	20	26,939	-43.3		90	17.9	23	26,709	-46.7		86	27.8	15	26,908	-44.8		74	19.6
15	14	28,736	-41.2				20	28,596	-45.2		93	28.4	15	28,886	-39.4				16	28,642	-42.3		84	26.4						
10	6	31,405	-38.1				8	31,310	-42.4																					

See reference note at end of table

RAWINSONDE DATA

Average monthly values

JUNE 1959

CARIBOU, ME. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	191	11.8	86	159	1.4
1,000	30	103				
950	30	532	10.4	79	174	2.5
900	30	981	9.6	75	195	2.7
850	30	1,454	7.6	71	233	2.9
800	30	1,951	5.3	67	270	4.7
750	30	2,478	2.7	65	271	8.0
700	30	3,032	-.3	63	272	10.7
650	30	3,618	-3.2	55	274	12.4
600	30	4,253	-6.3	46	283	13.6
550	30	4,926	-10.0	44	276	15.7
500	30	5,659	-14.4	43	278	18.5
450	30	6,446	-19.7	41	276	20.0
400	30	7,314	-25.8		277	22.3
350	30	8,269	-32.7		278	25.6
300	30	9,338	-40.3		278	28.0
250	30	10,559	-48.7		279	31.3
200	27	11,999	-54.0		286	25.3
175	26	12,852	-54.4		287	28.0
150	26	13,842	-53.8		288	24.7
125	26	15,012	-53.9		280	19.4
100	24	16,449	-53.6		286	14.6
80	24	17,887	-52.9		293	8.4
60	22	19,749	-51.2		37	2.3
50	17	20,941	-49.9		73	6.6
40	15	22,409	-47.7		79	8.5
30	10	24,318	-44.9		86	10.7
25	10	25,542	-43.5			
20	9	27,057	-41.4			
15	6	29,029	-37.9			
10						

CHARLESTON, S. C. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	13	21.0	94	301	2.5
1,000	30	139	22.7	81	307	2.9
950	30	585	21.6	69	310	3.9
900	30	1,056	18.9	62	321	3.7
850	30	1,545	15.7	63	310	3.7
800	30	2,058	12.5	62	290	4.5
750	30	2,595	9.7	58	277	6.2
700	30	3,169	6.6	52	283	8.5
650	30	3,771	3.5	43	295	10.5
600	30	4,422	-.1	37	301	10.5
550	30	5,107	-4.2		297	10.7
500	30	5,861	-8.8		292	10.9
450	30	6,663	-14.1	34	290	12.6
400	30	7,556	-20.2		285	14.2
350	30	8,532	-27.0		282	16.3
300	30	9,626	-35.1		283	19.0
250	30	10,873	-44.6		284	27.2
200	30	12,334	-55.1		286	32.3
175	30	13,177	-59.9		289	32.4
150	30	14,130	-63.6		296	27.8
125	30	15,244	-65.2		315	16.5
100	30	16,602	-65.2		329	9.3
80	30	17,965	-64.1		16	8.5
60	30	19,747	-59.0		68	13.2
50	30	20,900	-55.5		79	17.5
40	30	22,335	-52.0		86	18.8
30	30	24,213	-49.0		88	19.0
25	30	25,416	-46.9		88	20.2
20	22	26,902	-45.0		84	21.2
15	12	28,824	-42.9		82	22.2
10						

COLD BAY, ALASKA (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	27	4.8	92	287	3.1
1,000	30	127			304	5.8
950	30	546	3.3	87	341	7.4
900	30	983	3.2	81	1	8.4
850	30	1,446	2.2	75	3	5.2
800	30	1,935	.6	68	308	2.1
750	30	2,450	-2.1	63	233	1.2
700	30	2,997	-5.1	60	200	1.9
650	30	3,573	-8.5	53	200	2.3
600	30	4,193	-12.2	50	206	3.7
550	30	4,848	-16.2	47	233	5.6
500	30	5,565	-21.0	44	222	4.7
450	30	6,330	-26.3	43	229	5.8
400	30	7,176	-32.6	46	241	9.7
350	30	8,102	-39.4		247	10.5
300	30	9,143	-46.7		274	11.1
250	29	10,329	-53.6		275	3.3
200	29	11,761	-52.8		303	5.2
175	29	12,627	-51.2		281	3.5
150	29	13,632	-49.9		288	3.5
125	29	14,825	-49.8		259	2.3
100	29	16,284	-49.7		222	2.1
80	28	17,745	-49.4		162	1.4
60	28	19,634	-49.0		136	3.5
50	28	20,832	-48.7		114	4.7
40	27	22,300	-48.2		95	7.4
30	26	24,206	-47.5		87	8.2
25	22	25,420	-47.0		94	8.7
20	19	26,905	-46.5			
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COLUMBIA, MO. (988 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	238	18.3	85	143	4.1
1,000	30	130				
950	30	577	20.3	68	197	7.4
900	30	1,039	18.0	67	232	7.8
850	30	1,528	15.4	66	244	7.6
800	30	2,040	12.7	63	255	5.8
750	30	2,579	10.0	57	262	5.2
700	30	3,151	7.0	51	268	6.4
650	30	3,753	3.7	45	276	5.8
600	30	4,403	-0.3	41	280	6.2
550	30	5,089	-4.7	35	288	7.4
500	30	5,838	-9.0	31	296	8.4
450	30	6,644	-14.6		298	8.5
400	30	7,530	-20.8		299	10.5
350	30	8,503	-27.6		307	15.2
300	30	9,593	-35.8		306	18.3
250	30	10,835	-45.5		306	21.2
200	30	12,290	-55.1		297	25.8
175	30	13,134	-59.3		302	27.0
150	30	14,095	-61.4		297	24.9
125	30	15,221	-63.2		300	20.4
100	30	16,590	-63.6		301	14.2
80	29	17,966	-62.9		333	7.2
60	29	19,758	-58.4		65	8.4
50	27	20,914	-55.8		80	11.7
40	22	22,351	-52.3		85	14.0
30	19	24,225	-49.1		85	18.3
25	16	25,417	-47.2		81	20.2
20	12	26,896	-44.5			
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DAYTON, OHIO (982 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	297	17.3	75	251	1.4
1,000	30	138				
950	30	578	18.4	66	280	4.5
900	30	1,042	15.9	66	290	8.2
850	30	1,526	13.1	64	293	8.2
800	30	2,034	10.1	60	290	9.5
750	30	2,565	7.9	49	287	10.9
700	30	3,135	5.2	47	289	10.5
650	30	3,730	1.8	43	291	11.5
600	30	4,379	-1.8	38	296	12.4
550	30	5,057	-5.8		299	14.2
500	30	5,807	-10.5		297	15.9
450	30	6,600	-15.8		300	18.3
400	30	7,488	-22.2		302	19.6
350	30	8,456	-29.2		307	21.8
300	30	9,540	-37.4		304	23.1
250	30	10,773	-47.0		306	24.7
200	30	12,219	-56.4		307	26.4
175	30	13,061	-59.0		309	28.6
150	30	14,025	-59.9		304	25.5
125	29	15,159	-60.4		301	20.2
100	29	16,547	-61.1		309	16.5
80	29	17,935	-60.1		325	8.7
60	29	19,741	-56.9		42	8.4
50	29	20,902	-54.4		70	10.7
40	28	22,341	-51.5		76	12.2
30	26	24,220	-48.5		76	15.2
25	24	25,422	-46.7		78	17.1
20	22	26,900	-44.1		85	19.4
15	21	28,840	-40.9		86	23.7
10	[illegible]	31,583	-37.9			

DENVER, COLO. (838 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,611	12.5	73	214	3.5
1,000	30	98				
950	30	540				
900	30	1,007				
850	30	1,493				
800	30	2,010	17.6	46	260	6.6
750	30	2,562	15.2	42	284	7.8
700	30	3,140	11.3	40	283	7.8
650	30	3,752	6.5	44	279	7.6
600	30	4,405	1.2	47	276	10.5
550	30	5,089	-4.5	51	274	13.6
500	30	5,842	-9.9	48	267	13.6
450	30	6,639	-15.5	40	262	14.0
400	30	7,525	-21.7		261	16.5
350	30	8,494	-29.1		262	19.4
300	30	9,579	-37.4		259	22.9
250	30	10,813	-46.5		252	28.8
200	30	12,266	-55.2		253	32.4
175	30	13,112	-58.6		256	33.4
150	30	14,078	-60.3		260	31.9
125	29	15,206	-62.6		259	24.1
100	29	16,575	-64.5		258	16.3
80	29	17,950	-61.2		244	5.8
60	29	19,751	-57.6		100	6.4
50	27	20,906	-55.5		92	10.3
40	27	22,338	-52.9		92	12.8
30	23	24,205	-49.6		87	16.9
25	20	25,405	-47.0		89	17.3
20	19	26,892	-44.1		85	16.7
15	13	28,851	-40.7		88	21.4
10	6	31,666	-36.2			

DODGE CITY, KANS. (924 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	792	18.2	83	167	6.0
1,000	30	105				
950	30	551				
900	30	1,016	19.6	71	190	10.9
850	30	1,509	18.8	61	209	10.5
800	30	2,028	16.6	54	211	9.3
750	30	2,575	13.7	47	228	5.4
700	30	3,154	9.6	50	284	2.7
650	30	3,762	5.3	47	277	4.1
600	30	4,413	.6	45	294	6.2
550	30	5,100	-4.3	42	301	7.4
500	30	5,851	-9.1	38	300	7.6
450	30	6,652	-14.4		290	7.6
400	30	7,542	-20.7		272	10.7
350	30	8,515	-27.8		273	12.4
300	30	9,605	-36.0		272	15.2
250	30	10,845	-45.8		262	19.4
200	30	12,299	-55.3		274	22.7
175	29	13,138	-59.1		271	27.0
150	29	14,096	-62.4		280	25.8
125	29	15,216	-64.5		286	22.3
100	29	16,577	-65.5		294	12.4
80	29	17,936	-63.7		340	5.8
60	29	19,717	-59.3		65	8.7
50	29	20,867	-56.5		83	13.8
40	29	22,293	-53.4		81	13.6
30	26	24,155	-50.9		81	20.8
25	23	25,348	-48.6			
20	20	26,818	-46.5			
15	12	28,723	-44.2			
10	5	31,487	-40.2			

EL PASO, TEX. (879 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,197	22.0	48	58	1.6
1,000	30	62				
950	30	512				
900	30	993				
850	30	1,494	23.2	39	136	3.5
800	30	2,021	20.7	37	196	4.7
750	30	2,566	17.1	35	208	4.3
700	30	3,158	12.4	38	216	2.3
650	30	3,767	7.3	45	288	1.2
600	30	4,426	1.7	52	15	.6
550	30	5,108	-3.6	48	271	2.1
500	30	5,869	-8.7	43	261	6.0
450	30	6,672	-13.8	37	271	9.1
400	30	7,565	-19.6		265	10.1
350	30	8,544	-26.5		270	15.0
300	30	9,640	-34.7		268	17.5
250	30	10,889	-43.8		268	26.0
200	30	12,357	-53.5		269	27.2
175	30	13,206	-59.0		265	28.2
150	30	14,162	-63.9		268	17.9
125	30	15,267	-68.4		260	10.9
100	30	16,599	-70.2		181	1.6
80	30	17,932	-67.9		81	7.8
60	30	19,688	-61.7		88	15.2
50	30	20,827	-57.9		92	17.3
40	30	22,246	-54.3		90	17.9
30	30	24,103	-50.9		88	22.5
25	30	25,297	-48.7		86	25.3
20	27	26,781	-45.8		89	25.3
15	23	28,725	-42.7		86	25.3
10	10	31,523	-37.0			

ELY, NEV. (809 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,908	8.2	51	192	8.2
1,000	30	107				
950	30	544				
900	30	1,009				
850	30	1,492				
800	30	2,001	13.1	42	190	5.2
750	30	2,544	13.7	33	198	5.1
700	30	3,123	10.0	33	228	8.0
650	30	3,731	5.4	35	232	10.7
600	30	4,383	.3	40	227	15.3
550	30	5,068	-5.0	44	230	20.0
500	30	5,816	-10.5	41	241	22.2
450	30	6,614	-16.0		245	21.2
400	30	7,497	-22.6		249	23.9
350	30	8,464	-29.8		247	21.4
300	30	9,544	-38.3		239	21.6
250	30	10,775	-47.7		245	20.0
200	30	12,218	-56.1		250	21.4
175	30	13,063	-58.1		249	26.8
150	30	14,031	-59.7		248	25.8
125	29	15,167	-61.3		246	23.5
100	29	16,547	-63.0		254	16.3
80	29	17,926	-61.4		248	8.4
60	28	19,725	-57.7		99	2.9
50	28	20,880	-55.8		95	7.0
40	[illegible]	22,307	-53.7		85	12.4
30	28	24,169	-50.4		84	16.3
25	28	25,365	-48.1		89	15.3
20	25	26,845	-45.6		85	19.8
15	23	28,771	-42.4		90	19.6
10	14	31,504	-38.9			

FAIRBANKS, ALASKA (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	135	11.6	76	351	3.1
1,000	30	104		73		
950	30	536	13.6	53	28	2.3
900	30	990	10.7	52	42	1.4
850	30	1,463	7.2	56	327	.8
800	30	1,959	3.3	62	259	3.3
750	30	2,477	-.7	63	267	2.3
700	30	3,027	-4.5	61	260	1.4
650	30	3,602	-8.4	59	266	2.1
600	30	4,224	-12.5	55	247	3.5
550	30	4,878	-16.5	47	240	4.3
500	30	5,594	-21.4	45	250	6.6
450	30	6,355	-27.2	48	246	4.1
400	30	7,201	-33.7	45	264	4.1
350	30	8,124	-40.7		282	5.8
300	30	9,147	-48.4		291	6.2
250	30	10,338	-55.1		301	7.2
200	30	11,767	-52.7		322	6.4
175	30	12,634	-50.2		320	3.5
150	30	13,644	-49.1		325	2.1
125	30	14,843	-48.3		159	1.6
100	30	16,316	-47.5		72	1.2
80	30	17,795	-46.4		96	3.1
60	28	19,705	-45.0		107	5.4
50	27	20,927	-44.7		109	7.2
40	27	22,425	-43.8		93	9.1
30	25	24,357	-42.3		103	14.2
25	21	25,600	-41.5		100	13.8
20	15	27,122	-40.4			
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FLINT, MICH. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	234	15.8	83	249	1.7
1,000	30	134				
950	30	572	17.0	64	278	7.0
900	30	1,034	14.7	63	294	9.1
850	30	1,516	12.0	62	290	10.3
800	30	2,021	8.8	61	291	11.3
750	30	2,549	6.3	54	289	15.0
700	30	3,118	4.2	44	286	16.7
650	30	3,712	1.1	41	283	17.7
600	30	4,356	-2.7	41	282	20.2
550	30	5,035	-6.8	41	285	22.0
500	30	5,780	-11.4		288	23.7
450	30	6,570	-16.8		291	26.4
400	30	7,455	-23.0		298	27.0
350	30	8,420	-30.0		301	29.7
300	30	9,500	-38.2		303	32.8
250	30	10,730	-47.6		301	35.9
200	30	12,174	-56.3		300	38.9
175	30	13,019	-58.0		302	36.5
150	30	13,990	-58.5		302	30.3
125	29	15,137	-58.5		301	22.9
100	29	16,538	-59.0		297	17.9
80	29	17,941	-57.8		322	10.5
60	29	19,768	-55.2		17	7.2
50	28	20,939	-53.0		49	9.3
40	28	22,387	-50.4		75	12.0
30	25	24,278	-47.8		84	15.2
25	24	25,486	-45.9		82	17.5
20	19	26,981	-43.3		81	19.6
15	17	28,929	-39.7		80	22.0
10	9	31,721	-35.4			

FORT WORTH, TEX. (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	180	22.2	86	156	2.5
1,000	30	114				
950	30	561	22.2	75	176	8.0
900	30	1,032	20.4	71	198	11.5
850	30	1,524	18.0	63	214	10.3
800	30	2,042	15.5	55	224	7.0
750	30	2,583	12.0	56	242	5.8
700	30	3,162	8.5	49	244	5.2
650	30	3,768	4.9	45	251	4.3
600	30	4,419	.4	49	271	2.9
550	30	5,105	-3.9	47	276	2.7
500	29	5,860	-8.7	40	289	3.1
450	29	6,664	-13.8		304	3.7
400	29	7,556	-19.3		302	3.9
350	29	8,535	-26.3		301	5.2
300	29	9,632	-34.7		297	8.2
250	29	10,882	-43.6		290	14.4
200	29	12,350	-53.6		290	22.7
175	29	13,200	-58.2		288	23.9
150	29	14,161	-62.4		292	21.6
125	28	15,273	-66.4		310	11.9
100	26	16,618	-67.6		325	5.1
80	26	17,959	-67.3		57	5.8
60	25	19,724	-61.0		81	15.3
50	25	20,867	-57.6		86	17.7
40	25	22,289	-54.0		87	18.8
30	25	24,150	-50.5		88	22.7
25	25	25,344	-47.9		87	22.7
20	23	26,827	-45.4		85	24.9
15	17	28,777	-41.8		83	28.2
10	[illegible]	31,548	-36.7			

GLASGOW, MONT. (932 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	696	13.1	72	93	2.3
1,000	30	94				
950	30	529				
900	30	989	15.0	56	19	1.2
850	30	1,472	13.2	53	286	5.1
800	30	1,979	10.1	56	293	8.5
750	30	2,507	6.4	58	285	9.9
700	30	3,075	2.8	61	269	14.6
650	30	3,667	-.7	56	264	21.4
600	30	4,307	-4.6	52	259	25.8
550	30	4,980	-8.7	48	261	27.6
500	30	5,718	-13.5	44	263	30.7
450	30	6,504	-18.8	37	260	31.9
400	30	7,380	-24.9	35	265	29.3
350	30	8,336	-32.3		267	31.3
300	29	9,401	-40.7		260	32.4
250	29	10,617	-49.8		257	32.3
200	28	12,055	-56.6		254	34.2
175	28	12,902	-56.1		265	27.6
150	28	13,883	-55.5			
125	28	15,047	-55.3			
100	28	16,468	-55.6			
80	28	17,892	-54.9			
60	27	19,743	-52.4			
50	27	20,923	-51.9			
40	24	22,385	-50.3			
30	23	24,269	-47.9			
25	22	25,478	-45.9			
20	22	26,974	-42.8			
15	14	28,953	-40.1			
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GRAND JUNCTION, COLO. (851 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,474	18.0	34	115	8.4
1,000	30	63				
950	30	509				
900	30	988				
850	30	1,484			113	7.8
800	30	2,005	18.9	29	144	8.4
750	30	2,552	15.8	29	191	5.6
700	30	3,137	11.6	31	244	8.7
650	30	3,749	6.6	39	250	10.3
600	30	4,402	1.0	45	245	13.2
550	30	5,087	-4.9	50	246	14.6
500	30	5,837	-10.4	48	246	16.5
450	30	6,635	-15.6		256	19.4
400	30	7,520	-22.1		252	13.4
350	30	8,489	-29.1		254	12.8
300	30	9,572	-37.6		258	15.5
250	30	10,804	-47.1		249	21.0
200	30	12,253	-55.1		260	28.6
175	30	13,101	-57.9		261	27.4
150	30	14,066	-60.8		261	25.5
125	30	15,193	-63.2		255	24.3
100	30	16,560	-64.4		257	18.1
80	30	17,929	-62.2		262	6.4
60	29	19,724	-58.1		98	6.0
50	29	20,876	-55.9		90	11.3
40	27	22,308	-53.2		79	14.8
30	27	24,174	-49.8		82	18.1
25	26	25,370	-48.3		88	15.5
20	24	26,843	-45.6		89	20.8
15	16	28,757	-43.4			
10	8	31,505	-40.0			

GREAT FALLS, MONT. (886 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,123	12.0	67	236	2.9
1,000	30	97				
950	30	534				
900	30	994				
850	30	1,476	12.8	54	256	5.6
800	30	1,983	9.8	55	256	7.2
750	30	2,508	6.5	58	247	8.5
700	30	3,079	2.6	61	255	13.8
650	30	3,667	-1.2	57	260	18.8
600	30	4,309	-5.1	50	258	24.1
550	30	4,978	-9.3	47	254	24.3
500	30	5,719	-14.1	48	252	30.9
450	30	6,500	-19.9	44	253	34.4
400	30	7,375	-26.1	42	250	36.9
350	30	8,328	-33.2	39	249	36.5
300	30	9,395	-41.0		248	42.7
250	30	10,611	-49.6		242	47.2
200	30	12,048	-56.4		245	49.4
175	30	12,896	-55.5		245	48.2
150	29	13,877	-54.9		249	40.6
125	28	15,040	-54.8		250	28.8
100	28	16,464	-55.4		252	18.7
80	28	17,887	-55.5		251	11.1
60	28	19,729	-53.1		229	1.4
50	28	20,900	-52.3		92	3.9
40	27	22,355	-50.5		85	10.1
30	25	24,234	-48.3		85	13.2
25	25	25,439	-46.6		84	14.8
20	20	26,930	-43.3		88	15.2
15	15	28,886	-40.6		81	19.2
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

JUNE 1959

GREEN BAY, WIS. (991 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	210	14.5	89	257	2.5
1,000--	30	129				
950----	30	566	16.4	66	261	7.6
900----	30	1,025	14.1	62	268	10.5
850----	30	1,506	11.5	63	268	11.1
800----	30	2,010	8.7	62	274	10.5
750----	30	2,540	6.2	52	277	13.2
700----	30	3,106	3.7	46	278	15.2
650----	30	3,702	.6	43	276	15.9
600----	30	4,344	- 3.1	41	286	19.2
550----	30	5,020	- 7.0	37	290	18.7
500----	30	5,766	-11.6		284	21.6
450----	30	6,557	-17.1		289	22.5
400----	30	7,439	-23.4		294	19.0
350----	30	8,402	-30.5		292	24.5
300----	30	9,479	-38.8		291	22.7
250----	30	10,706	-48.2		290	22.3
200----	30	12,144	-57.0		312	25.6
175----	30	12,986	-58.9		318	21.8
150----	30	13,952	-59.2		309	25.3
125----	30	15,095	-59.2		297	19.2
100----	30	16,493	-59.0		282	17.7
80-----	30	17,893	-58.3		289	10.9
60-----	30	19,715	-55.4		355	4.5
50-----	30	20,880	-53.9		51	8.0
40-----	28	22,320	-52.4		70	9.3
30-----	27	24,190	-49.6		77	13.0
25-----	27	25,386	-48.2		83	12.8
20-----	18	26,871	-46.6			
15-----	11	28,789	-44.2			
10-----						

GREENSBORO, N. C. (985 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	273	18.5	85	330	1.4
1,000--	30	143				
950----	30	585	20.0	64	336	5.2
900----	30	1,050	17.6	63	333	6.4
850----	30	1,537	14.5	64	319	7.2
800----	30	2,047	11.4	60	299	7.8
750----	30	2,582	8.8	52	297	9.1
700----	30	3,153	6.0	43	297	9.7
650----	30	3,755	2.7	42	306	9.7
600----	30	4,401	- .8	39	285	9.7
550----	30	5,083	- 4.9		288	11.7
500----	30	5,834	- 9.4		286	13.4
450----	30	6,634	-14.8		286	11.7
400----	30	7,522	-21.3		278	11.9
350----	30	8,493	-28.4		273	13.6
300----	30	9,579	-36.5		279	15.9
250----	30	10,817	-46.2		282	13.6
200----	30	12,266	-55.9		291	19.0
175----	30	13,109	-59.3		293	22.5
150----	30	14,069	-61.5		299	17.9
125----	30	15,195	-63.1		302	17.1
100----	30	16,566	-63.5		302	12.0
80-----	30	17,938	-62.6		345	8.4
60-----	30	19,730	-58.4		57	9.5
50-----	29	20,883	-56.0		82	16.1
40-----	28	22,310	-53.1		88	15.7
30-----	28	24,178	-50.0		92	16.7
25-----	28	25,375	-48.1		91	18.3
20-----	22	26,853	-45.9		89	22.0
15-----	15	28,778	-42.8			
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HILO, T. H. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	11	20.7	85	231	5.4
1,000--	30	150	22.3	76	237	3.5
950----	30	595	19.4	80	108	5.1
900----	30	1,059	16.1	84	94	8.5
850----	30	1,543	13.1	84	86	7.8
800----	30	2,052	11.5	69	84	8.7
750----	30	2,593	11.3		89	12.0
700----	30	3,166	9.4		92	11.5
650----	30	3,776	6.4		102	7.2
600----	30	4,429	2.6		103	6.0
550----	30	5,119	- 1.7		104	4.5
500----	30	5,879	- 6.2		94	3.1
450----	30	6,688	-11.7		96	1.9
400----	30	7,587	-18.0		352	2.5
350----	30	8,572	-25.1		319	5.1
300----	30	9,674	-33.5		292	10.9
250----	30	10,927	-43.6		285	14.0
200----	30	12,391	-55.0		274	22.5
175----	29	13,229	-61.3		271	24.9
150----	29	14,171	-67.6		261	26.4
125----	29	15,255	-71.7		259	14.2
100----	29	16,565	-72.6		257	6.0
80-----	28	17,879	-70.0		82	6.0
60-----	28	19,613	-64.6		90	22.2
50-----	28	20,736	-61.2		89	26.2
40-----	28	22,132	-58.0		89	31.7
30-----	28	23,959	-53.9		88	31.9
25-----	25	25,128	-52.2		89	31.7
20-----	12	26,552	-49.9			
15-----						
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INTERNAT. FALLS, MINN. (970 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	360	12.6	78	214	1.6
1,000--	30	102				
950----	30	535	14.2	68	212	4.1
900----	30	991	13.2	63	244	9.7
850----	30	1,470	10.6	60	257	11.3
800----	30	1,974	8.2	59	261	14.2
750----	30	2,504	5.7	56	275	16.7
700----	30	3,067	2.6	51	274	18.8
650----	30	3,656	- .9	47	276	21.4
600----	30	4,298	- 4.7	44	280	26.0
550----	30	4,968	- 8.7	43	281	29.1
500----	30	5,711	-13.4	39	280	31.1
450----	30	6,499	-18.4	34	284	36.1
400----	30	7,377	-24.4	32	284	42.4
350----	30	8,335	-31.5		284	45.3
300----	30	9,408	-39.7		286	50.1
250----	30	10,632	-48.2		283	55.8
200----	29	12,082	-55.1		279	55.6
175----	29	12,932	-55.8		277	54.0
150----	29	13,914	-55.5		280	44.7
125----	28	15,082	-55.8		281	31.9
100----	28	16,503	-55.9		283	19.6
80-----	27	17,930	-54.5		288	10.1
60-----	25	19,780	-52.6		5	4.9
50-----	25	20,962	-51.1		66	6.4
40-----	24	22,425	-49.3		80	11.1
30-----	19	24,325	-46.9		86	13.4
25-----	17	25,538	-45.1		87	15.7
20-----	16	27,034	-42.3		91	21.4
15-----	10	28,999	-38.7			
10-----	5	31,835	-35.1			

JACKSON, MISS. (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	101	21.1	92	154	1.0
1,000--	30	128	21.2	90	153	1.4
950----	30	574	21.4	77	202	4.1
900----	30	1,043	18.9	74	234	3.7
850----	30	1,532	16.4	65	251	4.1
800----	30	2,046	13.6	61	254	3.9
750----	30	2,589	10.6	53	253	3.7
700----	30	3,160	7.5	45	269	3.1
650----	30	3,766	4.0	40	265	2.9
600----	30	4,413	.3	36	249	2.7
550----	30	5,104	- 3.6		262	2.3
500----	30	5,853	- 7.8		297	3.5
450----	30	6,663	-12.9	33	300	5.4
400----	30	7,553	-19.1	35	291	8.9
350----	30	8,534	-26.1	33	285	12.8
300----	30	9,631	-34.2		286	14.4
250----	30	10,882	-43.8		282	18.5
200----	30	12,347	-54.2		285	23.9
175----	30	13,194	-59.3		297	25.3
150----	30	14,150	-63.3		305	22.0
125----	30	15,263	-66.0		312	16.9
100----	30	16,611	-67.4		327	9.3
80-----	30	17,956	-66.3		[illegible]	8.4
60-----	28	19,718	-60.1		73	14.4
50-----	28	20,863	-57.4		84	15.9
40-----	27	22,284	-53.7		[illegible]	17.1
30-----	25	24,146	-50.2		88	20.4
25-----	24	25,341	-47.7		88	20.0
20-----	17	26,810	-45.7		77	21.4
15-----						
10-----						

JACKSONVILLE, FLA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	22.9	94	290	2.5
1,000--	30	146	23.5	84	271	3.9
950----	30	588	22.1	74	257	3.5
900----	30	1,063	19.4	71	250	2.9
850----	30	1,554	16.3	73	241	1.4
800----	30	2,067	13.3	70	282	2.1
750----	30	2,606	10.4	61	281	3.9
700----	30	3,181	7.1	64	276	4.9
650----	30	3,781	3.8	57	278	6.4
600----	30	4,433	.2	52	297	7.0
550----	30	5,120	- 3.7	48	290	7.0
500----	30	5,873	- 8.0	45	290	9.3
450----	30	6,679	-13.2	43	287	12.4
400----	30	7,571	-19.1	43	282	14.4
350----	30	8,552	-26.0	38	289	18.1
300----	24	9,657	-34.0		288	20.4
250----	24	10,909	-43.9		288	24.9
200----	23	12,374	-54.8		292	29.5
175----	23	13,219	-59.8		297	29.5
150----	23	14,171	-64.7		305	26.8
125----	23	15,276	-67.4		315	20.6
100----	23	16,618	-68.5		333	11.5
80-----	23	17,962	-66.5		34	10.9
60-----	21	19,724	-61.2		76	15.9
50-----	21	20,864	-58.0		86	19.8
40-----	21	22,283	-54.7		92	21.2
30-----	20	24,143	-51.0		89	22.0
25-----	20	25,334	-49.6		88	24.1
20-----	20	26,806	-46.4		87	25.6
15-----	15	28,713	-43.4		90	25.8
10-----	6	31,479	-37.9			

KING SALMON, ALASKA (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	6.9	92	196	5.1
1,000--	30	117	7.0		206	6.4
950----	30	543	8.1	76	181	4.1
900----	30	986	6.3	70	135	2.5
850----	30	1,453	3.7	68	115	3.3
800----	30	1,943	1.0	65	111	3.9
750----	30	2,458	- 2.1	60	116	4.7
700----	30	3,005	- 5.1	58	123	3.5
650----	30	3,580	- 8.3	51	140	4.9
600----	30	4,202	-11.9	46	149	5.2
550----	30	4,856	-16.1	47	162	5.6
500----	30	5,574	-21.0	46	167	5.6
450----	30	6,338	-26.6	43	173	5.4
400----	30	7,185	-32.7	44	172	5.2
350----	30	8,112	-39.6		174	5.2
300----	29	9,146	-47.4		174	7.0
250----	29	10,332	-54.4		188	6.2
200----	29	11,764	-52.8		220	2.7
175----	29	12,630	-50.6		202	2.1
150----	29	13,639	-49.1		190	1.6
125----	29	14,835	-49.1		168	1.7
100----	28	16,284	-48.4		153	2.1
80-----	28	17,770	-48.0		140	3.7
60-----	27	19,677	-47.6		105	5.1
50-----	26	20,888	-47.4		105	8.0
40-----	25	22,361	-46.8		96	9.5
30-----	22	24,265	-45.9		87	12.8
25-----	17	25,488	-45.0		86	15.2
20-----	10	26,962	-43.7			
15-----	6	29,024	-39.6			
10-----						

KOTZEBUE, ALASKA (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	4.8	92	267	7.2
1,000--	30	119	7.7	78	276	7.6
950----	30	541	9.5	58	298	4.3
900----	30	991	7.0	57	225	2.5
850----	30	1,460	4.5	56	189	4.9
800----	30	1,951	1.3	60	192	6.6
750----	30	2,465	- 2.0	59	189	7.4
700----	30	3,014	- 5.3	55	189	8.4
650----	30	3,589	- 8.9	54	187	6.4
600----	30	4,209	-12.8	53	178	8.7
550----	30	4,865	-16.9	47	181	8.7
500----	30	5,578	-21.8	44	183	9.3
450----	30	6,337	-27.6	43	187	8.2
400----	30	7,183	-34.0	38	181	11.3
350----	30	8,104	-41.1		179	9.9
300----	30	9,135	-48.6		167	12.6
250----	30	10,319	-53.6		162	11.9
200----	29	11,767	-50.9		194	5.1
175----	29	12,642	-48.8		170	5.1
150----	28	13,662	-47.9		158	1.9
125----	28	14,866	-47.7		126	1.7
100----	28	16,341	-47.0		124	2.7
80-----	27	17,828	-46.0		120	5.2
60-----	25	19,751	-44.9		99	7.8
50-----	24	20,969	-44.0		91	8.7
40-----	24	22,468	-43.3		84	12.6
30-----	22	24,408	-42.3		87	15.2
25-----	20	25,635	-41.0			
20-----	11	27,129	-40.4			
15-----						
10-----						

LAKE CHARLES, LA. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	23.2	90	56	1.7
1,000--	30	121	24.0	84	83	1.9
950----	30	571	22.3	78	160	4.5
900----	30	1,041	19.7	74	174	5.2
850----	30	1,533	16.8	70	183	4.7
800----	30	2,048	14.0	62	194	3.9
750----	30	2,589	11.3	51	214	3.3
700----	30	3,165	8.3	43	258	2.1
650----	30	3,770	4.7	39	250	1.0
600----	30	4,423	.7	38	50	.6
550----	30	5,108	- 3.3	36	320	2.1
500----	30	5,866	- 7.4	38	266	2.7
450----	30	6,672	-12.6	35	247	5.4
400----	30	7,571	-18.8	37	281	7.2
350----	30	8,553	-25.6		269	9.5
300----	30	9,654	-33.6		268	13.4
250----	30	10,908	-43.0		272	21.6
200----	30	12,378	-53.7		285	20.8
175----	30	13,225	-59.0		285	22.0
150----	30	14,181	-63.7		290	21.0
125----	29	15,291	-68.0		307	15.0
100----	28	16,625	-69.9		358	8.0
80-----	28	17,955	-68.3		35	9.5
60-----	28	19,706	-61.5		78	19.2
50-----	28	20,843	-58.0		85	18.7
40-----	28	22,262	-54.7		91	18.8
30-----	26	24,119	-50.8		91	24.5
25-----	24	25,319	-48.8		84	24.9
20-----	20	26,794	-46.4		77	26.8
15-----	11	28,757	-43.9			
10-----						

LANDER, WYO. (829 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,696	12.2	60	235	2.7
1,000--	30	[illegible]				
950----	30	525				
900----	30	986				
850----	30	1,483				
800----	30	1,995	15.0	45	271	1.9
750----	30	2,534	12.3	43	279	3.9
700----	30	3,115	9.0	41	262	8.4
650----	30	3,715	4.4	43	259	15.7
600----	30	4,371	- .7	45	259	20.8
550----	30	5,047	- 5.9	42	260	23.5
500----	30	5,799	-11.4	38	262	27.0
450----	30	6,589	-17.2	35	259	25.6
400----	30	7,472	-23.6	30	258	27.8
350----	30	8,434	-30.9		262	27.6
300----	30	9,510	-39.0		262	29.3
250----	30	10,736	-48.0		256	30.1
200----	30	12,177	-56.5		254	37.5
175----	30	13,022	-57.6		253	42.4
150----	30	13,994	-58.6		256	41.6
125----	30	15,135	-60.1		265	30.5
100----	30	16,524	-60.9		261	25.3
80-----	30	17,916	-59.1		267	13.2
60-----	30	19,730	-56.3		125	3.1
50-----	30	20,891	-54.9		91	8.0
40-----	29	22,322	-52.4		85	15.0
30-----	26	24,189	-49.6		84	17.5
25-----	23	25,377	-47.9		[illegible]	18.3
20-----	19	26,840	-46.1		86	20.0
15-----	15	28,743	-43.4			
10-----	6	31,478	-40.2			

LAS VEGAS, NEV. (933 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	660	24.7	20	195	6.6
1,000--	30	41				
950----	30	495				
900----	30	976	27.2	18	201	6.0
850----	30	1,478	24.6	19	214	5.6
800----	30	2,005	20.6	21	199	7.2
750----	30	2,552	16.2	23	202	7.6
700----	30	3,138	11.5	26	191	8.2
650----	30	3,745	6.6	30	184	8.7
600----	30	4,403	1.6	36	181	9.9
550----	30	5,086	- 3.7	36	195	11.5
500----	30	5,844	- 8.8		212	12.0
450----	30	6,644	-14.6		232	11.7
400----	30	7,533	-21.3		237	13.8
350----	30	8,504	-28.9		246	15.3
300----	30	9,588	-37.3		243	18.5
250----	30	10,823	-46.5		247	24.1
200----	29	12,275	-55.1		249	32.8
175----	29	13,121	-58.5		248	33.2
150----	29	14,084	-61.9		245	31.3
125----	29	15,204	-64.5		243	26.2
100----	28	16,562	-65.6		240	17.3
80-----	27	17,920	-64.4		210	7.0
60-----	26	19,694	-59.8		113	8.0
50-----	26	20,838	-57.7		94	11.3
40-----	26	22,253	-55.1		90	13.6
30-----	24	24,099	-51.6		90	17.3
25-----	24	25,285	-49.7		92	19.6
20-----	18	26,738	-46.7		89	19.2
15-----	8	28,676	-42.9			
10-----						

LITTLE ROCK, ARK. (1006 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	79	20.8	89	39	1.2
1,000--	30	131	20.9	86	61	1.2
950----	30	578	20.6	75	181	2.1
900----	30	1,043	17.9	75	212	3.7
850----	30	1,531	15.5	71	239	5.1
800----	30	2,044	12.9	64	240	4.7
750----	30	2,585	10.1	56	257	4.3
700----	30	3,156	7.4	46	272	3.1
650----	30	3,761	3.6	40	302	3.5
600----	30	4,408	- .3	39	284	4.1
550----	30	5,096	- 4.3	39	268	3.7
500----	30	5,845	- 9.0		271	4.3
450----	30	6,651	-14.1		271	6.6
400----	30	7,539	-20.2		277	8.4
350----	30	8,515	-27.2		287	9.3
300----	30	9,608	-35.4		296	12.0
250----	30	10,853	-45.1		293	14.4
200----	25	12,300	-55.5		288	18.5
175----	24	13,138	-59.4		289	24.9
150----	24	14,095	-63.5		293	20.6
125----	23	15,210	-64.7		292	16.5
100----	22	16,568	-66.1		285	11.7
80-----	22	17,919	-65.6		330	5.4
60-----	20	19,680	-60.8		65	10.3
50-----	20	20,822	-57.8		79	13.0
40-----	20	22,240	-54.7		86	15.0
30-----	18	24,091	-51.1		85	16.9
25-----	17	25,282	-49.0		84	19.0
20-----	10	26,715	-46.7			
15-----						
10-----						

McGRATH, ALASKA (1001 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	103	10.3	80	268	1.4
1,000--	30	109			275	2.9
950----	30	539	11.1	62	308	2.1
900----	30	988	8.7	59	109	.8
850----	30	1,458	5.3	63	137	3.7
800----	30	1,951	1.9	65	141	4.7
750----	30	2,467	- 1.9	66	160	4.3
700----	30	3,013	- 5.7	63	169	3.9
650----	30	3,588	- 9.3	61	179	5.1
600----	30	4,206	-13.0	53	171	5.2
550----	30	4,860	-17.2	44	166	4.5
500----	30	5,571	-22.0	38	174	6.8
450----	30	6,332	-27.5		169	7.2
400----	30	7,175	-33.9	40	188	2.7
350----	30	8,097	-40.8		213	4.5
300----	30	9,129	-48.3		213	5.1
250----	30	10,312	-54.3		206	6.2
200----	30	11,745	-52.6		226	2.3
175----	30	12,610	-50.9		213	1.2
150----	30	13,618	-49.5		173	1.2
125----	30	14,813	-49.0		120	1.0
100----	30	16,280	-48.3		124	3.1
80-----	30	17,755	-47.3		94	4.9
60-----	30	19,665	-46.5		97	5.8
50-----	29	20,882	-46.0		96	8.9
40-----	28	22,372	-45.4		88	10.1
30-----	28	24,297	-44.5		85	12.0
25-----	28	25,516	-43.7		83	15.0
20-----	18	27,059	-42.3		88	18.5
15-----	13	29,062	-39.6			
10-----	7	31,861	-37.3			

MEDFORD, OREG. (969 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	401	11.9	79	198	0.2
1,000--	30	137				
950----	30	575	13.6	70	286	2.1
900----	30	1,025	12.1	69	291	3.5
850----	30	1,503	9.7	70	258	1.7
800----	30	2,005	7.8	59	244	5.2
750----	30	2,535	5.9	48	245	9.7
700----	30	3,098	3.0	40	237	15.2
650----	30	3,688	.0	36	237	19.2
600----	30	4,332	- 3.8	36	242	22.9
550----	30	5,006	- 8.1	36	244	23.9
500----	30	5,749	-12.7	36	246	28.2
450----	30	6,537	-18.3	35	248	30.7
400----	30	7,414	-24.6	34	255	31.5
350----	30	8,373	-31.6		254	35.4
300----	30	9,447	-39.7		250	31.5
250----	30	10,671	-48.6			
200----	30	12,109	-57.0			
175----	30	12,952	-58.1			
150----	30	13,925	-57.5			
125----	30	15,076	-57.9			
100----	30	16,484	-58.1			
80-----	30	17,890	-57.6			
60-----	30	19,712	-56.0			
50-----	30	20,875	-54.9			
40-----	30	22,306	-53.1			
30-----	30	24,170	-50.7			
25-----	30	25,362	-48.8			
20-----	28	26,839	-45.9			
15-----	18	28,768	-42.6			
10-----	5	31,383	-40.0			

MIAMI, FLA. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	4	24.8	89	183	1.7
1,000--	30	137	25.3	81	175	3.3
950----	30	586	22.9	78	182	6.8
900----	30	1,059	20.0	73	186	7.0
850----	30	1,551	17.0	71	197	5.8
800----	30	2,067	14.2	64	212	5.1
750----	30	2,606	11.5	56	236	5.2
700----	30	3,186	8.3	[illegible]	245	6.2
650----	30	3,792	4.7	57	238	6.6
600----	30	4,445	1.1	52	246	6.6
550----	30	5,130	- 2.8	48	271	7.0
500----	30	5,891	- 7.2	44	282	8.5
450----	30	6,700	-12.2	45	291	9.1
400----	30	7,599	-18.0	44	300	10.1
350----	30	8,583	-25.1	40	305	12.6
300----	30	9,685	-33.4	37	303	13.2
250----	30	10,939	-43.5		308	15.9
200----	30	12,401	-55.6		307	23.1
175----	30	13,241	-61.5		309	23.9
150----	29	14,183	-66.8		318	22.5
125----	29	15,273	-70.6		334	17.3
100----	28	16,593	-71.2		356	8.7
80-----	28	17,923	-68.2		45	11.9
60-----	28	19,674	-62.4		76	19.2
50-----	28	20,809	-59.1		[illegible]	23.1
40-----	26	22,218	-56.0		93	25.6
30-----	26	24,068	-51.3		92	27.2
25-----	22	25,253	-48.8		[illegible]	26.8
20-----	14	26,732	-45.9		83	32.3
15-----	7	28,661	-42.0			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

JUNE 1959

MIDLAND, TEX. (915 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	871	19.8	80	121	2.1
1,000--	30	92				
950----	30	541				
900----	30	1,010	20.9	74	136	4.7
850----	30	1,506	20.5	61	189	11.1
800----	20	2,028	17.8	54	212	8.5
750----	30	2,579	14.7	49	245	3.3
700----	30	3,158	10.8	46	314	2.1
650----	30	3,770	6.3	49	352	4.7
600----	30	4,423	1.6	45	346	5.8
550----	30	5,111	-3.6	45	336	5.6
500----	30	5,865	-8.6	42	325	6.4
450----	30	6,672	-13.7	36	312	6.0
400----	30	7,563	-19.2		297	9.9
350----	30	8,543	-26.1		298	11.7
300----	30	9,641	-34.3		288	16.7
250----	30	10,892	-43.6		282	23.5
200----	29	12,362	-53.4		278	26.0
175----	29	13,212	-58.3		284	29.5
150----	28	14,170	-63.0		284	23.3
125----	28	15,282	-66.7		294	10.7
100----	28	16,623	-69.0		60	3.7
80-----	27	17,954	-68.5		73	10.1
60-----	27	19,708	-60.9		85	17.1
50-----	27	20,852	-57.8		91	16.5
40-----	27	22,271	-54.1		88	19.0
30-----	24	24,134	-49.6		89	23.1
25-----	22	25,337	-47.5		87	19.6
20-----	17	26,803	-45.8		90	26.8
15-----	11	28,705	-43.0			
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MONTGOMERY, ALA. (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	61	21.9	88	90	1.2
1,000--	30	134	22.0	85	102	1.0
950----	30	578	21.6	74	186	3.5
900----	30	1,049	19.1	73	207	3.9
850----	30	1,540	16.0	74	211	6.2
800----	30	2,053	13.1	65	227	7.4
750----	30	2,594	10.2	54	232	6.2
700----	30	3,166	7.2	51	248	5.4
650----	30	3,770	3.6	48	248	4.9
600----	30	4,418	-.3	48	253	5.6
550----	30	5,107	-4.4	46	273	5.6
500----	30	5,857	-8.6	41	273	6.0
450----	30	6,664	-13.7	38	287	8.2
400----	30	7,552	-19.9	41	281	10.7
350----	30	8,529	-29.6	40	287	13.8
300----	30	9,624	-34.8		291	17.3
250----	30	10,871	-44.7		293	23.9
200----	30	12,328	-55.4		292	29.1
175----	30	13,172	-60.3		295	29.1
150----	30	14,124	-64.5		298	24.7
125----	30	15,229	-66.9		308	17.9
100----	29	16,577	-67.8		328	11.3
80-----	29	17,925	-65.7		17	8.5
60-----	28	19,690	-60.4		76	15.3
50-----	27	20,836	-57.1		83	17.1
40-----	24	22,267	-53.5		87	17.7
30-----	23	24,130	-49.8		88	18.3
25-----	22	25,321	-47.9		85	18.1
20-----	19	26,811	-45.1		85	20.8
15-----	14	28,766	-40.7			
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NANTUCKET, MASS. (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	14	14.7	87	253	1.6
1,000--	30	108	15.5	82	268	2.9
950----	30	543	16.1	69	289	7.6
900----	30	1,003	14.3	68	281	10.1
850----	30	1,485	11.8	68	280	12.6
800----	30	1,990	8.9	64	280	14.4
750----	30	2,518	6.1	57	280	16.7
700----	30	3,084	2.9	55	281	17.5
650----	30	3,678	-.4	50	288	19.0
600----	30	4,318	-3.7	48	283	19.0
550----	30	4,996	-7.7	46	286	17.9
500----	30	5,737	-12.3	41	281	20.4
450----	30	6,526	-17.6	38	279	21.2
400----	30	7,407	-23.9	37	273	19.0
350----	30	8,368	-31.0	38	283	18.8
300----	30	9,445	-38.5		286	19.6
250----	30	10,676	-46.7		287	18.8
200----	30	12,129	-54.8		291	19.6
175----	30	12,977	-57.7		293	21.0
150----	30	13,947	-58.9		296	18.5
125----	30	15,091	-58.8		286	14.4
100----	30	16,491	-59.4		298	10.1
80-----	30	17,893	-57.8		342	5.8
60-----	30	19,716	-55.9		42	5.8
50-----	29	20,880	-54.1		59	8.4
40-----	28	22,317	-51.9		83	12.0
30-----	25	24,185	-49.4		88	17.5
25-----	21	25,377	-47.9		92	18.3
20-----	15	26,845	-45.2			
15-----	5	28,719	-43.4			
10-----						

NASHVILLE, TENN. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	177	19.1	88	174	0.6
1,000--	30	137				
950----	30	581	20.4	70	208	3.1
900----	30	1,048	17.6	69	242	3.5
850----	30	1,535	14.8	67	264	4.3
800----	30	2,047	12.3	59	270	4.3
750----	30	2,582	9.8	50	270	5.4
700----	30	3,156	6.5	46	272	5.2
650----	30	3,757	3.3	42	277	6.0
600----	30	4,407	-.6	40	285	6.0
550----	30	5,088	-4.8	36	288	7.0
500----	30	5,842	-9.4	36	285	8.5
450----	30	6,642	-14.8		294	10.9
400----	30	7,532	-21.1		290	13.6
350----	30	8,505	-27.9		296	12.0
300----	30	9,593	-36.3		299	15.3
250----	30	10,831	-46.2		304	21.4
200----	30	12,280	-56.1		294	25.5
175----	30	13,123	-59.3		296	28.6
150----	30	14,082	-62.2		299	24.1
125----	30	15,202	-64.3		296	17.5
100----	30	16,563	-64.9		313	12.0
80-----	30	17,926	-63.7		12	8.7
60-----	29	19,709	-59.2		75	10.1
50-----	29	20,860	-56.4		85	13.2
40-----	29	22,286	-53.8		79	15.2
30-----	26	24,150	-50.4		79	17.7
25-----	23	25,335	-48.9		89	19.6
20-----	22	26,805	-46.4		88	19.4
15-----	9	28,760	-43.3			
10-----						

N. Y. INT. AP, IDLEWILD (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	18.6	78	314	4.3
1,000--	30	116	18.0	75	322	5.8
950----	30	558	16.7	70	320	7.6
900----	30	1,015	14.3	69	310	10.3
850----	30	1,496	11.7	72	303	12.4
800----	30	2,001	8.6	69	297	14.6
750----	30	2,534	6.0	65	292	15.9
700----	30	3,095	2.8	61	297	16.7
650----	30	3,688	-.6	59	295	18.3
600----	30	4,326	-4.6	54	294	18.8
550----	30	5,003	-8.1	43	292	19.8
500----	30	5,741	-12.7	36	294	21.0
450----	30	6,534	-17.9	38	293	22.2
400----	30	7,408	-24.0	37	287	24.7
350----	30	8,369	-31.1	38	289	26.4
300----	30	9,445	-38.5		285	28.6
250----	30	10,678	-46.4		287	28.4
200----	30	12,131	-54.6		291	32.1
175----	30	12,981	-57.1		296	30.5
150----	30	13,952	-59.0		294	26.8
125----	30	15,094	-59.3		295	20.4
100----	29	16,492	-59.2		296	13.2
80-----	29	17,892	-58.6		309	7.8
60-----	29	19,714	-55.5		39	4.7
50-----	28	20,882	-53.5		71	7.2
40-----	26	22,328	-50.8		92	9.7
30-----	22	24,215	-48.0		90	11.7
25-----	22	25,423	-46.1		88	13.8
20-----	18	26,914	-44.5		87	15.9
15-----	14	28,850	-41.2		95	19.6
10-----	6	31,629	-36.8			

NOME, ALASKA (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	7	6.5	84	317	3.5
1,000--	30	121	7.8	78	316	3.3
950----	30	544	7.8	65	199	1.0
900----	30	989	5.4	66	203	3.7
850----	30	1,454	3.3	64	180	5.6
800----	30	1,944	.6	64	174	7.6
750----	30	2,456	-2.4	61	170	9.1
700----	30	3,004	-5.7	55	171	8.2
650----	30	3,575	-9.1	50	174	8.2
600----	30	4,198	-12.5	48	190	6.4
550----	30	4,849	-16.8	47	188	5.6
500----	30	5,567	-21.8	44	199	5.1
450----	30	6,324	-27.6	41	212	5.6
400----	30	7,172	-34.0	39	198	7.2
350----	30	8,095	-40.9		226	8.4
300----	30	9,127	-48.1		216	9.5
250----	30	10,315	-52.5		233	10.3
200----	30	11,763	-50.2		224	3.3
175----	30	12,640	-48.3		221	2.3
150----	30	13,658	-47.6		218	1.9
125----	30	14,862	-48.1		99	1.4
100----	30	16,335	-47.3		103	2.7
80-----	30	17,816	-46.2		88	5.6
60-----	30	19,734	-45.3		90	6.6
50-----	29	20,958	-44.7		96	9.5
40-----	28	22,457	-44.1		89	13.0
30-----	26	24,402	-42.9		89	16.5
25-----	25	25,632	-42.1		88	18.1
20-----	21	27,147	-40.3		83	19.4
15-----	17	29,114	-37.9		88	21.6
10-----	12	31,956	-33.4			
7------						

NORFOLK, VA. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	9	21.0	81	284	3.1
1,000--	30	131	21.1	74	297	5.4
950----	30	575	19.8	64	318	8.7
900----	30	1,040	16.8	64	318	7.2
850----	30	1,525	13.7	66	313	6.4
800----	30	2,033	10.5	63	297	7.6
750----	30	2,568	7.9	55	298	9.5
700----	30	3,136	4.8	51	293	11.3
650----	30	3,732	2.0	40	298	13.8
600----	30	4,379	-1.6	39	295	14.8
550----	30	5,058	-5.6	37	294	16.1
500----	30	5,809	-10.0	33	294	17.1
450----	30	6,610	-15.2		294	17.7
400----	30	7,495	-21.5		288	19.4
350----	30	8,465	-28.8		283	21.4
300----	30	9,550	-37.2		282	22.2
250----	30	10,786	-46.4		285	26.4
200----	28	12,243	-55.5		285	26.0
175----	28	13,087	-59.2		286	24.5
150----	28	14,049	-60.9		296	23.5
125----	27	15,180	-62.8		301	18.8
100----	27	16,556	-62.6		306	11.3
80-----	26	17,939	-61.3		347	7.4
60-----	25	19,738	-57.7		54	7.8
50-----	25	20,896	-55.2		74	10.7
40-----	24	22,330	-51.9		85	12.4
30-----	22	24,211	-48.4		89	14.0
25-----	18	25,426	-46.3		85	17.1
20-----	15	26,915	-43.6		83	20.8
15-----	10	28,857	-40.5			
10-----						
7------						

NORTH PLATTE, NEBR. (916 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	848	15.8	86	114	2.1
1,000--	30	89				
950----	30	527				
900----	30	996	17.6	74	167	4.3
850----	30	1,487	18.4	57	204	12.4
800----	30	2,006	16.4	52	210	10.5
750----	30	2,543	13.3	52	231	8.0
700----	30	3,130	9.1	54	252	8.7
650----	30	3,733	4.9	53	251	11.1
600----	30	4,389	.3	49	255	11.9
550----	30	5,070	-4.7	41	261	13.6
500----	30	5,825	-9.6	38	268	14.6
450----	30	6,624	-15.1	37	265	15.0
400----	30	7,513	-21.6	36	264	14.0
350----	30	8,483	-28.5		260	19.2
300----	30	9,569	-36.9		266	21.8
250----	30	10,806	-46.7		269	23.3
200----	29	12,253	-55.4		276	25.3
175----	28	13,097	-58.9		269	27.0
150----	28	14,059	-61.1		274	27.2
125----	27	15,188	-62.4		276	25.1
100----	27	16,564	-63.3		280	12.8
80-----	27	17,946	-60.3		277	4.7
60-----	27	19,756	-56.6		92	7.4
50-----	27	20,919	-54.2		86	9.1
40-----	26	22,355	-52.1		81	13.6
30-----	25	24,233	-49.1		84	16.7
25-----	23	25,431	-47.7		83	19.6
20-----	21	26,912	-45.1		84	19.6
15-----	13	28,819	-41.6			
10-----	5	31,570	-38.6			
7------						

OAKLAND, CALIF. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	13.1	85	263	3.1
1,000--	30	108	12.9	82	255	3.3
950----	30	546	15.0	62	286	6.2
900----	30	1,003	19.1	28	317	13.6
850----	30	1,492	17.1	26	312	10.5
800----	30	2,006	14.5	23	298	8.0
750----	30	2,546	11.5		277	7.2
700----	30	3,122	8.2		264	8.0
650----	30	3,727	4.7		265	9.1
600----	30	4,377	.5		263	13.8
550----	30	5,066	-4.0		261	15.3
500----	30	5,816	-9.2		265	16.7
450----	30	6,620	-15.0		268	19.2
400----	30	7,503	-21.5		268	21.8
350----	30	8,473	-29.2		273	23.5
300----	30	9,556	-37.8		275	25.1
250----	30	10,787	-47.5		278	27.8
200----	30	12,230	-57.2		275	32.4
175----	30	13,069	-59.8		267	35.2
150----	30	14,028	-61.4		258	35.9
125----	30	15,158	-62.0		254	29.5
100----	30	16,535	-62.9		252	19.8
80-----	30	17,911	-61.9		234	8.7
60-----	30	19,702	-58.7		125	5.6
50-----	28	20,854	-57.1		94	9.5
40-----	28	22,272	-54.9		91	13.6
30-----	28	24,119	-52.4		86	15.9
25-----	28	25,302	-50.7		89	18.7
20-----	27	26,767	-48.2		87	20.4
15-----	25	28,676	-44.9		90	24.7
10-----	16	31,423	-39.8		85	27.2
7------	5	33,891	-36.9			

OKLAHOMA CITY, OKLA. (968 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	392	19.7	93	170	5.8
1,000--	29	114				
950----	29	557	21.3	77	183	9.3
900----	29	1,026	20.0	70	206	8.7
850----	29	1,518	18.1	61	246	4.1
800----	29	2,036	15.7	49	277	3.1
750----	29	2,580	12.7	43	306	2.5
700----	29	3,156	8.8	46	339	2.3
650----	29	3,760	4.6	47	339	2.1
600----	29	4,412	.4	44	329	3.3
550----	29	5,098	-3.9	41	324	3.7
500----	29	5,852	-8.4		299	2.5
450----	29	6,657	-13.4		294	3.9
400----	29	7,549	-19.6		280	5.4
350----	29	8,527	-26.7		278	7.8
300----	29	9,621	-35.1		283	7.8
250----	29	10,866	-44.8		284	11.3
200----	28	12,328	-54.8		293	13.2
175----	28	13,173	-59.0		294	15.2
150----	27	14,135	-61.5		300	15.3
125----	26	15,258	-64.7		305	12.2
100----	24	16,608	-66.9		294	6.8
80-----	24	17,960	-65.2		58	6.2
60-----	24	19,736	-59.9		76	13.4
50-----	23	20,882	-56.8		85	17.9
40-----	20	22,306	-53.5		92	18.3
30-----	18	24,169	-50.5		88	21.0
25-----	15	25,357	-48.8		86	20.6
20-----	12	26,823	-45.1			
15-----	8	28,715	-44.1			

OMAHA, NEBR. (967 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	403	17.8	82	166	4.3
1,000--	30	111				
950----	30	555	19.1	72	183	7.2
900----	30	1,018	18.7	64	215	11.5
850----	30	1,507	16.5	61	234	9.1
800----	30	2,022	13.7	61	250	8.4
750----	30	2,561	10.6	59	258	8.7
700----	30	3,137	7.4	55	258	9.9
650----	30	3,738	3.5	48	267	9.9
600----	30	4,389	-.8	44	270	12.2
550----	30	5,070	-5.3	39	281	11.1
500----	30	5,822	-9.8	34	282	11.5
450----	30	6,625	-14.8		281	13.8
400----	30	7,512	-20.9		274	14.4
350----	30	8,485	-27.9		277	17.9
300----	30	9,574	-36.4		281	20.4
250----	30	10,812	-46.2		279	23.5
200----	30	12,260	-56.2		276	26.8
175----	30	13,102	-59.1		274	28.8
150----	30	14,064	-61.3		280	28.0
125----	29	15,189	-62.5		280	25.1
100----	29	16,564	-62.6		290	16.1
80-----	27	17,943	-60.8		307	8.0
60-----	27	19,746	-57.3		30	4.5
50-----	26	20,906	-55.0		58	6.8
40-----	25	22,339	-52.5		70	11.5
30-----	20	24,225	-49.1		81	15.2
25-----	17	25,442	-47.2		78	17.3
20-----	14	26,932	-44.6		83	19.2
15-----	12	28,875	-41.1		81	19.0
10-----						

PEORIA, ILL. (992 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	201	17.4	80	143	1.0
1,000--	30	130				
950----	30	573	19.2	64	222	3.3
900----	30	1,036	16.7	63	257	5.2
850----	30	1,522	13.9	65	263	7.2
800----	30	2,031	11.3	58	272	7.4
750----	30	2,565	8.5	52	281	7.8
700----	30	3,136	6.2	43	279	10.3
650----	30	3,733	2.8	43	281	10.9
600----	30	4,383	-1.1	43	283	12.8
550----	30	5,062	-5.2	37	288	13.0
500----	30	5,814	-10.1	32	288	14.2
450----	30	6,609	-15.4		291	15.3
400----	30	7,496	-21.7		292	17.1
350----	30	8,467	-28.7		300	18.7
300----	30	9,552	-36.9		303	20.2
250----	30	10,788	-46.5		309	25.1
200----	30	12,236	-56.5		306	27.4
175----	30	13,077	-59.8		302	28.6
150----	28	14,043	-60.8		303	29.9
125----	27	15,174	-62.1		302	23.3
100----	27	16,553	-62.4		302	17.1
80-----	26	17,933	-61.1		326	8.5
60-----	25	19,730	-57.1		61	7.0
50-----	25	20,888	-54.9		71	11.5
40-----	24	22,326	-51.8		83	14.4
30-----	20	24,203	-49.0		83	15.2
25-----	18	25,403	-46.8		79	18.1
20-----	17	26,890	-43.7		86	21.8
15-----	8	28,792	-40.9			
10-----						

PITTSBURGH, PA. (976 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	353	16.4	81	293	2.1
1,000--	30	143				
950----	30	581	17.6	68	289	6.6
900----	30	1,043	15.6	65	297	10.5
850----	30	1,527	12.5	69	297	11.3
800----	30	2,033	9.1	69	293	10.3
750----	30	2,564	6.7	56	289	12.6
700----	30	3,131	4.2	45	293	14.4
650----	30	3,728	1.1	42	298	16.3
600----	30	4,371	-2.6	41	301	17.7
550----	30	5,048	-6.4	37	302	19.2
500----	30	5,797	-10.9		305	20.4
450----	30	6,592	-16.4		301	22.7
400----	30	7,475	-22.7		301	25.3
350----	30	8,441	-29.9		291	23.1
300----	30	9,520	-38.5		301	25.6
250----	30	10,750	-47.4		301	27.8
200----	30	12,195	-55.7		305	28.8
175----	30	13,040	-58.5		301	27.6
150----	29	14,009	-59.5		306	21.8
125----	29	15,146	-60.4		300	19.2
100----	29	16,538	-60.4		306	14.4
80-----	29	17,931	-59.7		331	7.4
60-----	29	19,744	-56.6		52	7.6
50-----	29	20,907	-54.1		67	10.7
40-----	27	22,351	-51.6		80	13.2
30-----	26	24,226	-48.9		88	17.9
25-----	25	25,432	-46.7		89	19.4
20-----	20	26,936	-42.9		87	22.5
15-----	10	28,884	-40.1		90	27.6
10-----						

PORTLAND, ME. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	20	13.6	90	63	1.7
1,000--	30	108	13.3	84	39	1.6
950----	30	540	13.6	75	345	4.9
900----	30	996	12.3	75	341	7.0
850----	30	1,475	10.3	74	324	7.4
800----	30	1,978	7.7	72	300	9.7
750----	30	2,503	4.9	68	291	12.6
700----	30	3,068	1.9	67	288	15.7
650----	30	3,658	-1.3	64	290	18.5
600----	30	4,298	-4.7	60	286	20.6
550----	30	4,969	-8.6	55	281	21.2
500----	30	5,713	-13.2	49	277	21.0
450----	30	6,495	-18.6	41	278	23.3
400----	30	7,375	-24.7	39	281	25.3
350----	30	8,334	-31.6	40	276	25.6
300----	30	9,409	-38.8		275	29.1
250----	30	10,640	-46.8		276	33.0
200----	30	12,094	-54.3		288	35.6
175----	29	12,949	-56.1		287	31.7
150----	28	13,931	-57.0		286	27.8
125----	28	15,084	-57.4		288	20.8
100----	28	16,496	-57.1		295	15.5
80-----	27	17,914	-56.2		314	6.8
60-----	25	19,752	-53.9		79	4.3
50-----	22	20,926	-52.1		77	9.3
40-----	22	22,381	-49.6		82	11.7
30-----	20	24,281	-47.6		77	15.2
25-----	16	25,503	-46.1		87	20.0
20-----	15	27,002	-43.0		87	18.7
15-----	10	28,956	-39.9			
10-----						

RAPID CITY, S. DAK. (903 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	966	14.7	69	342	3.5
1,000--	30	87				
950----	30	528				
900----	30	992			319	1.6
850----	30	1,479	16.9	52	277	3.7
800----	30	1,995	15.0	49	253	7.0
750----	30	2,532	12.0	51	245	10.3
700----	30	3,114	8.3	48	245	13.0
650----	30	3,717	3.7	48	254	14.2
600----	30	4,366	-1.1	48	262	16.5
550----	30	5,046	-6.1	45	268	18.3
500----	30	5,794	-11.2	38	269	19.8
450----	30	6,587	-16.8	35	263	20.6
400----	30	7,470	-23.0	32	260	24.5
350----	30	8,434	-30.4		259	27.2
300----	30	9,512	-38.8		256	31.9
250----	30	10,740	-47.8		257	35.8
200----	30	12,182	-56.8		255	40.0
175----	30	13,026	-58.4		252	39.8
150----	30	13,992	-59.6		252	36.7
125----	30	15,131	-60.4		255	30.9
100----	30	16,519	-60.8		264	19.4
80-----	30	17,913	-58.8		273	7.2
60-----	30	19,730	-55.8		68	2.5
50-----	30	20,894	-54.1		84	8.0
40-----	30	22,332	-51.9		86	10.3
30-----	27	24,202	-49.3		80	14.8
25-----	25	25,399	-47.2		84	15.9
20-----	24	26,880	-44.6		86	17.5
15-----	17	28,796	-41.0		88	17.7
10-----	6	31,584	-36.2			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

ST. CLOUD, MINN. (976 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	316	15.2	84	144	2.1
1,000	30	107				
950	30	549	17.0	71	201	5.2
900	30	1,005	15.9	65	239	10.7
850	30	1,490	13.5	63	263	10.3
800	30	1,998	10.9	59	267	11.3
750	30	2,535	8.3	52	265	12.0
700	30	3,102	5.2	49	276	15.0
650	30	3,702	1.7	49	281	17.1
600	30	4,344	-2.1	43	281	18.3
550	30	5,028	-6.5	43	278	20.2
500	30	5,770	-11.0	38	281	22.5
450	30	6,568	-16.5	36	275	22.2
400	30	7,447	-23.1		279	23.7
350	29	8,409	-30.0		280	29.0
300	29	9,489	-38.3		286	30.9
250	29	10,718	-47.8		294	38.5
200	29	12,159	-57.2		296	34.0
175	29	12,999	-58.9		289	36.1
150	29	13,966	-59.3		289	33.2
125	29	15,107	-59.3		287	24.5
100	29	16,503	-59.7		291	16.5
80	29	17,904	-57.9		287	11.1
60	28	19,724	-55.3		22	2.7
50	28	20,892	-53.6		52	3.3
40	25	22,336	-51.8		74	8.7
30	24	24,209	-49.3		75	15.7
25	24	25,408	-48.0		85	15.5
20	23	26,886	-45.2		88	16.9
15	13	28,830	-42.5		83	23.3
10						

ST. PAUL IS., ALASKA (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	3.6	93	324	0.8
1,000	30	134	2.9	90	324	2.9
950	30	547	2.1	83	297	3.1
900	30	986	2.1	74	273	2.7
850	30	1,447	1.2	62	287	1.7
800	30	1,934	-.6	54	279	2.9
750	30	2,446	-3.0	50	272	5.1
700	30	2,992	-5.9	44	275	4.7
650	30	3,564	-9.3	43	280	4.9
600	30	4,185	-13.0	41	278	5.8
550	30	4,839	-17.2	42	279	7.0
500	30	5,552	-22.1	44	283	11.1
450	30	6,312	-27.7	44	285	11.5
400	30	7,157	-33.9	43	294	12.2
350	30	8,080	-40.4		284	15.3
300	30	9,116	-47.2		287	16.7
250	30	10,307	-52.3		282	13.8
200	30	11,750	-51.6		273	11.3
175	29	12,626	-50.0		265	7.2
150	29	13,636	-49.1		253	2.7
125	29	14,833	-49.1		209	3.7
100	29	16,297	-49.2		195	5.1
80	29	17,763	-48.7		135	2.7
60	28	19,657	-48.2		116	5.4
50	27	20,858	-48.0		116	6.6
40	26	22,328	-47.5		113	7.6
30	24	24,225	-46.7		103	11.1
25	17	25,406	-46.1		88	14.0
20	13	26,898	-44.7			
15						
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SALEM, OREG. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	61	11.7	88	196	1.7
1,000	30	142	12.1	84	210	2.1
950	30	568	11.0	79	236	3.1
900	30	1,021	8.9	77	231	4.1
850	30	1,493	6.8	69	231	8.4
800	30	1,990	4.6	64	233	11.3
750	30	2,514	2.4	60	239	14.2
700	30	3,070	-.1	49	245	17.3
650	30	3,656	-3.3	45	241	20.2
600	30	4,290	-6.7	41	241	24.9
550	30	4,957	-11.0	39	241	27.4
500	30	5,691	-15.6	38	243	30.7
450	30	6,471	-21.0	39	244	35.0
400	30	7,339	-27.2	41	246	39.6
350	30	8,288	-34.0	40	245	44.1
300	30	9,349	-41.9		246	47.8
250	30	10,562	-49.9		248	51.5
200	30	12,000	-55.5		251	51.3
175	29	12,849	-55.1		251	47.4
150	28	13,831	-54.0		250	42.0
125	27	15,006	-54.8		249	31.1
100	26	16,433	-55.4		244	22.9
80	26	17,857	-55.4		242	10.7
60	26	19,698	-54.0		140	4.3
50	26	20,870	-53.5		112	4.7
40	26	22,313	-51.5		97	7.8
30	23	24,193	-49.3		86	12.4
25	23	25,394	-47.7		83	15.7
20	20	26,884	-45.2		88	17.9
15	15	28,823	-41.5		88	19.2
10	5	31,605	-39.5			

SALT LAKE CITY, UTAH (870 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,288	15.9	53	143	6.4
1,000	30	79				
950	30	518				
900	30	989				
850	30	1,484	19.1	37	156	8.0
800	30	2,003	17.3	30	178	7.4
750	30	2,549	13.6	31	217	6.2
700	30	3,128	9.4	35	244	8.7
650	30	3,736	4.6	39	241	13.0
600	30	4,384	-.8	44	242	16.5
550	30	5,066	-6.3	52	239	19.6
500	30	5,812	-11.9	52	237	22.5
450	30	6,609	-17.3	39	239	25.6
400	30	7,485	-23.3		241	29.5
350	30	8,449	-30.5		241	29.7
300	30	9,526	-38.9		240	33.2
250	30	10,752	-48.3		240	33.6
200	30	12,193	-56.1		243	37.7
175	30	13,039	-57.6		242	38.5
150	30	14,009	-59.2		241	35.8
125	30	15,146	-60.8		241	29.5
100	30	16,530	-61.8		241	19.2
80	30	17,914	-60.1		230	7.6
60	30	19,722	-57.2		112	5.6
50	30	20,880	-55.1		97	8.9
40	30	22,311	-53.1		82	12.6
30	28	24,181	-49.9		83	17.1
25	28	25,380	-47.3		85	18.3
20	28	26,865	-44.6		85	20.4
15	23	28,811	-41.1		87	22.3
10	5	31,600	-37.7			

SAN ANTONIO, TEX. (984 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	243	23.1	86	158	1.9
1,000	29	106				
950	29	557	22.4	83	163	8.2
900	29	1,025	20.3	78	174	15.0
850	29	1,519	18.5	66	170	14.0
800	29	2,038	16.1	57	180	8.9
750	29	2,584	13.1	47	182	7.0
700	29	3,162	9.6	43	136	3.3
650	29	3,769	5.3	47	51	1.7
600	29	4,423	.8	49	6	5.4
550	29	5,109	-3.5	44	350	7.0
500	29	5,866	-8.0	40	336	6.6
450	29	6,676	-12.9	34	317	8.4
400	29	7,568	-18.6		307	9.3
350	29	8,551	-25.3		292	14.8
300	29	9,653	-32.9		281	24.9
250	29	10,912	-42.1		280	33.4
200	29	12,386	-53.3		286	38.3
175	28	13,234	-59.0		283	33.6
150	27	14,186	-64.4		309	12.0
125	27	15,290	-67.9		12	5.6
100	27	16,624	-70.1		82	8.9
80	24	17,949	-69.3		85	16.9
60	22	19,698	-62.3			
50	20	20,834	-58.4			
40	19	22,251	-54.8			
30	18	24,109	-50.7			
25	16	25,304	-48.6			
20	14	26,776	-45.9			
15	9	28,720	-41.4			
10						

SAN DIEGO, CALIF. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	124	16.1	89	190	1.6
1,000	30	93	15.5	83		
950	30	527	15.9	77	184	1.4
900	30	992	19.3	43	307	.8
850	30	1,484	19.8	24	283	6.0
800	30	2,004	17.6	23	265	6.4
750	30	2,542	14.5	22	244	6.2
700	30	3,132	10.8		219	6.8
650	30	3,732	6.8		212	7.6
600	30	4,398	2.3		220	7.0
550	30	5,079	-2.7		226	9.3
500	30	5,845	-7.7		243	10.3
450	30	6,642	-13.7		246	10.9
400	30	7,542	-20.8		256	12.6
350	30	8,516	-27.9		257	17.3
300	30	9,605	-36.3		255	22.2
250	30	10,846	-45.4		253	28.8
200	30	12,306	-54.2		251	36.1
175	29	13,151	-58.7		248	36.5
150	29	14,109	-63.0		247	29.9
125	29	15,220	-67.0		242	21.6
100	29	16,565	-67.8		235	13.8
80	28	17,908	-66.3		176	4.5
60	28	19,670	-61.2		107	11.9
50	28	20,811	-58.2		100	12.6
40	27	22,226	-55.8		89	15.3
30	26	24,071	-52.4		88	20.2
25	25	25,255	-49.9		86	21.6
20	23	26,716	-47.5		86	23.7
15	17	28,636	-44.4		92	26.0
10	[illegible]	31,383	-40.2			

SAN JUAN, P. R. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	24.8	84	115	3.3
1,000	30	150	24.4	79	105	11.7
950	30	597	21.8	77	100	15.9
900	30	1,066	19.0	75	104	16.7
850	30	1,556	16.2	72	106	15.3
800	30	2,070	14.1	55	99	13.0
750	30	2,606	11.3	48	100	12.2
700	30	3,187	8.4	41	105	10.7
650	30	3,793	5.2	37	107	10.5
600	30	4,445	1.4	31	106	10.3
550	30	5,134	-2.8	29	108	8.2
500	30	5,890	-7.4		111	4.5
450	30	6,693	-13.1	30	161	1.0
400	30	7,591	-19.1	30	216	2.3
350	30	8,569	-26.5		254	7.8
300	30	9,664	-35.0		265	10.9
250	30	10,909	-45.0		258	16.3
200	30	12,362	-56.7		268	19.6
175	30	13,198	-62.5		280	20.2
150	30	14,135	-68.5		279	19.8
125	30	15,219	-71.4		285	14.6
100	29	16,534	-71.3		325	4.7
80	29	17,860	-68.8		64	10.7
60	29	19,605	-63.2		83	24.7
50	28	20,736	-59.7		85	29.3
40	27	22,137	-57.4		90	34.2
30	26	23,977	-52.1		89	34.2
25	25	25,169	-48.6		89	32.1
20	24	26,642	-45.2		87	29.1
15	16	28,575	-41.4		80	24.5
10						

SANTA MARIA, CALIF. (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	74	11.0	90	263	1.6
1,000	30	97	10.9	89	282	1.6
950	30	530	16.9	62	18	8.5
900	30	995	20.7	33	26	11.5
850	30	1,486	18.3	31	19	8.7
800	30	2,002	15.5	25	353	7.6
750	30	2,542	13.0		329	7.4
700	30	3,123	10.0		312	6.0
650	30	3,731	6.3		298	4.7
600	30	4,385	2.0		282	6.2
550	30	5,073	-3.1		262	6.6
500	30	5,828	-8.3		264	9.1
450	30	6,633	-14.2		261	10.1
400	30	7,521	-21.0		272	12.4
350	30	8,493	-28.5		272	14.8
300	30	9,578	-37.1		273	15.5
250	30	10,813	-46.7		273	21.6
200	30	12,262	-56.1		267	27.4
175	30	13,104	-59.4		278	27.6
150	30	14,063	-62.3		262	24.7
125	30	15,181	-65.1		259	20.4
100	30	16,537	-66.2		245	14.0
80	30	17,896	-64.7		213	2.1
60	30	19,669	-60.7		116	9.5
50	30	20,811	-58.4		100	11.7
40	30	22,223	-56.1		87	14.4
30	28	24,073	-52.6		87	21.2
25	28	25,256	-51.0		91	21.8
20	23	26,730	-48.6		82	23.9
15	14	28,658	-45.0			
10						

SANTA MONICA, CALIF. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	38	16.6	85	35	1.4
1,000	30	95	16.3	85	75	1.2
950	30	533	15.6	76	112	2.7
900	30	994	19.4	41	16	2.9
850	30	1,485	18.6	29	297	2.7
800	30	2,003	16.2	25	276	5.1
750	30	2,545	14.0		254	4.9
700	30	3,127	10.5		236	4.9
650	30	3,735	6.6		235	6.0
600	30	4,390	2.1		236	5.6
550	29	5,078	-2.8		246	5.8
500	29	5,837	-8.2		251	8.5
450	29	6,637	-14.0		253	9.9
400	29	7,530	-20.9		260	13.4
350	29	8,503	-28.2		261	16.5
300	29	9,590	-36.9		264	19.6
250	29	10,828	-45.9		270	23.7
200	29	12,282	-55.1		260	28.4
175	29	13,127	-59.0		255	30.5
150	29	14,086	-62.6		252	29.7
125	29	15,200	-65.8		248	22.9
100	29	16,550	-67.0		242	13.8
80	29	17,902	-65.5		189	4.7
60	28	19,670	-60.9		106	9.9
50	28	20,811	-58.4		95	11.7
40	28	22,223	-56.0		89	15.3
30	25	24,067	-52.9		90	19.2
25	24	25,251	-51.0		85	20.2
20	22	26,709	-48.5		86	22.3
15	19	28,631	-44.7		89	24.9
10	[illegible]	31,379	-40.4			

SAULT STE. MARIE, MICH. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	221	12.3	85	302	0.8
1,000	30	128				
950	30	563	14.1	69	285	6.2
900	30	1,017	12.8	65	288	11.9
850	30	1,496	10.3	65	289	14.2
800	30	1,998	7.3	64	288	15.3
750	30	2,525	4.7	58	293	16.5
700	30	3,087	2.2	48	290	18.8
650	30	3,679	-1.0	43	284	22.3
600	30	4,318	-4.3	41	285	25.3
550	30	4,996	-8.1	39	287	28.0
500	30	5,734	-12.9	37	284	28.8
450	30	6,522	-18.4		290	29.7
400	30	7,398	-24.7		292	34.6
350	30	8,356	-32.1		294	38.9
300	30	9,425	-40.3		298	43.1
250	30	10,645	-49.3		295	47.4
200	30	12,083	-56.0		294	43.5
175	29	12,935	-56.9		295	41.0
150	29	13,912	-56.7		294	35.9
125	29	15,067	-57.1		294	28.2
100	29	16,478	-57.4		295	17.5
80	29	17,891	-56.6		312	10.5
60	29	19,725	-54.0		22	5.6
50	29	20,900	-52.7		65	7.8
40	28	22,344	-51.0		78	11.9
30	28	24,229	-48.0		86	13.8
25	27	25,438	-46.0		86	15.9
20	23	26,919	-43.4		87	16.9
15	17	28,855	-39.9		92	19.0
10						

SEATTLE, WASH. (1001 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	125	11.7	89	157	3.5
1,000	30	133			156	3.1
950	30	559	10.6	80	195	6.2
900	30	1,011	8.5	80	212	8.2
850	30	1,483	6.0	78	217	9.3
800	30	1,977	3.4	71	227	10.5
750	30	2,496	.9	57	231	11.9
700	30	3,052	-1.8	49	239	15.0
650	30	3,634	-5.0	45	238	18.1
600	30	4,264	-8.8	45	235	22.0
550	30	4,926	-13.0	42	236	24.1
500	30	5,653	-17.8	42	236	29.1
450	30	6,425	-23.1	42	235	34.4
400	30	7,288	-29.2	43	237	40.4
350	30	8,229	-35.7	43	238	45.9
300	30	9,285	-43.2		240	50.7
250	30	10,493	-50.7		238	54.6
200	30	11,936	-53.2		242	50.5
175	30	12,798	-52.3		245	43.7
150	29	13,793	-51.7		242	35.0
125	29	14,974	-52.5		240	25.8
100	29	16,416	-53.0		235	18.5
80	28	17,850	-52.7		225	10.7
60	28	19,708	-51.9		197	4.1
50	28	20,890	-51.3		124	4.1
40	27	22,347	-49.9		92	7.4
30	25	24,236	-48.0		89	12.6
25	24	25,437	-46.4		83	14.4
20	22	26,933	-43.7		90	16.3
15	15	28,856	-40.9		85	18.3
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SHREVEPORT, LA. (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	76	20.9	92	119	1.6
1,000	30	121	21.4	89	137	2.5
950	30	571	21.7	72	182	7.6
900	30	1,037	19.1	70	201	7.2
850	30	1,528	16.7	62	212	6.0
800	30	2,043	14.0	56	245	5.1
750	30	2,587	11.0	49	275	4.3
700	30	3,159	7.8	43	278	3.9
650	30	3,765	4.2	43	292	3.9
600	30	4,414	.3	38	305	3.9
550	30	5,101	-3.7	35	313	3.5
500	30	5,855	-8.1		296	3.7
450	30	6,664	-13.3	31	267	4.9
400	30	7,554	-19.4	32	262	5.6
350	30	8,533	-26.5	33	275	6.6
300	30	9,629	-34.7		283	7.8
250	30	10,878	-43.8		278	18.7
200	30	12,344	-53.9		289	22.9
175	30	13,193	-58.6		299	21.6
150	30	14,152	-62.6		303	19.0
125	30	15,267	-66.2		302	14.0
100	30	16,611	-68.7		327	8.0
80	30	17,953	-66.8		40	7.2
60	30	19,717	-61.1		78	15.3
50	30	20,858	-58.0		86	17.5
40	30	22,279	-54.0		93	19.0
30	30	24,142	-50.2		86	20.6
25	28	25,338	-47.5		84	23.1
20	23	26,829	-44.6		92	25.5
15	16	28,764	-42.0		86	26.8
10						

SPOKANE, WASH. (930 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	722	11.2	72	172	5.1
1,000	30	110				
950	30	542				
900	30	1,000	13.3	54	209	8.9
850	30	1,480	11.5	48	227	10.9
800	30	1,983	7.9	51	234	11.5
750	30	2,511	4.2	53	240	11.9
700	30	3,070	.5	53	237	13.6
650	30	3,654	-3.1	52	232	17.9
600	30	4,290	-7.0	50	231	23.9
550	30	4,956	-11.2	45	232	26.4
500	30	5,689	-16.1	44	234	30.3
450	30	6,471	-21.4	45	234	35.9
400	30	7,334	-27.3	42	236	37.7
350	30	8,283	-34.2		237	43.1
300	30	9,344	-42.4		242	44.9
250	30	10,554	-50.5		241	52.5
200	30	11,992	-54.7		244	49.5
175	30	12,849	-53.2		244	42.9
150	30	13,845	-52.5		244	34.8
125	30	15,020	-53.4		241	27.8
100	30	16,456	-53.6		235	18.5
80	30	17,888	-54.0		233	11.7
60	30	19,740	-52.4		194	2.7
50	28	20,925	-51.4		94	5.4
40	27	22,381	-49.9		88	8.4
30	25	24,267	-47.7		97	12.0
25	23	25,486	-46.0		88	16.3
20	20	26,977	-43.5		84	18.5
15	16	28,934	-40.2		87	20.4
10	8	31,707	-35.1			

SWAN ISLAND, W. I. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	27.1	87	98	11.7
1,000	30	112	26.3	89	97	13.4
950	30	563	22.9	87	110	17.7
900	30	1,034	19.9	81	114	20.0
850	30	1,526	17.2	73	116	18.8
800	30	2,042	14.8	61	116	15.5
750	29	2,582	12.1	55	115	14.2
700	29	3,162	9.0	48	115	14.0
650	29	3,767	5.4	44	116	13.8
600	29	4,424	1.8	41	114	11.9
550	29	5,117	-2.1	33	109	10.5
500	29	5,873	-6.4	30	98	9.5
450	29	6,683	-11.3		94	8.5
400	29	7,585	-17.5		63	7.0
350	29	8,571	-24.8	34	40	7.8
300	29	9,673	-33.2		7	8.4
250	29	10,928	-43.4		356	9.7
200	29	12,390	-55.6		344	14.6
175	25	13,227	-62.1		330	22.0
150	25	14,166	-68.7		333	20.0
125	20	15,241	-74.2		358	14.8
100	18	16,536	-74.5		49	14.0
80	17	17,847	-71.9		79	19.4
60	17	19,575	-64.5		87	24.1
50	17	20,699	-61.1		81	31.5
40	14	22,094	-57.6		89	35.2
30	14	23,924	-53.3		89	37.7
25	11	25,111	-49.2			
20	7	26,861	-45.4			
15						
10						

TAMPA, FLA. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	8	23.8	92	83	3.3
1,000	30	137	23.0	86	112	2.7
950	30	584	20.6	81	197	3.3
900	30	1,051	18.0	78	221	3.1
850	30	1,539	15.2	74	222	2.7
800	30	2,051	12.4	67	233	4.1
750	30	2,592	9.3	63	240	5.2
700	30	3,160	6.2	56	251	7.0
650	30	3,764	2.7	61	267	7.0
600	30	4,408	-1.0	55	270	7.6
550	30	5,096	-4.5	51	274	7.2
500	30	5,844	-9.0	48	284	8.4
450	30	6,651	-14.0	47	281	9.3
400	30	7,539	-19.9	48	284	11.9
350	30	8,517	-26.8	42	291	15.7
300	30	9,609	-35.5	43	288	18.1
250	30	10,852	-45.9		289	20.0
200	30	12,301	-57.1		296	26.4
175	30	13,135	-62.7		299	26.4
150	30	14,076	-67.2		309	20.4
125	30	15,166	-70.7		321	16.1
100	30	16,484	-71.1		3	10.7
80	30	17,812	-68.5		46	11.9
60	30	19,558	-62.9		73	17.1
50	30	20,688	-59.9		90	20.4
40	30	22,092	-56.5		[illegible]	21.8
30	27	23,933	-52.9		91	22.0
25	22	25,119	-51.3		88	23.9
20	10	26,605	-47.9			
15						
10						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

TATOOSH IS., WASH. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	31	11.7	88	190	2.3
1,000--	30	128	11.5	84	211	2.5
950----	30	552	9.3	79	224	4.9
900----	30	1,003	7.1	75	228	6.0
850----	30	1,471	4.6	73	222	7.6
800----	30	1,963	1.8	67	224	9.7
750----	30	2,477	-.3	54	224	10.9
700----	30	3,031	-3.2	45	225	12.4
650----	30	3,608	-6.9	42	228	15.7
600----	30	4,235	-10.7	42	230	18.8
550----	30	4,892	-14.7	39	234	22.0
500----	30	5,616	-19.3	40	236	25.5
450----	30	6,379	-24.9	39	238	29.9
400----	30	7,237	-31.2	40	236	34.2
350----	30	8,171	-37.5		239	40.8
300----	30	9,220	-44.1		239	47.2
250----	30	10,427	-50.1		239	48.8
200----	30	11,875	-51.7		242	44.1
175----	30	12,743	-50.7		245	35.9
150----	30	13,748	-50.7		243	29.0
125----	30	14,934	-51.7		243	24.7
100----	30	16,378	-52.6		244	15.2
80-----	30	17,818	-52.4		239	9.5
60-----	30	19,679	-51.8		224	2.9
50-----	30	20,861	-51.4		120	2.9
40-----	29	22,312	-50.2		93	3.9
30-----	27	24,195	-48.3		86	8.7
25-----	23	25,402	-46.8		88	10.9
20-----	12	26,880	-44.4			
15-----						
10-----						
7------						
5------						

TOPEKA, KANS. (983 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	269	18.8	88	143	2.5
1,000--	29	120				
950----	29	568	20.5	75	193	8.7
900----	29	1,031	19.0	68	211	11.7
850----	29	1,521	16.8	62	230	10.9
800----	29	2,036	13.9	59	248	6.4
750----	29	2,578	10.9	54	255	5.4
700----	29	3,151	7.7	47	263	3.5
650----	29	3,755	4.1	40	261	3.7
600----	29	4,405	.2	39	270	3.9
550----	29	5,087	-4.3	38	286	5.4
500----	28	5,841	-9.1	32	281	8.2
450----	28	6,643	-14.3		288	9.3
400----	28	7,532	-20.3		282	9.7
350----	28	8,508	-27.7		292	11.5
300----	28	9,598	-36.0		288	14.4
250----	28	10,838	-45.8		284	19.4
200----	28	12,291	-55.7		281	24.5
175----	27	13,139	-59.9		280	27.2
150----	27	14,095	-62.4		291	24.7
125----	27	15,218	-64.0		296	19.8
100----	27	16,581	-65.4		286	13.2
80-----	27	17,948	-62.8		313	3.7
60-----	26	19,741	-58.5		73	8.4
50-----	25	20,897	-56.2		81	11.7
40-----	22	22,335	-52.8		84	15.5
30-----	19	24,205	-49.6		90	19.2
25-----	17	25,403	-47.1		90	20.4
20-----	8	26,877	-44.9			
15-----						
10-----						
7------						
5------						

WASHINGTON, D. C. (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	88	19.4	78	294	2.5
1,000--	30	129	19.7	74	300	3.3
950----	30	568	19.2	65	316	8.5
900----	30	1,036	16.4	66	328	10.1
850----	30	1,520	13.0	69	323	9.7
800----	30	2,028	10.0	64	316	10.5
750----	30	2,560	7.1	61	305	11.7
700----	30	3,127	3.9	54	302	13.0
650----	30	3,724	1.0	43	297	14.2
600----	30	4,368	-2.4	38	297	15.7
550----	30	5,047	-6.0	35	297	17.5
500----	30	5,796	-10.6	33	295	19.6
450----	30	6,593	-15.9	31	296	22.9
400----	30	7,477	-22.1		295	25.5
350----	30	8,445	-29.3	34	290	25.3
300----	30	9,526	-37.5		290	28.2
250----	30	10,759	-47.0		291	28.4
200----	30	12,209	-55.0		294	30.5
175----	30	13,057	-58.0		298	30.3
150----	30	14,025	-59.8		301	25.6
125----	30	15,161	-60.8		297	20.0
100----	30	16,550	-61.0		304	12.2
80-----	30	17,939	-59.6		333	7.0
60-----	30	19,752	-56.2		57	6.4
50-----	30	20,917	-54.0		67	10.1
40-----	29	22,358	-51.1		82	12.8
30-----	27	24,241	-47.7		86	15.3
25-----	26	25,449	-45.6		83	16.1
20-----	23	26,950	-43.3		84	21.4
15-----	14	28,891	-39.9			
10-----						
7------						
5------						

WINNEMUCCA, NEV. (868 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,310	10.9	43	112	1.4
1,000--	30	103				
950----	30	536				
900----	30	1,003				
850----	30	1,488	17.2	32	55	3.1
800----	30	2,003	14.9	30	312	2.5
750----	30	2,536	11.0	33	268	4.5
700----	30	3,116	6.8	37	247	8.2
650----	30	3,709	2.7	37	235	12.0
600----	30	4,363	-2.1	38	230	17.3
550----	30	5,036	-7.0	40	230	21.2
500----	30	5,786	-12.2	33	235	23.5
450----	30	6,575	-17.5		245	25.5
400----	30	7,456	-23.7		253	28.6
350----	30	8,418	-31.0		255	30.3
300----	30	9,493	-39.3		258	33.0
250----	30	10,716	-48.6		261	32.3
200----	30	12,153	-57.1		256	32.8
175----	30	12,995	-58.1		250	35.9
150----	30	13,965	-58.7		244	35.6
125----	30	15,107	-60.0		242	31.9
100----	30	16,495	-60.9		239	24.9
80-----	28	17,885	-59.7		228	9.7
60-----	27	19,701	-57.0		158	5.6
50-----	24	20,858	-55.8		88	8.7
40-----	24	22,284	-53.8		88	14.0
30-----	23	24,145	-50.8		91	15.0
25-----	23	25,338	-48.5		83	16.9
20-----	22	26,811	-45.8		89	18.3
15-----	18	28,752	-42.4		94	19.4
10-----	5	31,519	-37.6			
7------						
5------						

YAKUTAT, ALASKA (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	12	9.0	93	67	0.4
1,000--	30	115	9.3	89	287	.2
950----	30	540	8.6	79	286	.8
900----	30	987	7.0	72	103	1.0
850----	30	1,456	5.2	67	88	1.9
800----	30	1,949	2.6	62	94	3.7
750----	30	2,466	-.7	62	99	4.5
700----	30	3,016	-4.4	62	101	5.6
650----	30	3,592	-8.4	60	99	6.8
600----	30	4,213	-12.4	51	93	6.6
550----	30	4,865	-16.9	45	85	7.8
500----	30	5,581	-22.0	40	77	9.7
450----	30	6,340	-27.8	40	72	11.3
400----	30	7,184	-34.3	39	78	13.8
350----	30	8,105	-41.3		80	17.7
300----	30	9,136	-48.9		79	16.9
250----	30	10,316	-54.2		68	21.0
200----	30	11,755	-50.4		44	10.7
175----	30	12,631	-48.8		43	8.2
150----	30	13,646	-48.2		39	1.7
125----	30	14,848	-48.1		36	4.1
100----	30	16,320	-47.8		52	5.4
80-----	30	17,795	-47.2		43	8.9
60-----	30	19,702	-46.9			
50-----	30	20,911	-46.7			
40-----	29	22,390	-45.9			
30-----	28	24,316	-44.6			
25-----	27	25,536	-43.5			
20-----	25	27,048	-42.0			
15-----	21	29,000	-39.5			
10-----	16	31,814	-35.8			
7------	7	34,346	-33.8			
5------	6	36,675	-32.7			

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun. JUNE 1959

Date	Sun's zenith distance								
	A.M.				*	P.M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
June									
1	0.85	0.92	1.03	1.17	1.31	1.07	----	----	----
2	.67	.78	.92	1.10	----	----	0.87	0.76	----
3	.71	.81	.93	1.11	----	----	.67	----	----
4	.79	----	----	----	----	1.19	.97	.82	----
5	.80	.88	.99	1.15	1.32	1.14	.97	.81	0.74
6	.79	.86	1.01	1.17	1.35	1.09	.83	.68	.65
7	.77	.86	.93	1.08	1.30	1.04	.82	.66	.52
8	.69	.76	.91	1.08	1.30	.97	----	.63	----
9	.74	.83	.98	1.19	1.38	1.27	1.15	1.01	.95
10	.97	1.04	1.15	1.28	----	1.20	1.05	.91	.84
11	.87	.95	1.06	1.22	1.41	1.23	1.09	.97	.89
12	----	----	----	D 1.13	D 1.28	----	.75	.46	.38
13	.75	.81	.92	1.11	1.32	----	----	----	----
14	----	----	----	----	1.27	----	----	----	----
15	----	----	.84	1.05	----	----	----	----	----
16	.77	.85	.98	1.12	1.34	----	----	----	----
17	.72	.80	.93	1.09	1.30	----	----	----	----
18	.72	.80	.95	1.12	1.32	----	----	----	----
21-25†	----	----	----	----	----	----	----	----	----
26	.72	.81	.98	1.17	1.36	1.15	.94	.81	.73
27	----	----	.83	1.03	----	1.12	.96	.86	.80
28	.73	.82	.93	1.09	1.29	----	.87	.75	.65
29	----	----	----	----	1.25	----	----	----	----
30	----	----	1.02	----	1.41	1.21	1.06	.94	.86
Averages	0.77	0.83	0.97	1.14	1.32	1.15	0.97	0.82	0.75

* Values corresponding to true solar noon.
H Haze.
D Dust.
M Moderate haze - indeterminable.
S Slight haze - indeterminable.
I Intense haze - indeterminable.
† Equipment failure.

Date	Sun's zenith distance								
	A.M.				*	P.M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
TUCSON, ARIZ.									
	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
June									
1	0.86	0.97	1.09	1.26	1.44	1.22	1.06	0.94	0.85
3	.83	.93	1.02	1.19	----	----	1.02	.92	.83
5	.83	.92	1.03	1.19	----	----	----	----	----
8	.82	.94	1.06	1.21	1.48	1.32	1.17	1.04	.94
9	.82	.93	1.06	1.21	----	----	----	----	----
10	.85	.95	1.05	1.20	----	----	----	----	----
11	.85	.94	1.06	1.20	1.40	----	----	----	----
16	H .60	H 69	H .82	H .97	H 1.26	H 1.00	H .82	H .70	H .60
17	H .45	H .57	H .72	H .89	H 1.15	----	----	----	----
19	H .67	H .77	H .90	----	H 1.28	----	----	----	----
21	H .57	H .67	H .81	H 1.02	H 1.31	----	----	----	----
22	H .60	H .73	H .87	H 1.03	----	----	----	----	----
23	H .61	H .71	H .83	----	H 1.27	H 1.03	H .88	H .75	H .65
24	H .67	H .79	H .93	H 1.10	H 1.36	----	H 1.03	H .91	H .78
25	.85	.94	1.05	1.20	1.40	----	----	.87	.74
26	.82	.92	1.03	1.19	1.41	----	H .91	H .73	H .62
30	----	----	----	----	H 1.39	----	----	----	----
Averages	0.73	0.83	0.96	1.13	1.35	1.14	0.98	0.86	0.75
OMAHA, NEBR.									
	Air mass								
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
June									
3	----	----	----	----	M 1.11	----	----	----	----
5	----	----	----	----	H 1.06	0.91	0.73	----	----
7	H 0.45	H 0.53	H 0.60	----	----	----	----	----	----
8	H .32	H .41	H .56	H 0.75	----	----	----	----	----
9	M .48	M .58	M .70	M .83	----	----	----	----	----
12	S .65	S .76	S .85	----	----	----	----	----	----
14	----	----	----	----	----	M .86	M .70	M 0.59	M 0.45
15	----	----	----	----	M 1.03	H .82	H .63	H .50	H .40
16	S .41	I .52	I .64	M .84	M 1.25	M .83	M .62	M .48	M .37
22	----	----	----	----	----	S .93	S .77	----	----
28	----	----	----	----	----	M .84	M .59	M .43	M .28
Averages	0.46	0.56	0.67	0.81	1.11	0.87	0.67	0.50	0.38

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Maine	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.
June 4	791	---	530	101	604	639	238	(640)	659	709	498	587	605	782	413	661	520	139
June 5	810	---	613	694	274	483	422	(667)	592	400	479	585	863	741	585	659	672	277
June 6	804	---	276	646	500	558	545	728	468	479	319	509	860	262	588	590	630	605
June 7	794	---	265	466	609	479	437	728	728	394	586	573	858	72	491	670	707	576
June 8	736	---	350	202	597	471	337	664	633	522	617	155	802	96	650	643	650	261
June 9	(819)	---	136	542	293	634	268	(582)	615	624	673	557	794	114	661	582	351	552
June 10	827	---	166	313	335	498	288	723	748	683	408	507	833	580	613	592	462	491
Average	(797)	---	389	423	459	537	362	(676)	635	544	511	496	802	378	572	628	570	414
June 11	826	---	554	330	456	431	355	787	754	570	635	544	745	771	671	540	592	353
June 12	(784)	---	742	541	581	578	260	799	725	629	427	583	783	629	478	422	712	426
June 13	780	---	---	583	606	500	330	765	570	242	616	558	814	128	606	318	751	587
June 14	658	---	---	397	686	403	400	731	702	97	177	562	916	96	658	754	761	489
June 15	697	---	478	746	689	479	246	554	458	245	192	578	893	384	671	590	743	732
June 16	770	---	119	326	618	556	334	(544)	697	219	278	584	748	158	---	576	731	412
June 17	686	---	224	223	675	373	562	541	742	85	455	577	---	252	480	660	670	443
Average	(743)	---	424	449	616	474	355	(674)	664	298	397	569	817	345	594	551	709	492
June 18	625	---	674	663	539	473	758	---	715	175	340	549	---	86	479	659	209	750
June 19	440	---	677	---	585	765	712	737	---	142	574	582	---	311	416	---	581	745
June 20	606	---	---	256	629	784	702	---	810	699	623	567	---	279	506	---	561	694
June 21	721	---	---	481	553	801	705	412	---	590	514	542	---	546	596	631	453	457
June 22	674	---	390	496	578	565	550	687	---	227	643	563	---	231	531	104	500	727
June 23	765	---	705	234	358	320	527	706	---	633	624	529	---	703	---	732	606	417
June 24	752	---	735	391	540	641	652	(229)	557	654	571	517	---	624	524	474	569	639
Average	655	---	636	420	540	621	658	(554)	---	446	556	550	---	397	509	520	497	633
June 25	698	---	691	471	620	701	693	(443)	183	139	181	576	---	737	580	366	617	276
June 26	814	---	636	538	681	721	300	---	682	128	329	564	---	155	553	326	436	467
June 27	805	---	---	539	516	753	368	760	684	284	580	575	---	323	670	629	418	562
June 28	783	---	---	405	661	808	247	---	762	121	637	554	---	203	639	603	419	377
June 29	738	---	459	430	644	763	366	435	758	547	685	552	---	180	676	578	624	688
June 30	801	---	502	746	655	420	619	258	777	759	694	284	---	624	537	532	591	747
July 1	801	---	586	357	467	300	639	736	751	685	685	---	---	670	488	399	521	753
Average	777	---	575	498	606	638	462	(527)	657	380	542	518	---	413	592	490	518	553

1959	Davis, Calif.	El Paso, Tex.	Ely, Nev.	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.
June 4	712	771	707	615	653	620	742	809	754	471	625	689	864	795	340	620	637
June 5	663	716	817	312	639	506	608	798	550	698	305	577	873	613	265	774	774
June 6	763	727	815	603	655	369	631	781	376	644	464	564	874	650	426	752	764
June 7	739	762	751	659	661	217	225	740	347	702	425	649	890	755	281	782	728
June 8	734	762	827	(537)	697	456	731	801	697	641	625	663	891	775	493	695	694
June 9	749	786	787	690	688	471	594	802	383	661	283	488	892	726	606	645	707
June 10	749	701	811	644	673	397	760	820	845	608	433	356	895	641	674	567	674
Average	730	746	788	(590)	667	434	613	793	565	632	451	570	883	708	441	691	711
June 11	710	767	808	684	653	679	565	801	---	602	480	295	882	632	---	803	768
June 12	745	723	816	730	657	767	775	768	708	639	615	535	888	293	542	764	661
June 13	766	719	655	714	660	653	702	525	482	657	604	695	803	478	572	673	537
June 14	670	759	705	753	670	592	607	689	720	794	701	737	889	787	645	657	416
June 15	762	779	589	750	674	590	619	610	556	754	732	485	919	867	361	435	587
June 16	748	709	831	748	687	206	709	650	(716)	530	684	601	907	181	666	678	531
June 17	734	765	820	709	663	146	537	781	716	691	706	713	915	274	680	718	613
Average	734	746	746	727	666	519	645	689	(650)	667	646	580	886	502	578	675	587
June 18	712	783	440	715	640	678	755	719	786	488	544	563	910	287	---	746	617
June 19	713	716	587	638	625	547	735	592	745	698	586	682	867	341	655	465	528
June 20	710	753	693	616	610	691	714	682	728	781	614	551	842	731	615	541	365
June 21	714	684	665	620	625	601	370	715	321	567	503	498	815	738	598	670	516
June 22	733	728	698	186	634	480	547	717	617	626	585	508	818	104	580	620	581
June 23	728	682	659	432	641	692	687	764	553	548	361	477	851	788	594	774	730
June 24	713	728	587	566	649	748	334	609	424	259	647	550	---	648	456	652	438
Average	718	725	618	539	632	634	592	685	596	567	548	547	850	520	583	638	539
June 25	654	704	575	451	645	764	459	629	526	427	738	328	835	387	490	570	504
June 26	738	767	688	355	661	618	113	431	116	571	745	611	---	359	670	578	604
June 27	737	769	681	606	677	645	204	420	180	684	673	656	---	720	---	468	506
June 28	742	668	726	731	681	666	526	597	381	721	666	605	---	652	---	449	335
June 29	756	541	602	(615)	670	474	600	---	629	682	736	591	---	530	645	199	574
June 30	750	534	824	730	648	757	761	826	742	654	713	622	---	624	426	732	768
July 1	746	745	802	692	639	757	733	829	789	503	520	428	---	582	611	799	799
Average	732	675	700	(597)	660	669	485	622	481	606	685	549	---	551	568	542	584

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Manhattan, Kans.	Matanuska, Alaska	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Page, Ariz.
June 4------	769	836	---	359	604	580	361	546	492	539	663	682	692	565	673	---	---
June 5------	769	572	---	456	469	511	634	667	197	685	533	224	603	655	451	497	---
June 6------	788	763	---	696	300	409	679	688	703	673	736	560	603	710	477	606	---
June 7------	808	799	---	622	590	539	608	517	---	492	747	663	672	678	665	---	---
June 8------	794	752	---	146	637	647	653	728	549	375	719	721	624	694	690	530	---
June 9------	791	658	(710)	383	602	630	529	724	589	530	683	293	682	687	496	550	---
June 10------	766	374	396	425	574	572	526	739	724	632	719	379	671	528	363	658	---
Average--------	784	679	---	441	540	555	570	658	542	561	686	503	650	645	545	568	---
June 11------	781	452	---	319	686	719	531	738	696	421	674	423	590	296	534	625	---
June 12------	766	718	---	519	538	639	568	---	336	488	669	548	411	752	410	653	---
June 13------	550	811	714	776	680	707	690	735	716	531	720	735	98	750	611	740	---
June 14------	626	887	724	805	719	746	716	740	717	514	730	801	150	721	774	698	---
June 15------	754	707	726	785	728	733	702	713	726	518	661	770	443	706	707	673	---
June 16------	822	739	739	743	707	737	712	751	660	369	687	745	335	726	630	694	---
June 17------	798	857	711	734	730	746	699	664	---	247	728	713	148	671	733	668	---
Average--------	728	738	723	669	684	718	660	724	642	441	696	676	311	660	628	679	---
June 18------	482	857	(664)	688	721	744	572	566	640	91	732	685	285	---	616	656	---
June 19------	628	842	625	622	689	724	601	---	688	156	715	746	396	618	733	607	680
June 20------	524	748	(521)	713	693	733	546	---	707	345	558	738	688	425	728	690	---
June 21------	623	764	709	674	588	698	618	---	727	372	619	624	630	624	714	639	712
June 22------	736	410	518	526	676	689	358	---	724	616	636	614	252	562	609	424	761
June 23------	722	391	396	439	682	694	483	---	686	730	498	487	606	643	415	---	630
June 24------	745	256	---	509	653	693	693	---	587	771	533	139	659	700	114	507	689
Average--------	637	610	(572)	596	672	711	553	---	680	440	613	576	502	595	561	587	694
June 25------	731	560	---	492	615	522	633	---	257	671	469	557	77	668	274	424	716
June 26------	754	493	403	707	640	550	286	---	420	766	594	589	328	386	557	200	721
June 27------	765	733	---	627	561	493	450	---	728	687	709	645	193	347	564	118	676
June 28------	756	789	---	682	440	353	365	---	711	709	696	655	216	622	693	474	786
June 29------	780	843	87	713	675	701	284	---	757	545	---	699	543	116	546	721	(783)
June 30------	763	829	75	640	699	720	353	---	717	477	525	696	706	86	592	629	787
July 1------	460	489	---	722	705	728	659	---	717	452	177	511	476	696	635	230	(681)
Average--------	715	677	---	655	619	581	433	---	615	615	528	622	363	417	552	399	(736)

1959	Portland, Me.	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Obs & Test Dev Ctr)
June 4------	760	---	471	731	714	467	732	327	157	183	601	775	210	685	---	773	693
June 5------	636	267	763	671	686	552	778	363	708	122	361	606	410	664	780	714	575
June 6------	601	465	765	537	(611)	536	779	718	703	625	631	646	675	652	767	752	663
June 7------	265	790	733	551	747	503	823	636	666	549	597	732	694	222	756	711	688
June 8------	338	641	---	743	(653)	571	813	714	366	421	671	739	574	364	813	746	712
June 9------	306	570	---	645	655	661	807	681	435	555	530	699	589	456	791	708	629
June 10------	329	688	---	688	699	681	813	614	490	580	818	631	653	372	782	696	598
Average--------	462	570	683	652	(681)	567	792	579	504	434	601	690	543	488	781	729	651
June 11------	820	---	---	757	483	629	797	346	254	618	700	679	628	455	---	597	640
June 12------	615	786	---	658	680	588	785	640	530	478	785	215	618	693	408	646	543
June 13------	233	782	---	640	782	641	743	760	492	673	865	454	699	602	563	551	424
June 14------	73	724	---	760	427	698	791	822	692	764	593	853	701	563	606	593	778
June 15------	220	804	---	783	733	655	789	806	704	673	---	756	675	604	613	(523)	640
June 16------	306	517	---	787	659	648	804	766	196	690	492	168	698	209	744	693	447
June 17------	121	663	---	774	230	683	---	633	461	726	607	344	682	101	681	733	460
Average--------	341	713	---	737	571	649	785	682	476	660	674	496	671	461	603	(619)	562
June 18------	166	792	---	778	343	683	797	659	733	645	850	471	662	544	238	725	536
June 19------	96	779	---	730	702	693	790	685	677	663	784	632	655	666	562	724	518
June 20------	637	740	---	669	448	646	771	662	474	710	667	711	639	493	619	732	699
June 21------	641	755	---	717	404	647	775	235	(178)	732	828	740	561	596	748	682	594
June 22------	263	774	---	718	738	633	764	731	(586)	490	789	222	346	652	742	722	589
June 23------	751	503	---	731	478	480	760	672	587	241	---	717	484	698	743	713	344
June 24------	588	521	---	702	460	597	694	317	663	607	---	741	466	461	770	459	488
Average--------	449	695	---	721	510	626	764	566	(557)	584	784	605	545	587	632	680	538
June 25------	---	465	---	573	329	232	801	249	528	376	470	444	478	590	---	754	603
June 26------	113	374	---	549	324	289	772	423	584	650	266	583	215	628	781	774	580
June 27------	414	817	---	534	419	412	782	283	(374)	637	680	426	500	572	778	757	556
June 28------	81	455	---	569	731	612	---	479	(446)	672	448	637	509	565	627	695	649
June 29------	429	671	(107)	753	526	613	(804)	668	507	622	724	657	624	511	510	728	679
June 30------	764	801	225	748	178	661	754	692	707	706	684	521	625	528	634	784	623
July 1------	797	790	781	749	688	607	742	60	591	608	751	442	321	699	759	743	534
Average--------	433	625	---	639	456	490	(776)	408	(534)	610	575	530	467	585	682	748	603

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

CONDENSED CLIMATOLOGICAL SUMMARY

DELAYED DATA

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
November 1958										
Alaska	Juneau	59	1	Allakaket	-49	13	Whittier	29.02	Wainwright	0.16
December 1958										
Alaska	2 Stations	55	15+	Allakaket	-57	29	Little Port Walter	40.91	Wainwright	.07
Hawaii	Kona AP	93	4	Mauna Loa Slope Obs.	25	7+	Honokane	21.76	Puako	.22
January 1959										
Alaska	Sitka FAA	48	31	2 Stations	-61	7+	Beaver Falls	14.16	5 Stations	.00
Hawaii	Kahului FAA AP	90	10	Mauna Loa Slope Obs.	25	16	Honuaula	24.20	Ahua Umi	1.16
February 1959										
Alaska	2 Stations	52	17+	Allakaket	-41	28	Little Port Walter	21.02	Tok	.08
Hawaii	Napoopoo	87	7	Mauna Loa Slope Obs.	25	21	Waikamoi Dam	44.72	Ahua Umi	.30
March 1959										
Alaska	2 Stations	56	31+	Allakaket	-55	15+	Little Port Walter	27.62	4 Stations	.00
Hawaii	Kahului FAA AP	89	24+	Mauna Loa Slope Obs	25	14	East Honomanu	18.20	6 Stations	.00
April 1959										
Hawaii	2 Stations	90	28+	Mauna Loa Slope Obs.	30	4	Keanae	31.23	3 Stations	.00
Alaska	Ketchikan	71	9	Wild Lake	-39	18	Whittier	23.79	2 Stations	T
May 1959										
Alaska	2 Stations	76	28+	Barter Island WB AP	-5	2+	Latouche	12.79	Bettles FAA AP	.04
Hawaii	do	90	20+	Haleakala RS	38	5	Pepeekeo AF	19.40	2 Stations	.00

See reference notes with current data.

CORRECTIONS

Month: Annual 1958

page 28: Normals, Means and Extremes — under Precipitation, insert "Normal" above (1921-1950).

page 32: Pittsburgh, Pa., U — wettest month should be 9.81 inches, and the reference note "F" entered for all relative humidity values.

Month: September 1958

page 387: Detroit, Michigan — heating degree days accumulated should be 107; October, November, and December 1958 accumulations should be 430, 1087 and 2400, respectively; January 1959, 3749.

Month: January 1959

page 7: Goodland, Kansas — accumulated heating degree days should be 3464; February 4450; March 5292; April 5817, and May 6014.

Month: February 1959

page: Contents — General Summary of Weather Conditions should be page 45; Condensed Climatological Summary 46; Climatological Data 47; Heating Degree Days 51; Storm Summary 52; General Summary of River and Flood Conditions 53; Flood Stage Data 56; Rawinsonde Data 58; Solar Radiation Intensities 64; Blue Hill Data 65; Solar Radiation Average and Daily Totals 66; Charts 68.

page 8: Kansas — the four entries under lightning should be inserted as 0, 0, 4, 0; the "4" appearing under Property Damage.

page 51: Chicago, Illinois (University) — heating degree days should be 1061, accumulated 4726. Sub-heading at top of page should read "base 65°F."

page 64: Guam — solar radiation data are for March 1959; February and March will be shown in June issue.

Month: March 1959

page 91: Jackson, Mississippi — accumulated heating degree days should be 2370; April 2497; May 2500.

Bismarck, North Dakota — accumulated heating degree days should be 8034; April 8677; May 9074.

Milford, Utah — accumulated heating degree days should be 5167; April 5626; May 5942.

Yakima, Washington — accumulated heating degree days should be 5028; April 5454; May 5819.

Month: April 1959

page 131: Olympia, Washington — accumulated heating degree days should be 4526; May 4912.

Month: May 1959

page 173: Wichita Falls, Texas — accumulated heating degree days should be 3013.

CLIMATOLOGICAL DATA

DELAYED DATA

State and station	Elevation (ground)	Pressure: Station ∅	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb.*	*°F.*	*°F*	*°F.*	*°F.*	*°F.*		*°F.*				*°F.*	*%*	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0–3*	*4–7*	*8–10*	*0–10*	*%*
Johnston Island																																
February 1959	7	1013.5	1014.2	80	71	75.5	----	83	12	67	17	0	0	65	72	1.54	----	0.62	15	0	0.0	0	----	---	30	NE	20+	2	18	8	6.1	91
March 1959	7	1015.2	1015.9	82	72	77.3	----	84	28+	68	6	0	0	67	73	1.05	----	.25	16	0	.0	0	17.6	---	31	NE	26+	5	24	2	5.4	55

STORM SUMMARY

STATE	TORNADOES: NUMBER	TORNADOES: DAYS	TORNADOES: DEATHS	TORNADOES: INJURIES	TORNADOES: †DAMAGE	HAILSTORMS: DEATHS	HAILSTORMS: INJURIES	HAILSTORMS: †DAMAGE: PROPERTY	HAILSTORMS: †DAMAGE: CROPS	WINDSTORMS: DEATHS	WINDSTORMS: INJURIES	WINDSTORMS: †DAMAGE: PROPERTY	WINDSTORMS: †DAMAGE: CROPS	LIGHTNING: DEATHS	LIGHTNING: INJURIES	LIGHTNING: †DAMAGE: PROPERTY	LIGHTNING: †DAMAGE: CROPS	‡ HEAVY SNOWSTORMS AND BLIZZARDS: DEATHS	‡ HEAVY SNOWSTORMS AND BLIZZARDS: INJURIES	‡ HEAVY SNOWSTORMS AND BLIZZARDS: †DAMAGE: PROPERTY	‡ HEAVY SNOWSTORMS AND BLIZZARDS: †DAMAGE: CROPS	# ICE STORMS: DEATHS	# ICE STORMS: INJURIES	# ICE STORMS: †DAMAGE: PROPERTY	# ICE STORMS: †DAMAGE: CROPS	∅ ALL OTHER: DEATHS	∅ ALL OTHER: INJURIES	∅ ALL OTHER: †DAMAGE: PROPERTY	∅ ALL OTHER: †DAMAGE: CROPS
January 1959																													
Alaska										0	3	6	0																
Hawaii										0	0	6	5																
March 1959																													
Minnesota																		1	0	4	0								
South Carolina										0	0	4	0																
April 1959																													
North Carolina						0	0	5	5																				
May 1959																													
Kansas *	42	11	0	2	6	0	0	6	5	0	16	6	4	0	1	4	0									1	0	6	0
June 1959																													
Pennsylvania						0	0	1	0	0	0	4	0	1	3	4	0												

* These are corrected data.
Also see reference notes with current data.

RAWINSONDE DATA

Average monthly values

DELAYED DATA

1/ HAVANA, CUBA (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	49	23.2	87	78	2.1
1,000--	31	115	23.9	81	78	3.3
950----	31	563	22.0	78	82	7.3
900----	31	1,034	18.9	76	82	7.7
850----	31	1,524	16.3	68	87	3.8
800----	31	2,039	13.6	67	102	1.3
750----	31	2,575	10.9	55		.0
700----	31	3,156	8.7	45	319	1.5
650----	31	3,762	5.7	41	277	2.3
600----	31	4,418	2.1	37	353	5.0
550----	31	5,105	- 2.0	34	302	4.6
500----	31	5,869	- 6.6	34	303	7.5
450----	31	6,677	-11.7	36	305	10.8
400----	31	7,580	-17.9	34	317	11.6
350----	31	8,566	-24.9		315	13.6
300----	31	9,669	-33.5		317	17.2
250----	31	10,923	-43.6		318	23.1
200----	31	12,385	-55.6		318	28.1
175----	31	13,225	-62.0		317	27.9
150----	31	14,166	-67.6		314	21.1
125----	31	15,251	-72.3		317	17.6
100----	29	16,552	-74.5		343	11.6
80-----	26	17,860	-70.6		69	8.5
60-----	25	19,599	-63.1		94	12.6
50-----	24	20,729	-59.7		92	15.7
40-----	24	22,137	-55.8		88	20.5
30-----	19	23,982	-51.8		90	24.6
25-----	15	25,168	-50.4		89	21.7
20-----	11	26,643	-46.5		84	22.7
15-----						

2/ BETHEL, ALASKA (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	19	[illegible]	- 6.9	86	161	4.8
1,000--	19	59			138	3.8
950----	19	465	- 5.2	73	224	3.1
900----	19	890	- 7.1	68	239	6.6
850----	19	1,334	- 9.6	65	240	7.3
800----	19	1,800	-12.2	60	248	7.3
750----	19	2,291	-14.9		267	10.2
700----	19	2,810	-18.1		260	9.1
650----	18	3,366	-21.7		262	10.6
600----	18	3,954	-25.7	50	261	11.4
550----	18	4,576	-29.8		267	15.3
500----	18	5,253	-34.1		244	19.6
450----	18	5,982	-38.8		258	19.2
400----	18	6,784	-44.0		262	22.3
350----	18	7,673	-47.9		261	21.7
300----	18	8,680	-52.0			
250----	17	9,854	-52.8			
200----	16	11,306	-49.3			
175----	16	12,185	-48.0			
150----	16	13,202	-47.8			
125----	16	14,407	-46.9			
100----	16	15,890	-45.8			
80-----	16	17,376	-45.8			
60-----	15	19,287	-46.3			
50-----	15	20,495	-47.9			
40-----	14	21,954	-48.8			
30-----	11	23,835	-49.5			
25-----	7	25,037	-49.7			

2/ SWAN ISLAND, W. I. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	26.5	83	68	7.9
1,000--	30	114	25.9	83	67	9.5
950----	30	564	22.7	84	71	12.0
900----	30	1,037	19.6	83	76	12.8
850----	30	1,528	16.4	79	78	12.0
800----	30	2,043	13.6	76	83	11.6
750----	30	2,584	11.0	64	85	11.4
700----	30	3,160	8.6	51	85	10.6
650----	30	3,766	5.3	47	90	9.7
600----	30	4,421	1.9	38	90	10.4
550----	30	5,111	- 1.9	31	97	11.8
500----	30	5,872	- 6.2		94	12.0
450----	30	6,681	-11.4		87	12.2
400----	30	7,583	-17.9		87	11.0
350----	30	8,567	-25.3		81	6.8
300----	30	9,667	-34.1		87	2.1
250----	30	10,917	-44.1		282	1.9
200----	29	12,375	-56.0		267	8.7
175----	29	13,213	-61.8		272	10.6
150----	29	14,153	-68.0		266	12.8
125----	26	15,236	-73.1		273	12.0
100----	20	16,539	-76.8		27	1.7
80-----	15	17,826	-75.2		87	8.9
60-----	15	19,527	-67.3		83	13.0
50-----	15	20,642	-62.8		97	13.7
40-----	15	22,037	-56.8		83	19.8
30-----	15	23,882	-52.7		86	22.5
25-----	9	25,074	-49.7			

2/ YUCCA FLAT, NEV. (883 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,196	0.1	70	319	2.1
1,000--	30	184				
950----	30	601				
900----	30	1,046				
850----	30	1,510	8.5	36	350	5.0
800----	30	2,010	6.5	32	2	3.3
750----	30	2,537	4.2	31	321	4.4
700----	30	3,095	1.5	31	315	6.4
650----	30	3,682	- 2.2	33	318	8.5
600----	30	4,320	- 6.0	32	312	11.6
550----	30	4,989	-10.0	30	310	15.9
500----	30	5,725	-14.7		309	17.4
450----	30	6,506	-20.5		306	19.8
400----	30	7,377	-27.0		302	21.7
350----	30	8,326	-34.0		303	27.5
300----	30	9,389	-41.4		300	32.8
250----	30	10,606	-49.2		303	38.2
200----	30	12,046	-56.1		299	41.5
175----	29	12,886	-58.8		297	35.9
150----	29	13,852	-59.9		289	34.7
125----	28	14,987	-62.2		286	31.0
100----	28	16,358	-64.3		286	27.3
80-----	25	17,718	-64.1		298	19.6
60-----	25	19,486	-62.3		301	8.3
50-----	25	20,619	-60.4		317	4.8
40-----	23	22,010	-59.3		354	1.3
30-----	20	23,815	-57.3		24	4.0
25-----	19	24,968	-56.6		41	5.4
20-----	11	26,370	-55.4			

3/ FAIRBANKS, ALASKA (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	135	-21.8	71	20	2.5
1,000--	31	103			37	4.4
950----	31	496	-12.5	55	74	7.7
900----	31	905	-10.7	55	87	13.4
850----	31	1,345	- 9.9	55	109	14.5
800----	31	1,813	-10.2	54	124	11.2
750----	31	2,307	-12.3	53	132	9.3
700----	31	2,834	-15.2	53	148	7.3
650----	31	3,388	-18.7	52	164	8.9
600----	31	3,983	-22.3	52	161	9.7
550----	31	4,612	-26.6	49	158	9.5
500----	31	5,299	-31.2	51	165	11.2
450----	31	6,034	-36.5	49	171	11.2
400----	31	6,845	-42.4		171	8.1
350----	31	7,737	-47.9		202	5.8
300----	31	8,742	-52.8		200	6.4
250----	30	9,914	-55.3		235	11.2
200----	28	11,323	-53.0		235	16.3
175----	28	12,186	-52.1		244	18.8
150----	24	13,156	-51.6		254	21.3
125----	22	14,305	-50.9		245	22.5
100----	19	15,713	-51.1		249	25.2
80-----	18	17,144	-52.2			
60-----	17	18,994	-52.8			
50-----	17	20,170	-53.3			
40-----	16	21,595	-54.6			
30-----	15	23,416	-55.7			
25-----	15	24,575	-56.5			
20-----	11	26,048	-56.3			
15-----	7	27,895	-55.5			

3/ FT. HUACHUCA, ARIZ. (860 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	26	1,428	4.4	46	197	1.9
1,000--	26	172				
950----	26	602				
900----	26	1,053				
850----	26	1,518	7.9	40	160	1.3
800----	26	2,020	8.4	29	162	1.7
750----	26	2,546	5.8		299	1.3
700----	26	3,113	2.9		313	4.6
650----	26	3,704	- .3		313	7.5
600----	26	4,345	- 4.6		298	12.6
550----	26	5,018	- 9.1		307	14.5
500----	25	5,755	-14.9		309	17.0
450----	25	6,534	-21.2		303	16.9
400----	25	7,400	-27.9		303	18.2
350----	25	8,345	-35.1		298	20.0
300----	25	9,401	-43.1		294	23.5
250----	25	10,605	-52.0		292	28.3
200----	23	12,020	-58.3		290	33.8
175----	19	12,871	-60.5		280	30.8
150----	16	13,827	-62.6		286	31.2
125----	14	14,953	-64.0		294	25.4
100----	10	16,296	-67.6			
80-----	8	17,618	-66.4			
60-----	8	19,366	-64.2			
50-----	8	20,487	-62.0			
40-----	8	21,869	-60.8			
30-----	8	23,665	-59.0			
25-----	8	24,819	-58.4			
20-----	8	26,214	-58.1			
15-----	5	28,007	-57.0			
10-----						

3/ MERIDA, MEXICO (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	18.3	97	51	3.4
1,000--	31	148	21.5	81	62	7.5
950----	31	589	19.4	80	68	9.3
900----	31	1,057	16.8	78	74	6.0
850----	31	1,544	14.5	73	95	2.5
800----	31	2,055	12.2	64	211	1.7
750----	31	2,593	9.8	60	224	2.3
700----	31	3,166	7.2	49	261	3.1
650----	31	3,767	3.8	44	252	4.6
600----	31	4,419	- .2	43	247	7.3
550----	31	5,103	- 4.0	37	246	10.4
500----	31	5,857	- 8.8	37	245	15.7
450----	31	6,658	-14.3	36	246	18.4
400----	31	7,548	-20.5	35	249	23.7
350----	31	8,523	-27.8	37	242	29.1
300----	31	9,611	-36.6		247	30.8
250----	31	10,848	-46.7		251	33.0
200----	31	12,290	-57.5		247	37.3
175----	31	13,124	-62.4		243	37.8
150----	31	14,066	-66.5		244	34.7
125----	31	15,160	-69.9		241	35.3
100----	31	16,478	-72.8		242	25.6
80-----	31	17,782	-73.7		228	15.9
60-----	31	19,485	-67.0		149	3.1
50-----	31	20,599	-62.2		141	3.1
40-----	31	21,996	-57.5		74	5.0
30-----	31	23,831	-53.8		72	6.8
25-----	31	25,011	-50.9		66	5.8
20-----	31	26,471	-49.0		45	3.3
15-----	29	28,377	-45.4		223	5.6
10-----	8	31,103	-41.9			

3/ YUCCA FLAT, NEV. (887 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,196	- 3.0	56	316	1.7
1,000--	31	234				
950----	31	646				
900----	31	1,084				
850----	31	1,550	8.7	34	356	5.8
800----	31	2,050	7.6	27	349	4.2
750----	31	2,576	5.4	27	314	4.8
700----	31	3,140	2.3	26	303	7.5
650----	31	3,731	- 1.5	27	311	9.9
600----	31	4,368	- 5.4	28	309	15.1
550----	31	5,035	- 9.9	28	306	20.0
500----	31	5,773	-15.2		305	23.3
450----	31	6,551	-21.1		298	25.6
400----	31	7,420	-28.0		297	27.7
350----	31	8,364	-35.7		298	28.7
300----	31	9,417	-44.3		304	32.0
250----	31	10,615	-53.3		306	36.7
200----	30	12,028	-59.0		298	43.3
175----	29	12,868	-59.1		295	42.9
150----	29	13,832	-60.4		296	38.4
125----	26	14,963	-62.4		299	35.7
100----	18	16,334	-66.5			

3/ YUMA, ARIZ. (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	105	9.5	35	40	2.3
1,000--	30	155			34	3.3
950----	30	587	17.4	25	6	8.7
900----	30	1,050	15.4	24	29	6.2
850----	30	1,532	12.9	25	22	4.8
800----	30	2,038	10.2	23	8	3.6
750----	30	2,566	7.4		5	4.6
700----	30	3,137	4.1		331	6.2
650----	30	3,732	.6		328	8.1
600----	30	4,374	- 3.9		312	10.2
550----	30	5,050	- 8.8		313	13.9
500----	30	5,786	-14.5		314	16.1
450----	30	6,570	-20.9		317	16.1
400----	30	7,435	-28.1		314	18.2
350----	30	8,379	-35.7		314	20.4
300----	30	9,433	-44.2		313	23.5
250----	30	10,632	-53.1		311	27.3
200----	28	12,053	-58.6		298	31.6
175----	28	12,890	-59.8		293	36.1
150----	28	13,850	-61.4		291	32.8
125----	23	14,970	-64.3		294	33.2
100----	14	16,333	-68.5		291	20.5
80-----	7	17,671	-70.9			

4/ FT. HUACHUCA, ARIZ. (857 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,428	4.8	48	219	3.6
1,000--	30	146				
950----	30	572				
900----	30	1,017				
850----	30	1,490	6.7	41	244	2.7
800----	30	1,988	6.6	38	250	6.9
750----	30	2,515	4.4	32	263	9.1
700----	30	3,075	1.7	23	278	12.0
650----	30	3,666	- 1.1		276	19.0
600----	30	4,303	- 5.0		279	25.4
550----	30	4,975	- 9.3	28	281	28.5
500----	30	5,712	-14.5		284	29.3
450----	30	6,495	-20.2		285	34.1
400----	30	7,365	-26.9		287	36.3
350----	30	8,313	-34.4		278	37.4
300----	30	9,373	-42.6		281	40.0
250----	30	10,581	-51.1		276	47.2
200----	30	12,005	-58.3		275	46.2
175----	29	12,840	-60.4		272	52.4
150----	28	13,790	-61.4		274	46.8
125----	27	14,917	-63.8		275	46.4
100----	24	16,270	-66.6		275	37.4
80-----	21	17,618	-67.5		285	25.6
60-----	20	19,365	-64.9		279	17.4
50-----	18	20,488	-63.0		282	12.8
40-----	16	21,868	-61.5		260	3.6
30-----	16	23,661	-59.4		305	5.8
25-----	14	24,814	-58.4		312	7.9
20-----	10	26,204	-56.4			
15-----	7	28,015	-54.9			

4/ HAVANA, CUBA (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	25	49	19.9	84	88	2.3
1,000--	25	150	20.0	81	100	5.1
950----	25	586	18.0	80	111	9.7
900----	25	1,053	15.2	81	97	6.6
850----	25	1,537	13.5	71	344	1.9
800----	25	2,047	12.2	50	324	2.3
750----	25	2,581	9.4	48	280	4.3
700----	25	3,156	6.7	47	277	3.5
650----	25	3,761	3.2	41	263	9.5
600----	25	4,407	- 0.5		265	14.6
550----	25	5,092	- 4.2		261	23.5
500----	25	5,844	- 8.7		260	29.3
450----	25	6,647	-14.1		264	33.4
400----	25	7,539	-20.8		261	42.6
350----	25	8,513	-28.3		262	48.2
300----	24	9,605	-36.7		261	50.9
250----	24	10,843	-46.1		261	63.7
200----	24	12,297	-55.6		254	71.5
175----	24	13,139	-59.8			
150----	23	14,092	-63.8			
125----	23	15,198	-68.5			
100----	20	16,518	-74.4			
80-----	16	17,811	-75.6			
60-----	15	19,496	-68.6			
50-----	15	20,604	-63.1			
40-----	14	21,991	-58.6			
30-----	10	23,813	-55.0			
25-----	7	24,984	-52.2			
20-----						
15-----						
10-----						

4/ MERIDA, MEXICO (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	18.8	95	75	3.3
1,000--	31	149	20.7	84	81	7.5
950----	31	588	18.8	81	92	9.3
900----	31	1,056	16.3	78	100	6.2
850----	31	1,542	13.9	76	134	2.5
800----	31	2,052	11.6	67	207	4.2
750----	31	2,589	9.6	58	204	6.8
700----	31	3,162	6.6	53	217	8.3
650----	31	3,763	3.5	45	225	10.4
600----	31	4,413	.0	40	232	13.4
550----	31	5,099	- 3.8	33	241	16.5
500----	31	5,853	- 8.3		239	19.8
450----	31	6,657	-14.0		245	25.4
400----	31	7,546	-20.7		243	28.5
350----	31	8,520	-28.1		245	34.3
300----	31	9,606	-36.8		254	37.3
250----	31	10,843	-46.2		254	41.9
200----	31	12,293	-56.0		249	46.2
175----	31	13,133	-60.3		247	45.6
150----	31	14,085	-64.4		247	43.3
125----	31	15,187	-68.9		245	39.2
100----	31	16,506	-74.0		244	27.5
80-----	31	17,799	-76.0		251	15.9
60-----	30	19,491	-67.5		103	2.3
50-----	30	20,603	-63.2		104	6.6
40-----	30	21,989	-58.8		92	8.3
30-----	29	23,819	-54.7		68	7.3
25-----	28	24,995	-52.6		84	9.5
20-----	27	26,444	-50.9		76	14.3
15-----	24	28,334	-47.6		103	11.8
10-----	9	31,012	-44.3			

4/ YUMA, ARIZ. (1001 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	105	8.7	42	36	1.9
1,000--	31	140			44	1.7
950----	31	574	14.7	31	355	7.9
900----	31	1,028	12.7	31	358	7.3
850----	31	1,505	9.7	32	339	5.6
800----	31	2,006	7.4	29	317	7.1
750----	31	2,533	5.2	24	300	9.1
700----	31	3,096	2.2	26	295	13.0
650----	31	3,686	- 1.1		298	17.2
600----	31	4,325	- 4.9	29	295	20.5
550----	31	4,997	- 9.5	30	293	22.7
500----	31	5,734	-14.7	30	292	25.4
450----	31	6,515	-20.5	32	291	29.1
400----	31	7,385	-27.3	33	288	33.2
350----	31	8,332	-34.8		290	37.1
300----	31	9,390	-43.1		288	41.5
250----	31	10,595	-52.3		288	44.6
200----	31	12,014	-59.1		284	42.9
175----	31	12,849	-60.0		278	44.1
150----	30	13,811	-60.6		281	42.9
125----	20	14,944	-63.1		276	42.7
100----	15	16,300	-65.9		278	31.8
80-----	8	17,623	-66.3			

5/ FT. HUACHUCA, ARIZ. (857 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,428	4.2	58	231	3.3
1,000--	28	139				
950----	28	563				
900----	28	1,010				
850----	28	1,486	5.6	52	223	3.6
800----	28	1,981	4.4	41	239	8.3
750----	28	2,502	2.1	33	242	12.6
700----	28	3,059	- .8		252	18.4
650----	28	3,640	- 4.0		249	24.6
600----	28	4,273	- 8.3		255	26.6
550----	28	4,935	-12.8		258	32.0
500----	28	5,665	-17.9		258	34.7
450----	28	6,439	-23.6		255	39.2
400----	28	7,297	-30.0		257	38.4
350----	28	8,234	-36.9		257	42.7
300----	28	9,283	-44.5		257	49.1
250----	28	10,483	-52.1		257	49.7
200----	28	11,909	-55.3		261	52.2
175----	28	12,764	-55.9		255	53.0
150----	25	13,729	-57.8		254	51.2
125----	25	14,869	-61.2		255	53.6
100----	22	16,239	-65.0		254	47.4
80-----	20	17,599	-65.2		255	41.1
60-----	20	19,362	-62.5		260	30.8
50-----	20	20,493	-60.7		257	20.5
40-----	18	21,898	-59.3		246	21.7
30-----	15	23,700	-58.3		223	7.9
25-----	15	24,851	-57.1			
20-----	11	26,259	-55.5			
15-----	[illegible]	28,057	-53.8			

5/ MERIDA, MEXICO (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	11	20.3	96	93	4.2
1,000--	28	139	21.6	89	106	11.0
950----	28	583	20.9	79	137	15.9
900----	28	1,053	18.7	69	135	14.3
850----	28	1,543	15.6	69	136	11.6
800----	28	2,055	12.7	64	134	9.1
750----	28	2,592	10.7	47	137	7.1
700----	28	3,169	8.6		166	6.9
650----	28	3,776	5.9		165	7.3
600----	28	4,430	2.6		176	9.5
550----	28	5,120	- 1.7		183	10.6
500----	28	5,880	- 6.7		202	11.4
450----	28	6,685	-12.8		219	11.8
400----	28	7,581	-19.9		236	13.0
350----	28	8,556	-27.8		243	16.5
300----	28	9,645	-36.5		253	21.3
250----	28	10,884	-45.5		255	24.0
200----	28	12,345	-53.6		249	37.1
175----	28	13,193	-58.7		245	39.6
150----	28	14,150	-64.3		246	36.3
125----	28	15,249	-69.9		245	33.6
100----	28	16,558	-75.8		235	20.4
80-----	28	17,841	-77.5		227	9.5
60-----	28	19,515	-69.9		117	4.0
50-----	28	20,620	-63.0		88	5.6
40-----	28	22,006	-59.0		72	5.0
30-----	27	23,828	-55.3		45	8.1
25-----	26	24,999	-53.7		60	11.0
20-----	26	26,441	-51.5		65	9.7
15-----	25	28,324	-48.1		264	1.1
10-----	14	31,050	-42.4			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

DELAYED DATA

5/ YUMA, ARIZ. (1000 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	27	105	8.2	48	43	1.5
1,000--	27	135	9.3		27	1.7
950----	27	565	11.7	43	287	4.4
900----	27	1,014	9.1	44	319	3.3
850----	27	1,484	5.8	47	272	6.6
800----	27	1,978	2.8	43	255	10.1
750----	27	2,494	.3	39	257	12.0
700----	27	3,049	- 2.4	31	264	15.9
650----	27	3,628	- 6.3	31	261	18.6
600----	27	4,255	-10.2		270	21.9
550----	27	4,915	-14.7		264	27.3
500----	27	5,635	-19.7		265	30.1
450----	27	6,405	-25.1		264	38.4
400----	27	7,256	-31.1		264	42.5
350----	27	8,189	-38.0		264	49.3
300----	27	9,234	-45.2		259	54.7
250----	27	10,432	-52.1		262	65.4
200----	27	11,860	-55.8		261	69.9
175----	26	12,716	-55.2		261	68.3
150----	26	13,697	-57.0		260	62.9
125----	24	14,848	-59.4		262	56.1
100----	22	16,246	-62.9		263	43.9
80-----	21	17,613	-64.5		262	34.1
60-----	14	19,397	-62.0		265	18.0
50-----	13	20,525	-60.7		266	4.6
40-----	12	21,919	-58.8		266	1.7
30-----	11	23,722	-57.1		53	4.6
25-----	11	24,877	-55.7		46	8.3
20-----	[illegible]	26,297	-53.7			
15-----						
10-----						

6/ FT. HUACHUCA, ARIZ. (856 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	27	1,428	6.5	35	219	3.1
1,000--	27	124				
950----	27	552				
900----	27	1,005				
850----	27	1,480	8.1	29	218	4.4
800----	27	1,980	7.6	23	237	6.9
750----	27	2,505	4.8		250	10.6
700----	27	3,068	1.4		247	12.4
650----	27	3,653	- 2.7		251	17.4
600----	27	4,289	- 6.8		257	22.1
550----	27	4,955	-11.5		263	24.8
500----	27	5,685	-17.1		265	27.3
450----	27	6,457	-23.1		262	30.6
400----	27	7,317	-29.7		262	38.2
350----	27	8,255	-36.8		257	46.0
300----	27	9,305	-44.1		255	54.5
250----	27	10,505	-52.2		252	63.1
200----	27	11,928	-57.1		249	67.0
175----	25	12,775	-57.8		249	56.3
150----	25	13,745	-59.4		251	52.2
125----	23	14,880	-62.5		248	47.9
100----	21	16,243	-65.7		250	36.3
80-----	17	17,602	-65.4		252	29.1
60-----	15	19,370	-62.7		262	20.2
50-----	13	20,491	-61.6			
40-----	12	21,876	-60.0			
30-----	12	23,678	-58.3			
25-----	12	24,830	-57.1			
20-----	10	26,253	-55.6			
15-----						
10-----						

6/ HAVANA, CUBA (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	49	20.9	86	66	2.3
1,000--	31	134	21.1	83	119	4.8
950----	31	577	19.1	80	154	7.7
900----	31	1,043	16.5	76	189	7.9
850----	31	1,529	14.3	71	201	9.5
800----	31	2,039	12.1	58	215	10.2
750----	31	2,575	9.5	48	226	9.9
700----	31	3,148	6.7	47	238	11.4
650----	31	3,748	3.4	42	256	17.4
600----	31	4,400	.0	38	260	24.6
550----	31	5,085	- 3.5	28	257	31.2
500----	31	5,842	- 8.0	28	258	36.9
450----	31	6,643	-13.5		264	41.5
400----	31	7,540	-20.1		266	50.3
350----	31	8,517	-27.4		264	60.2
300----	31	9,608	-36.1		266	58.0
250----	30	10,849	-46.0			
200----	29	12,304	-56.5			
175----	29	13,141	-61.7			
150----	29	14,086	-66.1			
125----	28	15,181	-70.3			
100----	28	16,495	-74.4			
80-----	28	17,791	-75.5			
60-----	27	19,484	-68.3			
50-----	26	20,590	-63.9			
40-----	25	21,977	-59.9			
30-----	20	23,787	-56.8			
25-----	13	24,948	-54.6			
20-----						
15-----						
10-----						

6/ MERIDA, MEXICO (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	19.6	95	82	2.5
1,000--	31	124	21.3	86	94	6.2
950----	31	567	20.1	81	119	9.9
900----	31	1,036	18.5	71	134	6.9
850----	31	1,525	16.6	64	146	5.0
800----	31	2,041	14.2	61	219	3.3
750----	31	2,582	11.3	52	223	5.6
700----	31	3,157	8.5	43	246	6.8
650----	31	3,762	5.1	39	259	9.5
600----	31	4,416	1.7	32	261	14.3
550----	31	5,103	- 2.1		260	18.2
500----	31	5,864	- 6.3		256	24.2
450----	31	6,672	-12.1		258	29.1
400----	31	7,570	-18.7		260	36.7
350----	31	8,551	-25.9		259	39.8
300----	31	9,648	-34.7		263	41.3
250----	31	10,894	-44.8		263	48.9
200----	31	12,350	-55.6		261	51.2
175----	31	13,191	-61.1		261	56.5
150----	31	14,136	-65.6		262	54.2
125----	31	15,232	-70.2		263	45.2
100----	31	16,543	-74.7		262	36.1
80-----	31	17,835	-76.0		253	20.0
60-----	31	19,525	-67.6		259	2.3
50-----	31	20,634	-63.4		81	2.7
40-----	31	22,022	-58.6		15	3.6
30-----	29	23,836	-56.6		13	3.4
25-----	29	24,999	-54.0		359	4.0
20-----	28	26,442	-51.9		306	2.3
15-----	27	28,325	-47.3		270	9.7
10-----	13	31,040	-38.9			

6/ YUMA, ARIZ. (999 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	105	13.2	26	12	2.7
1,000--	31	124			13	3.6
950----	31	561	17.7		335	7.3
900----	31	1,021	15.1		343	8.5
850----	31	1,501	11.8	21	328	8.7
800----	31	2,005	8.2	22	334	10.1
750----	31	2,532	4.6	22	326	10.8
700----	31	3,093	1.6		321	12.6
650----	31	3,683	- 2.0		315	14.9
600----	31	4,317	- 6.7		312	17.0
550----	31	4,986	-11.8		312	20.7
500----	31	5,713	-17.1		314	24.6
450----	31	6,487	-23.4		311	25.6
400----	31	7,344	-30.5		307	27.9
350----	31	8,279	-37.9		300	33.4
300----	31	9,324	-45.4		290	49.3
250----	31	10,519	-53.4		287	68.1
200----	31	11,938	-57.8		284	70.3
175----	31	12,781	-57.3		283	64.5
150----	31	13,753	-58.6		281	57.1
125----	30	14,890	-61.3		279	45.6
100----	28	16,263	-64.2		278	35.1
80-----	27	17,629	-64.7		279	24.6
60-----	25	19,393	-62.3		282	10.1
50-----	25	20,524	-60.3		287	2.3
40-----	21	21,917	-59.1		52	2.7
30-----	17	23,727	-57.3		53	6.8
25-----	15	24,890	-56.2		91	9.3
20-----	[illegible]	26,339	-54.5			
15-----						
10-----						

7/ FT. HUACHUCA, ARIZ. (855 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,428	11.2	47	213	3.5
1,000--	30	99				
950----	30	534				
900----	30	997				
850----	30	1,482	12.4	41	206	2.9
800----	30	1,991	11.8	32	235	3.5
750----	30	2,521	8.3	32	230	7.4
700----	30	3,094	4.4	32	235	9.7
650----	30	3,687	.2		236	11.7
600----	30	4,329	- 3.9		245	15.0
550----	30	5,004	- 8.8		254	18.3
500----	30	5,741	-14.0		260	22.0
450----	30	6,526	-20.0		259	24.5
400----	30	7,394	-26.8		260	28.0
350----	30	8,343	-34.0		262	32.4
300----	30	9,404	-42.0		263	36.7
250----	30	10,613	-51.3		267	45.5
200----	30	12,036	-58.5		267	55.6
175----	30	12,872	-60.5		268	57.9
150----	30	13,829	-61.7		270	51.1
125----	30	14,952	-64.3		267	44.1
100----	30	16,306	-67.0		269	35.0
80-----	27	17,658	-66.6		271	22.7
60-----	27	19,412	-63.4		275	11.7
50-----	27	20,539	-60.8		274	7.0
40-----	26	21,939	-58.3			
30-----	24	23,759	-55.9			
25-----	20	24,928	-54.0			
20-----	14	26,383	-51.2			
15-----	9	28,269	-47.4			

7/ HAVANA, CUBA (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	49	21.9	83	54	3.1
1,000--	30	135	22.1	79	75	5.2
950----	30	578	19.8	78	87	7.4
900----	30	1,045	17.0	79	94	5.2
850----	30	1,532	14.3	75	143	3.7
800----	30	2,044	12.5	58	203	3.3
750----	30	2,580	10.0	46	250	3.9
700----	30	3,155	7.1	44	253	7.4
650----	30	3,755	4.3	35	266	9.5
600----	30	4,409	.8		276	14.4
550----	30	5,096	- 3.4	32	273	16.9
500----	30	5,853	- 8.2		273	23.7
450----	30	6,653	-13.8	30	274	25.6
400----	30	7,549	-20.4	33	274	30.7
350----	30	8,524	-27.4		270	33.2
300----	30	9,617	-35.3		273	42.2
250----	30	10,862	-45.0		277	46.4
200----	30	12,315	-56.4		282	50.7
175----	29	13,152	-61.6		273	60.6
150----	27	14,098	-66.6		268	47.2
125----	26	15,188	-71.3		271	47.6
100----	24	16,497	-74.3			
80-----	22	17,809	-73.2			
60-----	22	19,516	-66.7			
50-----	20	20,635	-62.5			
40-----	20	22,026	-58.7			
30-----	20	23,852	-54.9			
25-----	17	25,021	-52.3			
20-----	12	26,467	-49.5			
15-----	5	28,360	-44.6			

7/ JACKSON, MISS. (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	101	12.7	89	321	0.6
1,000--	30	146			350	.8
950----	30	578	13.3	72	225	7.0
900----	30	1,033	11.5	65	243	9.3
850----	30	1,509	10.0	56	251	10.7
800----	30	2,012	8.4	49	254	11.9
750----	30	2,542	5.7	46	262	13.6
700----	30	3,104	2.6	41	270	15.2
650----	30	3,695	- 1.2	41	269	20.2
600----	30	4,333	- 5.1	43	269	25.1
550----	30	5,003	- 9.5	41	273	25.1
500----	30	5,740	-14.4	38	270	27.0
450----	30	6,525	-19.7	39	269	31.5
400----	30	7,396	-25.7	38	271	34.0
350----	30	8,350	-32.7	36	274	41.0
300----	30	9,419	-40.5		276	50.7
250----	30	10,638	-49.7		273	61.2
200----	30	12,069	-58.2		272	71.5
175----	30	12,907	-60.0		275	69.8
150----	30	13,867	-61.3		280	60.2
125----	30	14,992	-63.3		279	47.4
100----	30	16,357	-65.1		276	34.2
80-----	29	17,719	-64.5		272	24.1
60-----	28	19,493	-60.7		268	9.9
50-----	25	20,630	-59.1		257	5.6
40-----	23	22,037	-56.6		201	1.2
30-----	19	23,873	-52.6		250	5.4
25-----	17	25,064	-50.6		334	2.9
20-----	16	26,522	-48.0		285	2.9
15-----	12	28,416	-44.5		250	7.8

7/ YUMA, ARIZ. (995 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	105	17.5	33	27	1.7
1,000--	30	85				
950----	30	525	20.7	31	288	3.9
900----	30	992	18.5	29	260	3.3
850----	30	1,478	15.1	28	230	3.7
800----	30	1,988	11.3	29	216	5.4
750----	30	2,520	7.5	26	208	5.4
700----	30	3,088	3.7		213	4.9
650----	30	3,682	- .1		227	8.4
600----	30	4,321	- 4.5		243	10.7
550----	30	4,995	- 9.3		250	13.4
500----	30	5,730	-14.9		255	17.3
450----	30	6,511	-21.0		254	20.2
400----	30	7,378	-27.8		252	22.7
350----	30	8,324	-35.0		257	28.6
300----	30	9,381	-43.4		259	35.8
250----	30	10,584	-52.2		252	43.3
200----	30	12,000	-60.0		257	55.2
175----	30	12,830	-61.6		257	52.7
150----	28	13,787	-61.8		259	49.2
125----	26	14,910	-64.0		257	43.9
100----	25	16,269	-65.7		257	33.8
80-----	23	17,628	-66.3		256	26.8
60-----	22	19,388	-63.5		268	14.6
50-----	21	20,522	-60.9		295	3.9
40-----	19	21,915	-58.9		80	2.9
30-----	16	23,727	-57.0		100	1.4
25-----	14	24,889	-55.6		302	1.7
20-----						
15-----						

1. October 1958
2. November 1958
3. December 1958
4. January 1959
5. February 1959
6. March 1959
7. April 1959

Also see reference notes with current data.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

DELAYED DATA

ALBUQUERQUE, N. MEX.

Date	Sun's zenith distance A. M. 78.7°	75.7°	70.7°	60.0°	*	P. M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Feb. 1959									
3------	----	----	----	----	----	----	----	1.18	0.99
4------	1.06	1.14	1.22	----	1.44	1.36	1.21	1.10	.95
5------	K .89	K 1.04	K 1.16	1.36	1.42	1.37	1.21	1.11	.98
6------	1.00	1.12	1.23	1.35	1.44	1.34	----	----	----
7------	.99	----	----	----	----	----	----	----	----
10-----	.98	1.07	1.18	1.24	1.25	1.27	1.17	1.07	.97
12-----	1.13	1.21	1.30	1.31	----	----	----	----	----
14-----	1.11	1.20	1.30	1.45	1.50	K 1.36	1.25	1.16	1.04
16-----	----	----	1.23	----	----	----	----	----	----
19-----	1.10	1.14	1.26	1.38	1.39	1.30	1.15	1.05	----
20-----	----	1.01	----	1.33	----	1.37	1.20	1.06	.94
22-----	1.03	1.14	1.24	1.40	1.29	1.38	1.21	1.09	1.00
23-----	1.07	1.15	1.26	1.39	1.47	1.36	1.16	1.07	.97
24-----	1.05	1.14	1.25	1.34	1.45	1.33	----	1.04	.97
25-----	.97	1.05	1.19	1.33	1.43	1.32	----	1.02	.92
26-----	1.02	1.12	1.21	1.35	1.43	1.32	K 1.15	K 1.05	K .92
27-----	.97	1.09	1.19	1.26	1.42	1.28	----	----	----
28-----	.99	1.09	1.20	1.34	1.48	1.34	1.17	1.08	.98
Averages	1.03	1.12	1.22	1.34	1.43	1.34	1.19	1.08	0.97

LINCOLN, NEBR.

Date	A. M. 78.7°	75.7°	70.7°	60.0°	*	P. M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Mar. 1959									
1------	0.89	1.00	1.13	1.30	1.40	1.29	----	----	----
7------	.93	1.03	1.15	1.20	----	----	----	----	----
8------	----	----	----	1.27	----	----	----	----	----
12-----	1.11	1.17	1.24	1.36	1.39	----	1.22	1.14	1.08
13-----	----	----	----	----	1.40	----	----	----	----
15-----	.95	1.03	1.17	1.32	----	----	----	----	----
18-----	.84	.95	1.11	1.27	1.41	----	----	----	----
21-----	.89	1.01	1.17	1.32	1.46	1.25	1.10	.99	.90
22-----	.96	1.05	1.19	1.34	1.46	1.31	1.16	----	----
23-----	.82	----	1.07	----	----	----	----	----	----
27-----	----	----	----	----	1.45	1.30	1.12	.99	.90
30-----	----	----	----	----	----	----	1.04	.92	.83
Averages	0.92	1.03	1.15	1.30	1.42	1.29	1.13	1.01	0.93

BLUE HILL, MASS.

Date	A. M. 78.7°	75.7°	70.7°	60.0°	*	P. M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Mar. 1959									
5------	0.90	0.97	----	1.32	1.44	1.24	----	----	----
8------	1.06	1.11	1.28	1.44	1.50	1.36	1.20	1.05	0.93
11-----	H .85	H .99	H 1.08	----	----	----	----	----	----
14-----	.92	1.03	1.14	1.27	1.38	1.16	.84	.68	.53
16-----	----	1.03	1.18	1.30	1.44	1.28	1.04	.90	.75
17-----	.90	1.00	1.13	1.33	1.43	1.25	1.08	1.00	.86
18-----	----	----	----	1.28	1.45	1.33	1.13	1.03	.93
19-----	H .88	1.00	1.11	1.28	----	----	----	----	----
20-----	K .68	K .81	K .98	----	K 1.30	----	K .95	K .80	K .70
23-----	----	1.06	1.16	1.31	1.40	1.20	.99	.83	.66
24-----	----	----	----	----	1.28	1.11	.91	.75	.61
26-----	----	----	----	----	----	1.29	.99	.88	.76
28-----	----	----	----	----	1.40	1.29	1.13	1.08	.99
29-----	.83	.94	1.10	1.29	1.44	1.25	1.08	.93	.79
Averages	0.88	0.99	1.13	1.31	1.41	1.25	1.03	0.90	0.77

MAUNA LOA OBS., HAWAII

Date	Sun's zenith distance A. M. 78.7°	75.7°	70.7°	60.0°	*	P. M. 60.0°	70.7°	75.7°	78.7°
Air mass	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Jan. 1959									
1-----	1.27	1.36	1.46	1.58	1.68	1.59	1.45	1.36	1.28
3-----	----	----	----	----	1.68	----	----	----	----
5-----	1.30	1.40	1.49	----	1.69	1.58	1.45	1.34	1.26
15----	----	----	1.46	----	----	----	1.49	1.39	1.32
16----	1.35	1.44	1.53	1.64	----	1.63	1.51	1.41	1.32
17----	----	----	----	----	1.70	----	----	----	----
20----	1.33	1.42	1.53	1.61	1.72	1.61	1.48	1.41	----
21----	1.34	1.42	1.51	1.62	1.71	1.61	1.45	1.36	1.27
22----	1.34	1.43	1.52	1.63	1.66	1.60	1.48	1.40	1.28
23----	1.33	1.40	1.50	1.61	1.67	----	----	1.39	----
24----	----	----	----	----	----	1.56	1.44	1.35	1.27
25----	----	----	1.51	1.62	1.71	1.61	1.49	1.40	1.32
26----	----	1.42	1.52	1.63	1.69	----	----	----	1.30
27----	1.36	1.44	1.53	1.64	1.67	1.56	1.44	1.36	1.27
28----	1.36	1.44	1.53	1.64	1.68	1.58	1.44	1.35	1.28
29----	1.33	1.41	1.50	1.61	1.71	1.55	1.43	----	----
30----	----	----	----	----	1.66	----	----	----	----
31----	1.37	1.45	1.54	1.65	----	1.63	----	1.41	1.34
Averages	1.33	1.42	1.51	1.62	1.69	1.59	1.46	1.38	1.29

TUCSON, ARIZ.

Date	A. M. 78.7°	75.7°	70.7°	60.0°	*	P. M. 60.0°	70.7°	75.7°	78.7°
Air mass	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Jan. 1959									
1-----	----	1.15	1.27	1.41	1.46	----	----	----	----
2-----	1.03	1.13	1.25	1.41	1.41	1.38	1.21	1.10	0.99
11----	----	----	----	----	1.39	----	1.16	1.02	.90
14----	.85	.96	1.12	1.27	1.34	1.28	1.14	.94	.80
23----	.82	.96	----	1.37	1.38	1.30	1.14	1.00	.91
24----	.95	1.05	1.18	1.44	1.41	1.33	1.20	1.09	.99
25----	1.04	1.14	1.24	1.44	1.45	1.35	1.23	1.10	1.00
26----	----	----	----	----	----	1.31	1.18	1.04	.92
27----	----	----	1.17	1.35	1.40	1.36	1.18	1.03	.93
28----	----	.99	1.16	1.41	1.44	1.34	1.24	1.14	1.05
31----	.92	1.03	1.15	1.35	1.41	----	1.10	.95	.87
Averages	0.93	1.05	1.19	1.38	1.41	1.33	1.18	1.04	0.85

MAUNA LOA OBS., HAWAII

Date	A. M. 78.7°	75.7°	70.7°	60.0°	*	P. M. 60.0°	70.7°	75.7°	78.7°
Air mass	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Feb. 1959									
1-----	1.36	1.44	1.53	1.65	1.75	1.64	1.52	1.43	1.36
2-----	1.37	1.44	1.53	1.65	1.74	1.60	1.48	1.37	1.30
3-----	1.35	1.44	1.53	1.65	1.72	1.59	1.47	1.37	1.29
4-----	1.33	1.41	1.52	1.62	1.69	1.53	1.46	1.36	1.27
14----	1.36	1.44	1.53	1.65	1.75	1.62	1.51	1.42	1.34
15----	----	----	----	----	1.75	1.61	1.50	1.40	1.32
16----	1.32	1.40	1.51	1.61	1.73	1.59	1.50	1.40	1.31
18----	1.32	1.40	1.49	1.60	1.66	----	----	----	----
19----	----	----	----	----	----	1.54	----	----	----
20----	----	1.37	1.47	1.58	----	----	----	----	----
22----	1.26	1.35	1.44	1.57	----	----	----	----	----
23----	1.35	1.42	1.50	1.62	1.69	1.60	1.50	1.41	1.32
24----	1.32	1.41	1.51	1.62	1.70	1.60	1.47	1.38	1.29
25----	1.31	1.39	1.49	1.60	----	----	----	----	----
26----	1.30	1.38	1.49	1.60	1.68	1.54	1.41	1.30	1.22
27----	1.30	1.38	1.49	1.61	1.73	1.59	1.48	1.38	1.30
28----	1.34	1.42	1.51	1.64	1.74	1.61	1.50	1.40	1.32
Averages	1.33	1.41	1.50	1.62	1.72	1.59	1.48	1.39	1.30

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

DELAYED DATA

Date	Sun's zenith distance								
	A. M.					P. M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	OMAHA, NEBR.								
	Air mass								
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Mar. 1959									
1------	0.77	0.86	0.98	1.12	1.24	----	----	----	----
3------	----	.89	1.01	----	----	----	----	----	----
6------	----	----	----	----	S 1.31	----	----	----	----
12-----	----	M .76	M .92	----	----	----	----	----	----
13-----	----	----	M .90	M 1.09	----	----	----	----	----
15-----	.81	.93	1.04	1.21	S 1.31	----	----	----	----
18-----	M .67	M .77	M .90	M 1.08	M 1.23	----	----	----	----
21-----	M .77	M .86	M .99	M 1.13	S 1.30	M 1.17	M 0.97	----	----
22-----	M .77	M .88	M 1.00	M 1.13	S 1.29	M 1.15	----	----	----
27-----	----	----	----	----	S 1.31	S 1.13	M .84	----	----
Aver-ages	0.76	0.85	1.11	1.13	1.28	1.15	0.90	----	----
	MADISON, WIS.								
	Air mass								
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
May 1959									
11-----	----	----	----	----	S 1.48	----	----	----	----

* Values corresponding to true solar noon
K Smoke.
H Haze.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.
I Intense haze - indeterminable.
Also see reference notes with current data.

Date	Sun's zenith distance								
	A. M.					P. M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	TUCSON, ARIZ.								
	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Mar. 1959									
5-----	1.01	1.08	1.21	1.39	1.48	1.36	1.20	1.06	0.95
6-----	.97	1.06	1.15	1.31	1.46	1.28	1.15	1.02	.93
7-----	.97	1.07	1.18	1.36	1.48	1.27	1.10	.97	.89
8-----	.93	1.04	1.17	1.32	1.47	1.29	1.11	.98	.89
11-12-	Recorder moved								
Aver-ages	0.97	1.06	1.18	1.34	1.47	1.30	1.14	1.01	0.91
	GUAM, M. I. (WBO)								
	Air mass								
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Mar. 1959									
11----	----	----	----	----	M 1.35	S 1.14	S 1.02	----	----
18----	----	----	S 0.93	----	----	----	----	----	----
20----	----	----	----	----	----	S 1.19	----	----	----
25----	S 0.83	----	----	S 1.21	----	----	----	----	----
	GUAM, M. I. (WBO)								
	Air mass								
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Feb. 1959									
7-----	----	----	----	----	S 1.39	----	----	----	----
12----	----	----	M 1.21	----	----	S 1.24	----	----	----
21----	----	----	----	----	----	----	M 0.96	----	----
24----	----	----	----	I 1.14	----	----	----	----	----
26----	Instrument being repaired								

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Raleigh, N. C., during the month

Date APRIL 1959	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	68	112	†-21	†-45	167	115	131	†110	†0	106	49	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	72

† Estimated values owing to occurence of rain during period. While rain is falling, radiation is assumed to be zero.

Note: Radiometer inoperative from February 12 to April 21.

The measurement is made with a Beckman and Whitley net exchange radiometer over a plot of Bermuda grass. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the North Carolina State College at Raleigh. The instrument with which they were measured has not been checked by the Weather Bureau.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

DELAYED DATA

1958	Manhattan, Kans.
Nov. 5	364
Nov. 6	341
Nov. 7	233
Nov. 8	354
Nov. 9	339
Nov. 10	322
Nov. 11	266
Average	317
Nov. 12	212
Nov. 13	102
Nov. 14	99
Nov. 15	83
Nov. 16	84
Nov. 17	69
Nov. 18	298
Average	135
Nov. 19	286
Nov. 20	273
Nov. 21	267
Nov. 22	262
Nov. 23	247
Nov. 24	67
Nov. 25	143
Average	221
Nov. 26	224
Nov. 27	21
Nov. 28	(265)
Nov. 29	263
Nov. 30	259
Dec. 1	---
Dec. 2	206
Average	(206)

Dec.	Aklavik, MacKenzie	Corvallis, Oreg.	Dartmouth, N. S.	Edmonton, Alberta	Lemont, Ill.	Manhattan, Kans.	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Toronto, Ontario	Winnipeg, Manitoba
3	1	163	155	74	31	248	86	84	69	76	43
4	2	187	21	65	221	1	33	47	35	26	108
5	1	57	118	89	233	119	64	97	94	57	103
6	1	91	165	93	226	180	49	58	177	202	148
7	1	84	164	98	66	144	56	113	190	140	148
8	0	50	191	100	117	184	78	137	169	84	141
9	0	44	105	91	299	65	104	111	165	112	120
Average	1	97	131	87	171	134	67	92	128	99	116
10	0	27	171	50	251	66	83	125	192	155	85
11	---	---	193	92	136	65	75	131	178	147	118
12	---	---	19	59	191	107	91	133	140	88	144
13	---	125	101	51	242	141	82	130	136	180	72
14	---	126	188	41	136	271	67	107	99	87	126
15	---	27	61	28	117	226	64	70	128	177	95
16	---	36	73	56	162	217	98	91	181	185	83
Average	---	68	115	54	177	156	80	112	151	146	103
17	---	88	162	46	228	227	97	94	65	59	76
18	---	50	69	31	213	215	85	77	52	39	56
19	---	36	162	80	37	219	110	65	25	16	79
20	---	33	49	52	187	233	96	139	185	132	89
21	---	95	141	25	96	228	103	139	189	187	77
22	---	35	186	85	206	199	32	106	90	93	53
23	---	63	117	70	42	207	109	95	46	44	78
Average	---	57	127	56	144	218	90	102	93	82	73
24	---	20	189	65	221	284	49	106	173	176	120
25	---	130	154	44	200	158	108	103	180	175	115
26	---	30	157	59	104	26	42	---	93	136	57
27	---	79	153	46	188	163	27	65	132	50	80
28	---	66	44	71	206	248	32	57	73	120	123
29	---	47	55	79	42	258	92	91	75	47	134
30	---	139	49	57	171	32	114	125	187	118	118
31	---	107	69	54	34	99	39	121	(195)	105	113
Avg.	---	78	109	59	146	159	63	95	(135)	116	108

1959 Jan.	Aklavik, MacKenzie	Corvallis, Oreg.	Dartmouth, N. S.	Edmonton, Alberta	Lemont, Ill.	Lexington, Ky.	Manhattan, Kans.	Moosonee, Ontario	Nanaimo, B. C.	Normandin, Quebec	Ottawa, Ontario	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
1	---	97	---	51	35	29	---	120	151	113	---	49	22	---	67
2	---	177	(57)	91	106	296	255	24	138	38	31	111	39	---	125
3	0	184	67	96	79	294	240	90	128	93	---	115	66	---	133
4	0	43	185	100	258	188	(350)	100	50	124	---	122	110	---	140
5	0	64	71	45	262	337	343	116	44	93	196	66	194	---	138
6	1	61	126	49	148	265	330	65	115	84	185	62	201	---	98
7	1	31	110	74	55	66	23	61	24	91	---	63	192	---	81
Average	1	94	(103)	72	135	211	(257)	82	93	91	---	84	118	---	112
8	1	25	189	60	203	26	200	52	101	127	---	83	147	---	135
9	0	60	182	49	264	138	122	50	70	77	153	83	132	---	117
10	2	48	179	44	243	292	316	49	140	68	163	117	132	---	81
11	2	15	193	82	227	303	269	62	40	93	165	85	99	---	91
12	2	182	183	48	183	238	338	36	44	139	127	59	85	---	131
13	3	133	175	74	213	144	201	81	140	135	140	123	115	---	107
14	2	50	207	104	23	69	295	63	54	114	142	116	101	---	104
Average	2	73	187	66	194	173	249	56	84	107	148	95	116	---	109
15	2	46	106	54	48	20	371	60	7	93	42	100	29	---	145
16	3	91	42	81	211	296	273	85	45	72	65	90	103	---	137
17	2	118	137	93	277	301	221	78	26	140	117	125	146	---	166
18	4	124	122	73	249	385	328	129	130	165	216	105	185	---	156
19	1	162	---	114	290	78	181	137	167	90	55	96	50	---	157
20	6	143	---	126	83	38	32	150	57	160	148	169	108	---	165
21	3	72	---	79	49	72	311	106	19	61	21	141	14	17	184
Average	3	108	102	89	172	170	246	106	65	112	95	118	91	---	158
22	8	50	---	53	313	368	263	73	15	130	191	139	115	21	164
23	5	18	---	68	251	345	305	138	30	162	176	101	232	42	168
24	8	172	---	98	252	355	300	134	47	166	214	86	52	41	173
25	11	66	---	88	75	75	51	165	90	135	152	200	93	101	187
26	6	78	---	97	203	59	44	94	27	193	237	183	181	---	177
27	10	56	---	62	317	258	335	131	171	160	183	129	212	---	117
28	14	181	---	85	202	65	132	168	159	130	174	122	227	148	146
Average	9	89	---	79	231	218	204	129	77	154	190	137	159	71	162
29	21	46	---	153	58	90	61	101	74	179	116	182	169	112	130
30	16	101	---	155	218	48	325	160	121	89	81	186	110	113	210
31	8	114	---	149	319	223	70	165	103	190	274	161	248	86	208
Feb.1	5	270	---	128	348	327	364	183	208	212	279	230	275	---	209
2	8	256	---	104	357	227	145	---	57	139	236	148	271	61	105
3	20	89	---	82	73	131	202	---	91	154	176	106	157	24	227
4	29	249	---	132	268	55	194	---	178	177	250	159	245	143	207
Avg.	15	161	---	129	235	157	194	152	119	163	202	167	211	90	185

Feb.	Aklavik, MacKenzie	Boston, Mass.	Corvallis, Oreg.	Edmonton, Alberta	Lemont, Ill.	Lexington, Ky.	Manhattan, Kans.	Moosonee, Ontario	Nanaimo, B. C.
5	17	277	227	167	363	87	310	---	21
6	25	226	192	123	313	421	392	---	94
7	20	301	187	196	322	416	330	---	172
8	22	274	98	195	143	103	22	---	107
9	28	101	110	179	68	70	36	---	127
10	18	31	169	131	33	315	428	---	48
11	27	68	124	193	353	401	424	---	258
Average	22	183	158	169	228	259	277	---	118
12	30	290	230	144	344	300	338	---	32
13	18	145	---	173	76	50	174	---	18
14	27	210	---	143	168	82	413	---	245
15	38	250	---	224	180	120	306	---	153
16	53	195	---	154	226	262	292	---	74
17	67	186	---	238	129	304	172	---	186
18	69	23	---	240	390	84	434	240	113
Average	43	186	---	188	216	172	304	---	117
19	62	264	---	245	425	467	175	261	73
20	33	395	---	242	432	481	364	203	255
21	46	315	---	245	416	499	409	271	308
22	75	402	---	237	301	258	36	256	43
23	87	81	---	255	203	94	454	292	122
24	97	136	---	206	432	498	431	293	43
25	78	417	---	207	331	488	268	298	282
Average	68	287	---	234	363	398	305	268	161
26	62	283	119	261	215	497	444	301	81
27	60	191	182	273	216	442	364	305	25
28	60	247	283	234	123	193	226	126	145
Mar.1	77	49	374	266	345	117	473	147	352
2	100	179	264	277	253	507	371	110	75
3	100	282	261	229	190	367	479	87	227
4	78	217	400	294	332	530	32	276	257
Average	77	207	269	262	239	379	341	193	166

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

DELAYED DATA

1959	Normandin, Quebec	Ottawa, Ontario	Raleigh, N. C.	Resolute, N. W. T.	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
Feb. 5	153	104	37	1	179	194	12	218
Feb. 6	208	272	40	1	146	271	140	211
Feb. 7	205	---	39	1	220	195	200	245
Feb. 8	236	---	28	1	205	300	67	118
Feb. 9	164	---	5	2	224	30	115	259
Feb. 10	237	125	19	2	230	40	73	217
Feb. 11	212	221	25	4	260	196	219	209
Average	202	180	28	2	209	175	118	211
Feb. 12	151	236	---	6	234	199	54	251
Feb. 13	204	283	---	5	245	262	32	274
Feb. 14	259	146	---	6	177	39	229	257
Feb. 15	285	347	---	10	273	284	142	103
Feb. 16	137	94	---	11	226	51	45	226
Feb. 17	249	232	---	12	225	100	190	300
Feb. 18	291	185	---	9	273	176	106	309
Average	225	217	---	8	236	159	114	246
Feb. 19	247	360	---	16	331	365	54	301
Feb. 20	306	360	---	21	296	345	196	297
Feb. 21	259	268	---	15	294	300	231	316
Feb. 22	318	371	---	24	270	349	39	308
Feb. 23	(325)	97	---	20	302	33	37	294
Feb. 24	(334)	389	---	19	233	379	25	317
Feb. 25	(273)	---	---	25	281	354	202	147
Average	(295)	308	---	20	287	304	112	283
Feb. 26	333	219	---	27	314	258	75	145
Feb. 27	345	206	---	41	275	106	52	276
Feb. 28	238	202	---	37	226	123	57	324
Mar. 1	186	155	---	26	223	285	304	291
Mar. 2	348	343	---	48	352	349	44	153
Mar. 3	339	---	---	58	335	178	152	362
Mar. 4	263	379	---	43	325	239	214	324
Average	293	251	---	40	293	220	128	268

	Aklavik, MacKenzie	Boston, Mass.	Dartmouth, N. S.	Edmonton, Alberta	Lemont, Ill.	Moosonee, Ontario	Nanaimo, B. C.	Normandin, Quebec	Ottawa, Ontario	Resolute, N. W. T.	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
Mar. 5	84	428	---	197	31	320	315	357	398	69	279	165	233	208
6	75	34	137	227	169	95	132	114	60	48	283	135	122	373
7	98	293	277	240	490	331	160	250	339	46	236	405	160	153
8	99	482	412	328	309	295	328	386	433	75	217	234	287	326
9	101	69	410	329	123	352	225	382	440	79	380	427	152	185
10	169	227	85	292	313	368	247	395	443	73	332	396	257	380
11	134	316	263	259	150	340	134	407	426	85	373	339	58	375
Average	109	264	264	267	226	300	220	327	363	68	300	300	181	286
12	156	40	295	343	270	339	314	365	138	100	341	119	296	235
13	188	330	305	278	253	336	407	239	301	110	349	453	345	296
14	158	506	437	262	252	370	161	430	447	90	176	397	138	420
15	204	293	442	264	197	154	32	306	224	117	385	111	55	450
16	213	505	141	258	437	217	167	250	256	102	392	362	212	457
17	222	485	---	221	490	399	398	413	481	131	200	157	240	327
18	216	530	349	373	531	193	215	457	478	135	223	471	107	257
Average	194	384	328	286	347	287	242	351	332	112	295	296	199	349
19	219	491	456	366	459	291	438	271	403	117	162	391	320	461
20	239	484	351	351	297	395	83	362	218	157	417	281	48	479
21	173	398	394	275	578	355	423	238	62	150	279	304	332	410
22	220	570	111	407	557	438	406	423	517	171	342	518	327	351
23	255	546	511	411	479	192	348	460	426	173	428	439	237	445
24	266	515	511	414	463	442	289	477	485	180	401	290	182	491
25	272	441	485	409	248	335	61	476	327	194	457	167	69	415
Average	235	492	403	376	440	350	293	387	348	163	355	341	216	436
26	237	---	506	354	25	431	299	492	(512)	188	442	438	277	473
27	242	---	281	419	527	460	77	504	353	191	310	274	56	515
28	203	---	111	248	532	469	235	514	549	190	440	557	227	459
29	284	---	543	215	241	416	250	452	482	199	346	438	189	417
30	292	---	---	165	330	328	201	477	434	228	235	177	129	70
31	314	---	---	242	424	349	102	493	480	239	287	306	30	204
Apr. 1	331	---	82	340	143	204	150	226	291	232	482	338	100	168
Average	272	---	304	283	317	380	188	451	(443)	210	363	361	144	329

	Aklavik, MacKenzie	Dartmouth, N. S.	Edmonton, Alberta	Lemont, Ill.	Manhattan, Kans.	Moosonee, Ontario	Nanaimo, B. C.	Normandin, Quebec	Ottawa, Ontario	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
Apr. 2	326	485	471	399	475	250	429	130	71	438	221	359	369
3	266	73	290	304	602	473	177	477	164	413	27	84	404
4	286	455	390	590	562	484	374	254	238	471	545	300	256
5	312	324	294	295	576	122	294	467	262	276	318	193	433
6	329	424	378	569	521	---	553	235	349	304	466	478	268
7	350	557	417	266	78	181	566	444	---	397	143	480	177
8	239	60	464	131	324	285	562	212	476	399	197	478	560
Average	301	339	386	365	448	299	422	317	260	385	274	339	353
9	336	358	486	242	527	286	564	---	256	541	151	486	507
10	301	481	493	187	383	489	469	543	401	517	169	446	568
11	396	91	519	595	315	514	353	406	347	549	370	440	552
12	347	454	428	546	186	539	573	579	535	539	463	423	582
13	349	485	388	467	595	479	351	509	583	224	582	286	594
14	329	570	411	642	616	355	149	329	587	427	582	229	537
15	357	512	465	627	611	379	400	479	473	280	569	357	334
Average	345	422	456	472	462	435	409	474	455	440	412	381	525
16	337	575	337	600	410	331	320	124	421	545	493	297	511
17	424	255	445	348	93	363	532	393	546	545	530	490	245
18	224	---	546	373	166	128	623	84	---	547	414	511	569
19	297	---	536	176	44	465	612	489	605	595	552	524	604
20	277	---	464	180	97	452	627	599	603	597	509	528	577
21	395	581	370	697	370	559	---	392	622	581	646	465	260
22	494	665	207	649	569	420	598	527	614	109	611	439	424
Average	350	519	415	432	250	388	552	372	568	503	536	465	456
23	503	574	237	629	562	378	466	595	595	409	568	252	560
24	473	39	466	456	538	613	642	(502)	302	693	355	551	156
25	459	624	601	402	497	153	441	593	366	678	336	312	592
26	475	581	488	173	178	610	393	551	633	---	464	172	630
27	467	88	478	84	102	622	207	(642)	654	472	435	88	495
28	424	691	380	255	636	559	250	621	420	511	38	70	489
29	537	217	535	387	628	179	182	74	425	354	425	61	406
Average	477	402	455	341	449	445	368	(511)	485	519	374	215	475
30	546	228	478	396	609	264	518	(50)	347	452	593	383	449
May 1	567	178	217	695	576	598	503	452	588	564	656	506	348
2	576	190	225	634	357	632	428	506	172	286	350	401	401
3	578	373	382	491	501	638	328	644	684	450	396	---	110
4	584	505	208	617	187	609	512	622	663	338	666	488	476
5	595	340	339	565	98	467	676	611	587	193	632	596	168
6	598	241	621	456	645	354	550	295	502	624	643	510	287
Avg.	578	294	353	551	425	509	502	(454)	506	415	562	481	320

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

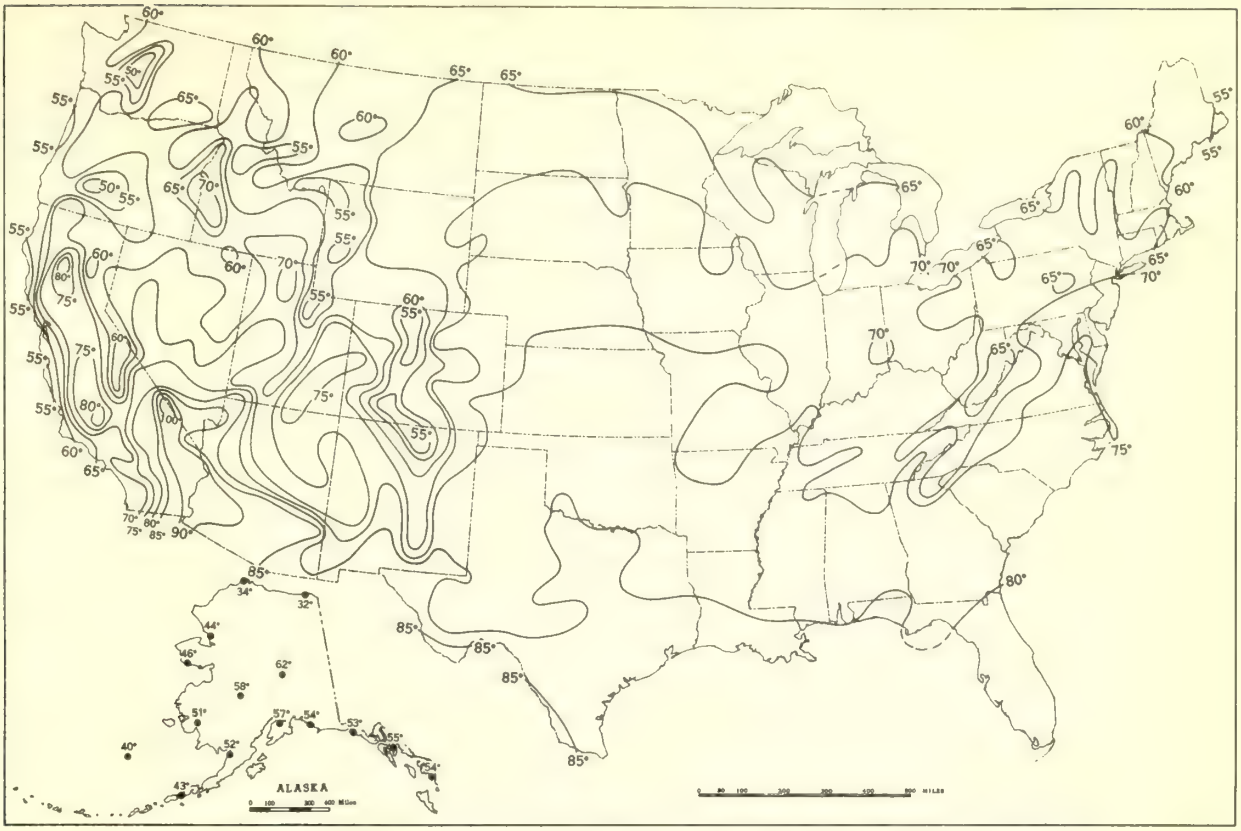
1958	Phoenix, Ariz.	July	Phoenix, Ariz.	Aug.	Phoenix, Ariz.	Sep.	Phoenix, Ariz.	Pullman, Wash.	Oct.	Phoenix, Ariz.	Nov.	Phoenix, Ariz.	Dec.	Phoenix, Ariz.
June 4	764	2	737	6	460	3	597	---	1	508	5	396	3	323
June 5	738	3	747	7	665	4	459	---	2	522	6	389	4	323
June 6	763	4	756	8	618	5	598	552	3	486	7	382	5	322
June 7	760	5	708	9	674	6	602	548	4	332	8	382	6	320
June 8	743	6	738	10	641	7	583	538	5	155	9	378	7	321
June 9	770	7	739	11	659	8	527	217	6	399	10	372	8	297
June 10	786	8	736	12	546	9	565	527	7	482	11	(250)	9	289
Average	761		737		609		562	476		412		(364)		313
June 11	786	9	737	13	652	10	554	510	8	488	12	366	10	310
June 12	780	10	732	14	624	11	521	---	9	486	13	368	11	309
June 13	779	11	722	15	638	12	226	226	10	482	14	373	12	303
June 14	538	12	708	16	639	13	516	332	11	468	15	183	13	314
June 15	645	13	709	17	415	14	607	362	12	472	16	100	14	329
June 16	640	14	712	18	646	15	594	309	13	470	17	359	15	327
June 17	735	15	719	19	433	16	585	369	14	468	18	380	16	319
Average	701		720		578		515	351		477		304		316
June 18	726	16	684	20	554	17	565	495	15	465	19	373	17	316
June 19	680	17	710	21	637	18	553	439	16	472	20	346	18	305
June 20	218	18	685	22	---	19	555	301	17	463	21	297	19	308
June 21	691	19	735	23	---	20	568	371	18	470	22	322	20	264
June 22	729	20	743	24	(604)	21	550	123	19	435	23	335	21	312
June 23	730	21	738	25	---	22	502	188	20	392	24	327	22	225
June 24	761	22	717	26	(608)	23	426	128	21	429	25	278	23	304
Average	648		716		(601)		531	292		447		325		291
June 25	774	23	352	27	576	24	501	406	22	432	26	102	24	310
June 26	750	24	695	28	492	25	565	---	23	349	27	291	25	311
June 27	718	25	686	29	589	26	316	428	24	395	28	353	26	313
June 28	721	26	700	30	613	27	---	456	25	(403)	29	338	27	303
June 29	728	27	698	31	612	28	467	454	26	430	30	327	28	298
June 30	672	28	606	Sep.1	602	29	456	427	27	317	Dec.1	327	29	325
July 1	744	29	406	2	610	30	518	430	28	412	2	334	30	316
													31	323
Average	730		592		585		470	434		(391)		296		
													Avg.	312
		30	642						29	355				
		31	691						30	416				
		Aug.1	679						31	409				
		2	668						Nov.1	379				
		3	546						2	415				
		4	666						3	406				
		5	575						4	400				
		Avg.	638							397				

1958	1959 Jan.	Phoenix, Ariz.	Feb.	Phoenix, Ariz.	Mar.	Phoenix, Ariz.	Apr.	Phoenix, Ariz.	Resolute, N.W.T.
June 4	1	327	5	411	5	554	2	634	210
June 5	2	323	6	415	6	542	3	497	265
June 6	3	299	7	342	7	554	4	562	253
June 7	4	302	8	186	8	547	5	486	234
June 8	5	327	9	370	9	547	6	462	219
June 9	6	77	10	440	10	557	7	546	294
June 10	7	283	11	394	11	545	8	634	274
Average		277		366		550		546	250
June 11	8	271	12	295	12	578	9	664	316
June 12	9	277	13	374	13	562	10	622	213
June 13	10	279	14	443	14	554	11	689	319
June 14	11	316	15	378	15	587	12	675	357
June 15	12	319	16	196	16	595	13	665	277
June 16	13	302	17	207	17	564	14	643	327
June 17	14	316	18	274	18	586	15	583	315
Average		297		310		575		649	303
June 18	15	335	19	459	19	582	16	650	365
June 19	16	301	20	468	20	619	17	670	388
June 20	17	331	21	181	21	511	18	677	356
June 21	18	332	22	477	22	590	19	666	383
June 22	19	302	23	493	23	586	20	681	431
June 23	20	367	24	476	24	438	21	682	403
June 24	21	349	25	500	25	591	22	706	459
Average		331		436		559		676	398
June 25	22	332	26	505	26	612	23	530	448
June 26	23	359	27	508	27	580	24	683	470
June 27	24	369	28	506	28	602	25	629	390
June 28	25	373	Mar.1	468	29	608	26	484	434
June 29	26	362	2	483	30	496	27	713	453
June 30	27	376	3	---	31	563	28	721	485
July 1	28	383	4	543	Apr.1	633	29	719	465
Average	Avg.	365		502		585		640	449
	29	300					30	565	526
	30	390					May 1	561	517
	31	395					2	519	559
	Feb.1	392					3	566	566
	2	332					4	710	594
	3	395					5	734	584
	4	412					6	640	612
		374						614	565

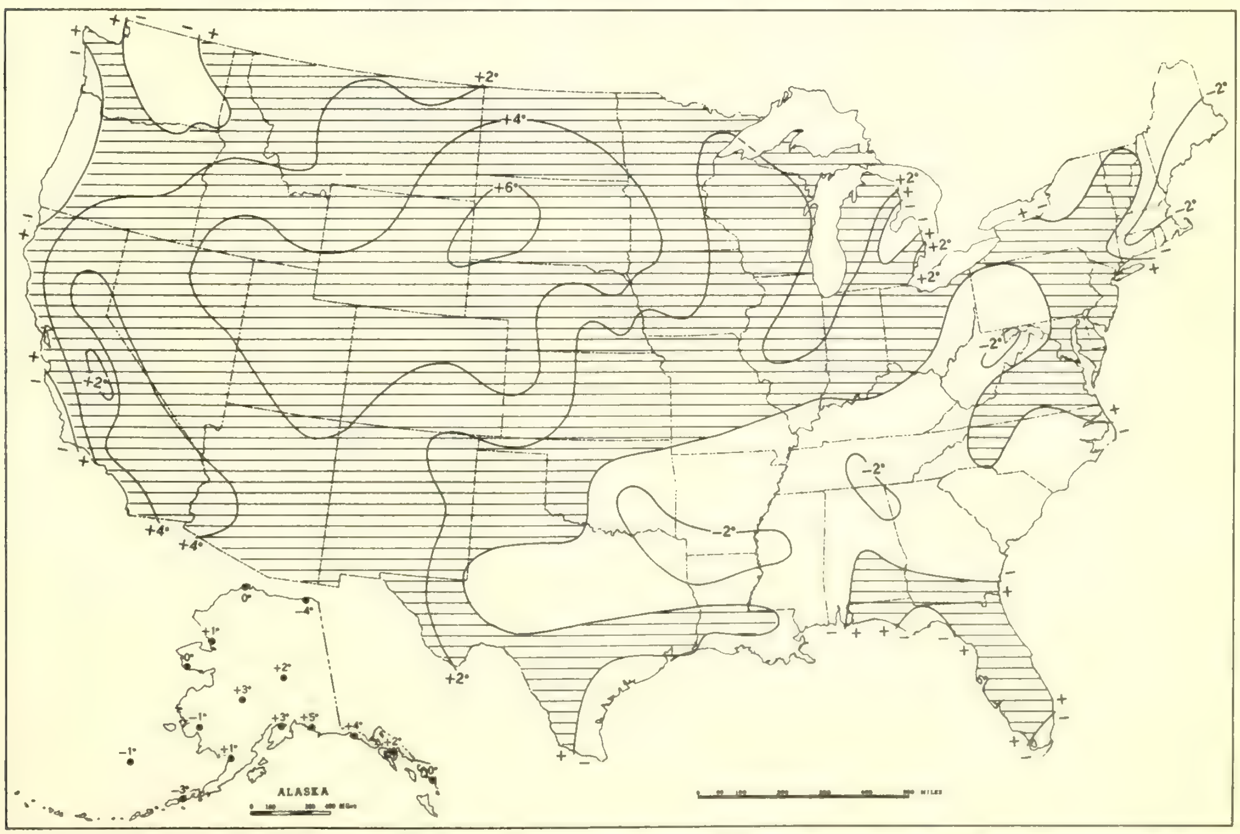
1958	May	Aklavik, N.W.T.	Boston, Mass.	Dartmouth, N. S.	Edmonton, Alberta	Matanuska, Alaska	Moosonee, Ontario	Nanaimo, B. C.	Normandin, Quebec	Ottawa, Ontario	Phoenix, Ariz.	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba	June	Phoenix, Ariz.
June 4	7	536	442	566	552	386	365	586	381	603	719	640	649	514	695	4	635
June 5	8	344	571	68	517	435	515	324	695	696	736	638	711	232	646	5	751
June 6	9	566	734	716	335	335	440	633	472	671	549	---	687	509	638	6	745
June 7	10	615	641	700	493	499	---	695	594	454	740	456	410	598	152	7	762
June 8	11	605	488	419	422	419	282	720	478	436	714	529	349	583	616	8	783
June 9	12	578	511	392	606	498	496	621	424	459	698	674	438	534	190	9	782
June 10	13	621	276	458	673	---	276	525	528	299	705	686	176	578	227	10	775
Average		552	523	474	514	429	396	586	510	517	695	604	488	507	438		748
June 11	14	375	333	156	664	353	164	148	87	344	731	694	363	79	716	11	756
June 12	15	473	461	266	674	373	633	128	326	270	735	694	190	98	504	12	636
June 13	16	521	633	486	663	554	617	168	504	535	743	683	480	204	600	13	621
June 14	17	300	594	666	612	369	413	154	606	596	714	670	586	143	642	14	652
June 15	18	263	758	714	478	229	558	657	740	565	737	230	660	512	182	15	716
June 16	19	338	463	691	663	432	181	660	293	381	746	326	212	340	306	16	722
June 17	20	204	525	354	629	400	389	679	346	547	732	521	503	567	527	17	731
Average		353	538	476	626	387	422	371	415	462	734	546	428	278	497		691
June 18	21	625	560	668	677	401	79	747	266	210	659	439	341	611	486	18	662
June 19	22	404	597	89	662	383	374	744	466	679	773	700	621	649	342	19	525
June 20	23	553	678	711	558	542	426	756	572	209	772	709	108	658	630	20	657
June 21	24	670	345	276	170	392	628	675	363	432	756	544	698	510	702	21	732
June 22	25	273	755	731	496	653	580	243	586	711	763	312	697	161	726	22	739
June 23	26	270	653	645	525	643	416	192	567	606	749	415	362	567	75	23	729
June 24	27	286	670	689	469	671	308	698	567	437	758	348	557	568	242	24	750
Average		440	608	544	508	527	402	579	484	469	747	495	483	532	458		685
June 25	28	355	505	424	454	614	641	734	723	687	783	445	699	494	188	25	751
June 26	29	344	660	681	491	236	137	784	393	630	776	709	602	560	666	26	750
June 27	30	409	457	150	501	---	662	762	413	659	675	679	709	636	456	27	762
June 28	31	471	737	704	409	716	258	753	621	644	779	640	647	629	---	28	768
June 29	June1	711	683	669	565	482	462	737	204	220	772	708	379	627	---	29	729
June 30	2	651	102	106	583	476	390	338	711	628	691	698	580	220	675	30	667
July 1	3	622	507	76	414	---	545	523	---	630	737	478	693	638	539	July1	673
Average		509	522	401	488	505	442	661	511	585	745	622	616	543	505		729

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. A. Average Temperature (°F.) at Surface, June 1959.

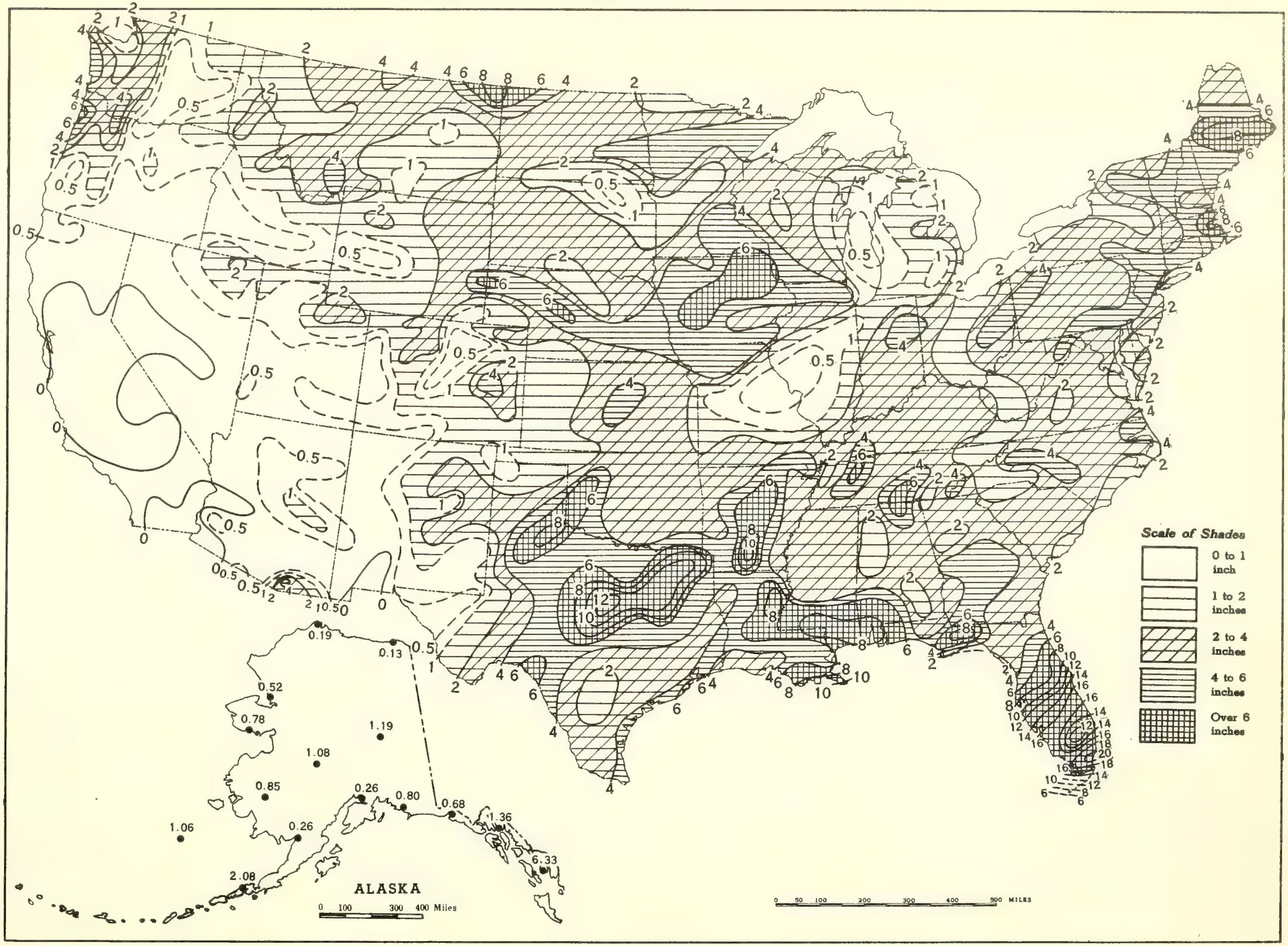


B. Departure of Average Temperature from Normal (°F.), June 1959.



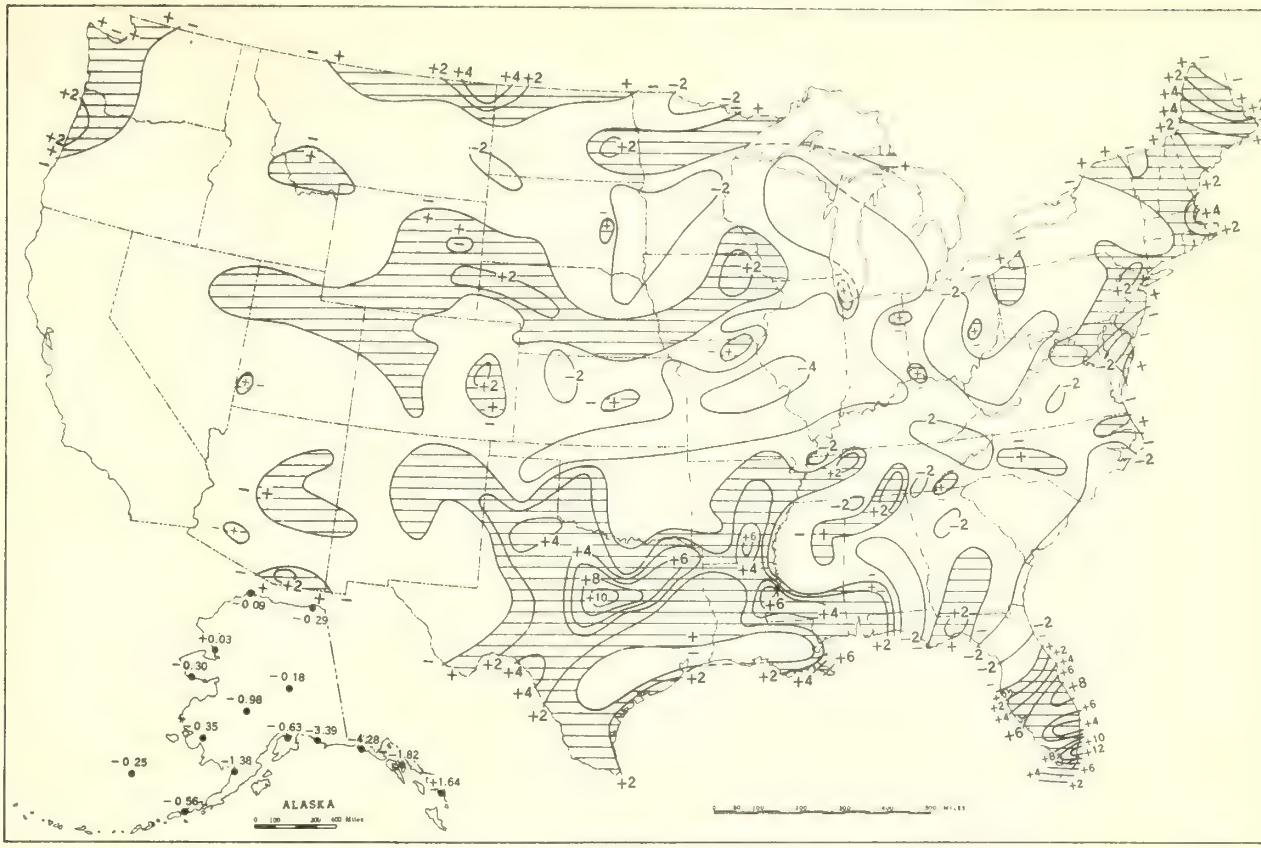
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), June 1959.

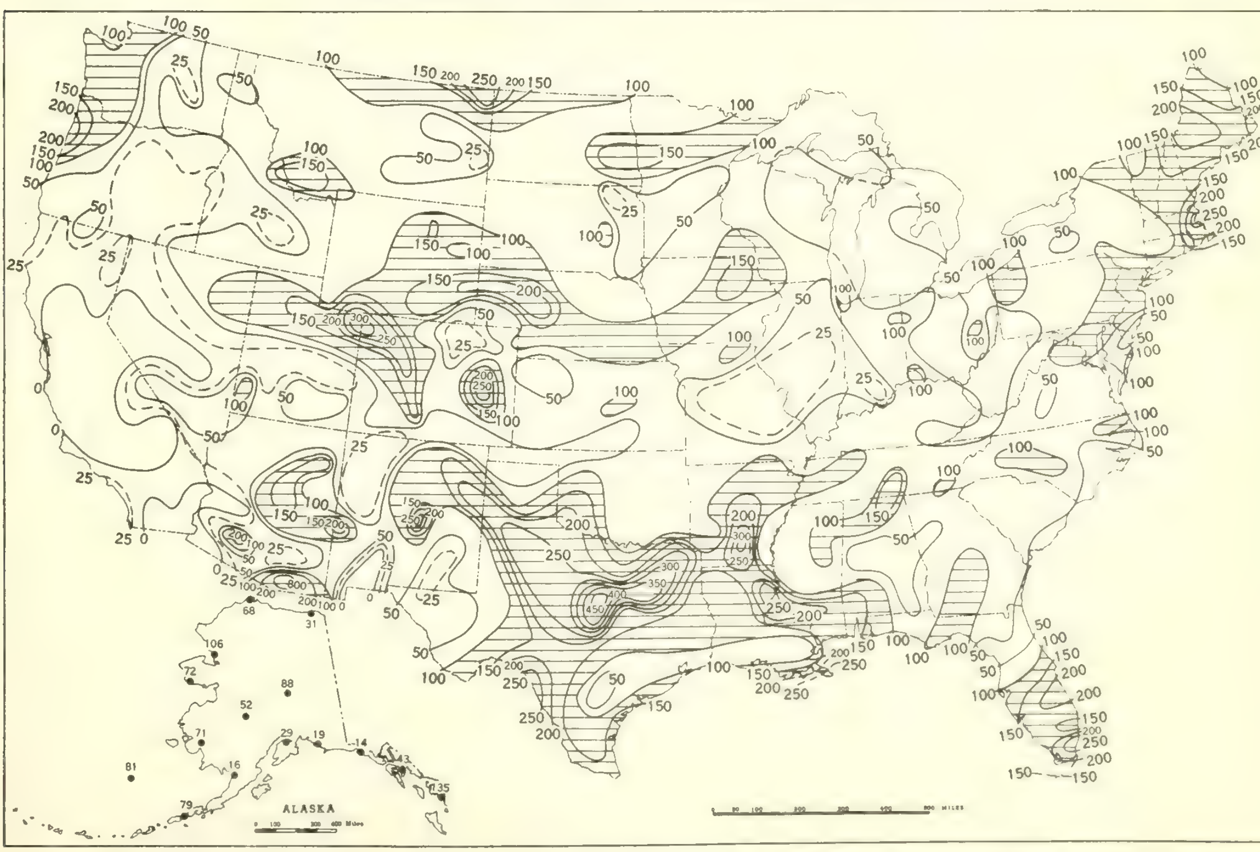


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), June 1959.

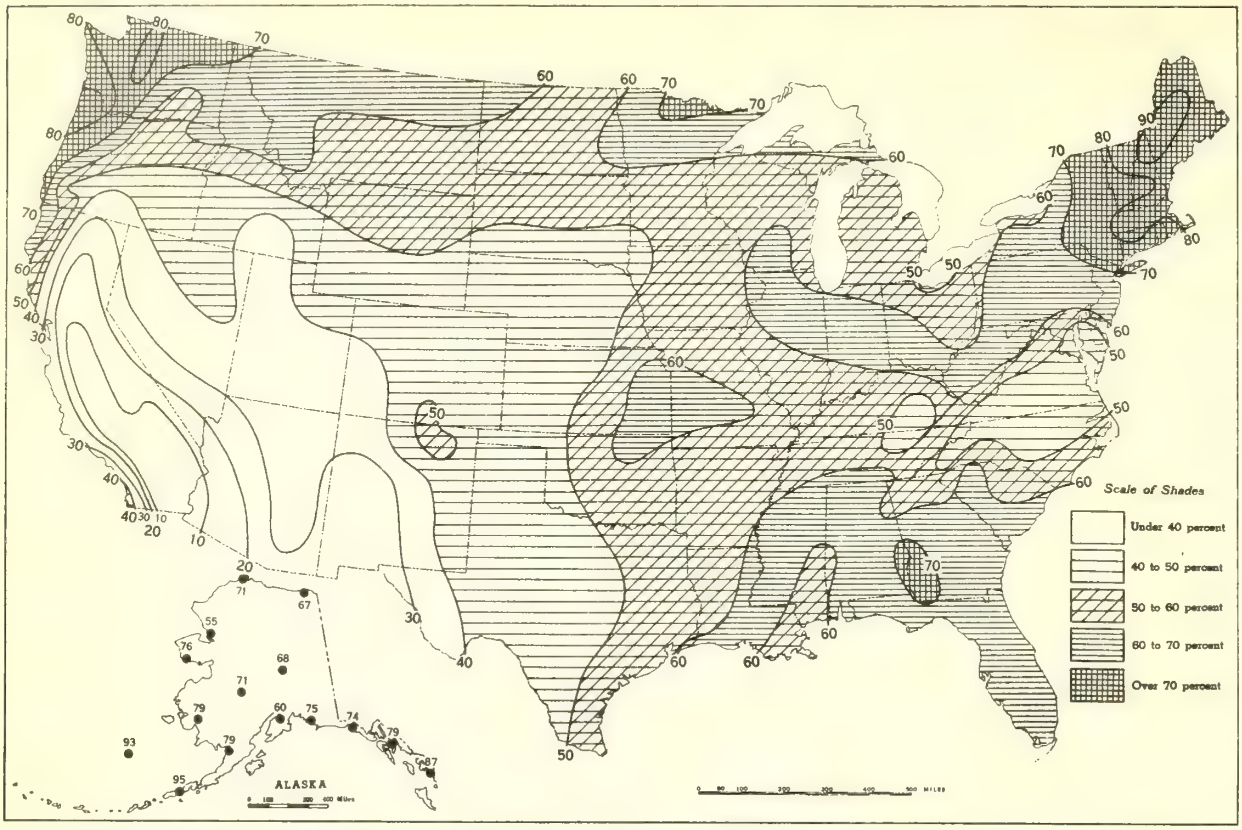


B. Percentage of Normal Precipitation, June 1959.

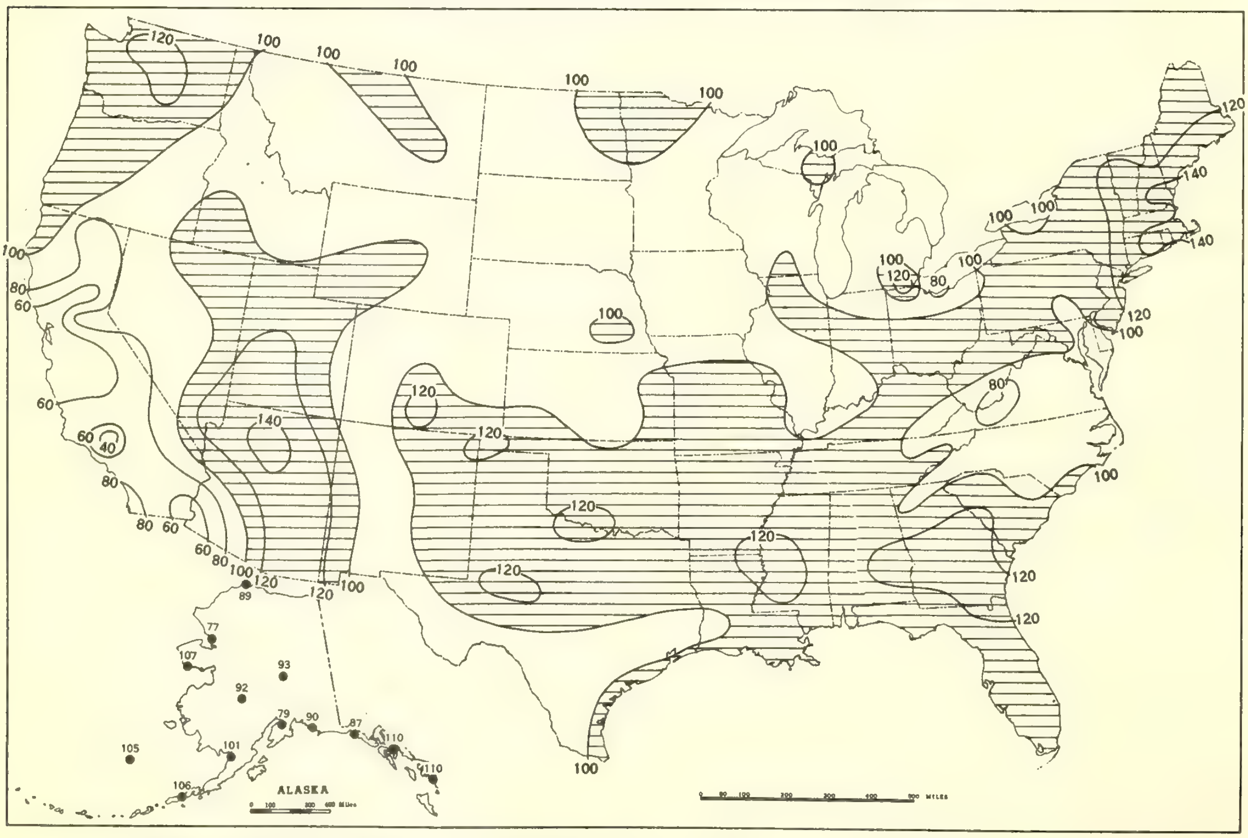


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, June 1959.

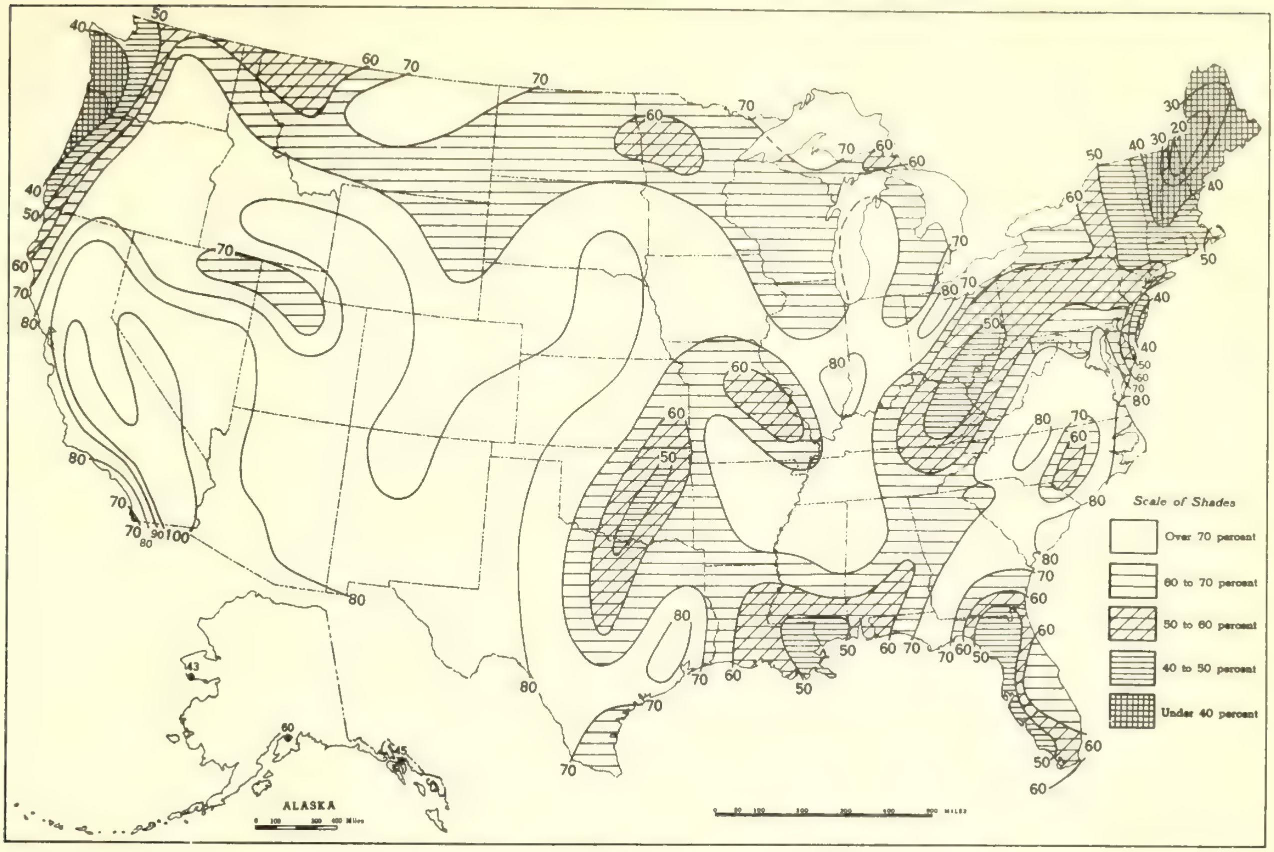


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, June 1959.

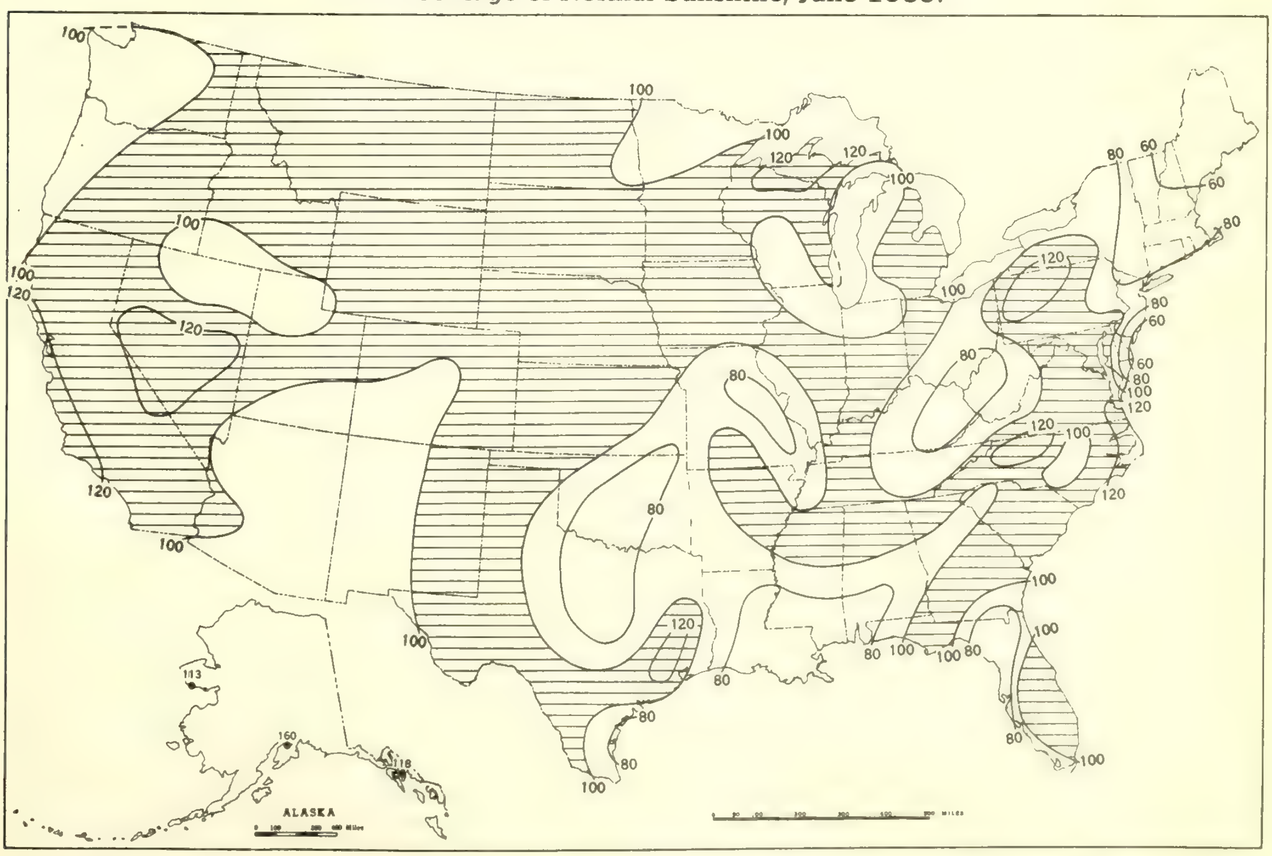


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, June 1959.

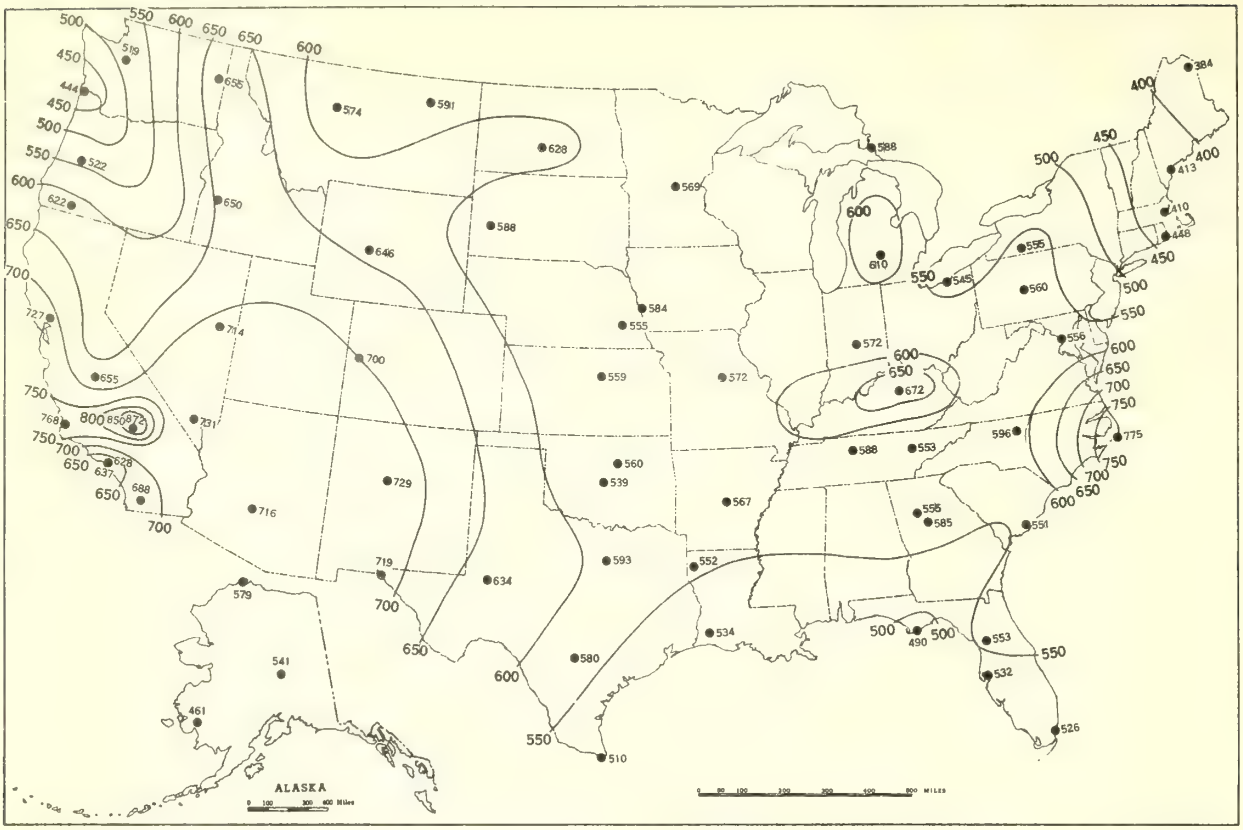


B. Percentage of Normal Sunshine, June 1959.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, June 1959.

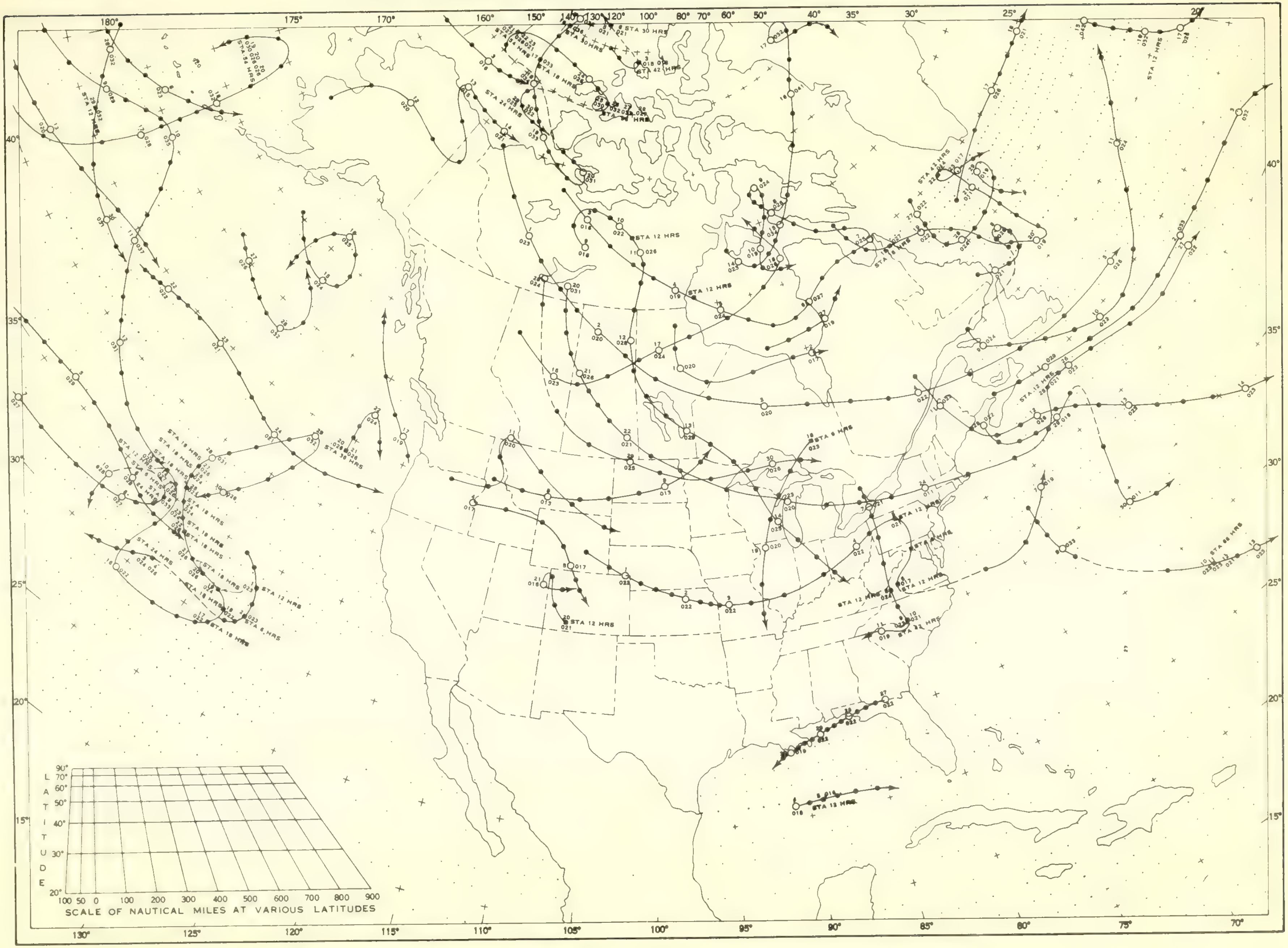


B. Percentage of Mean Daily Solar Radiation, June 1959.

A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. $^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

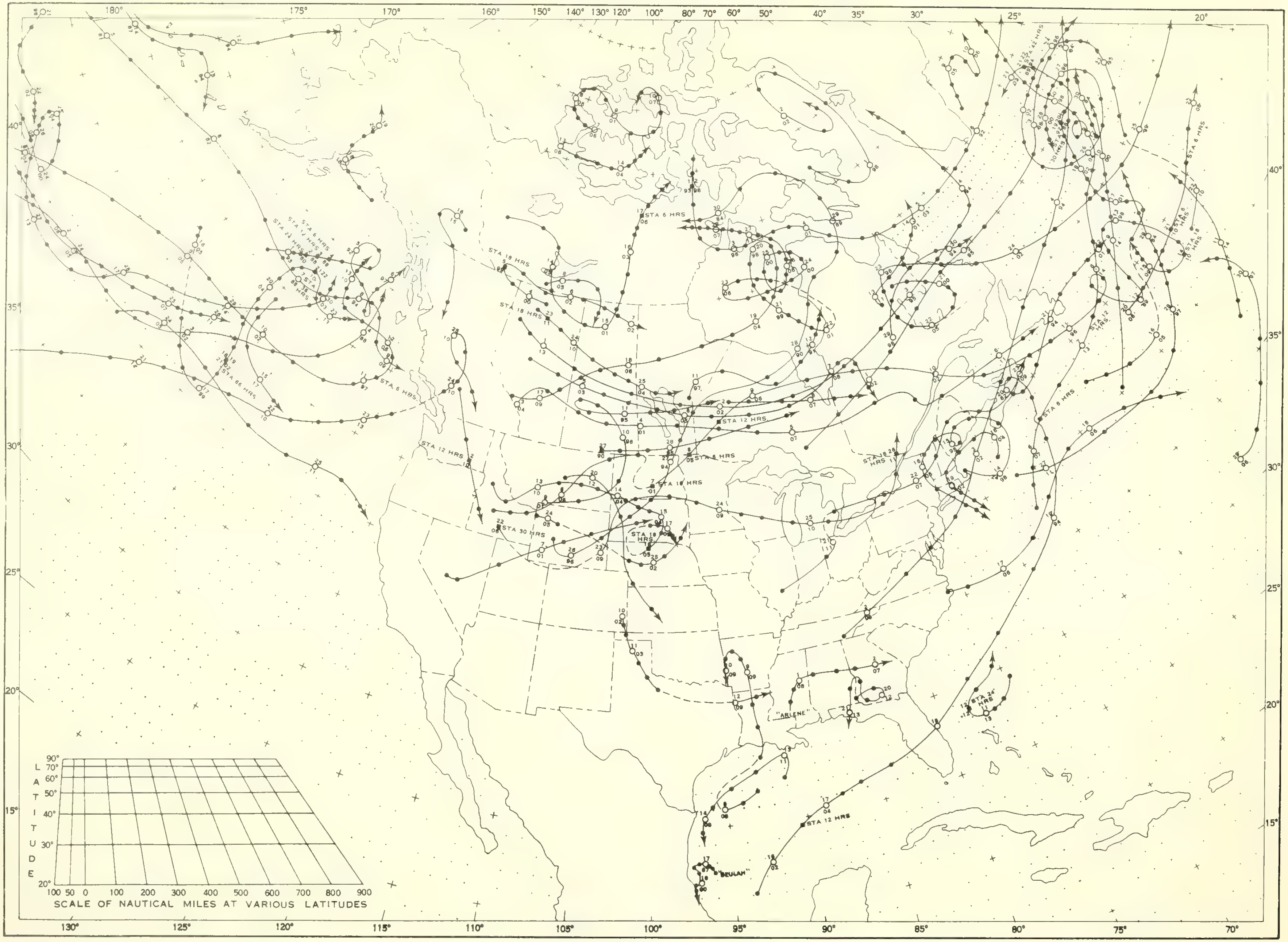
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, June 1959.



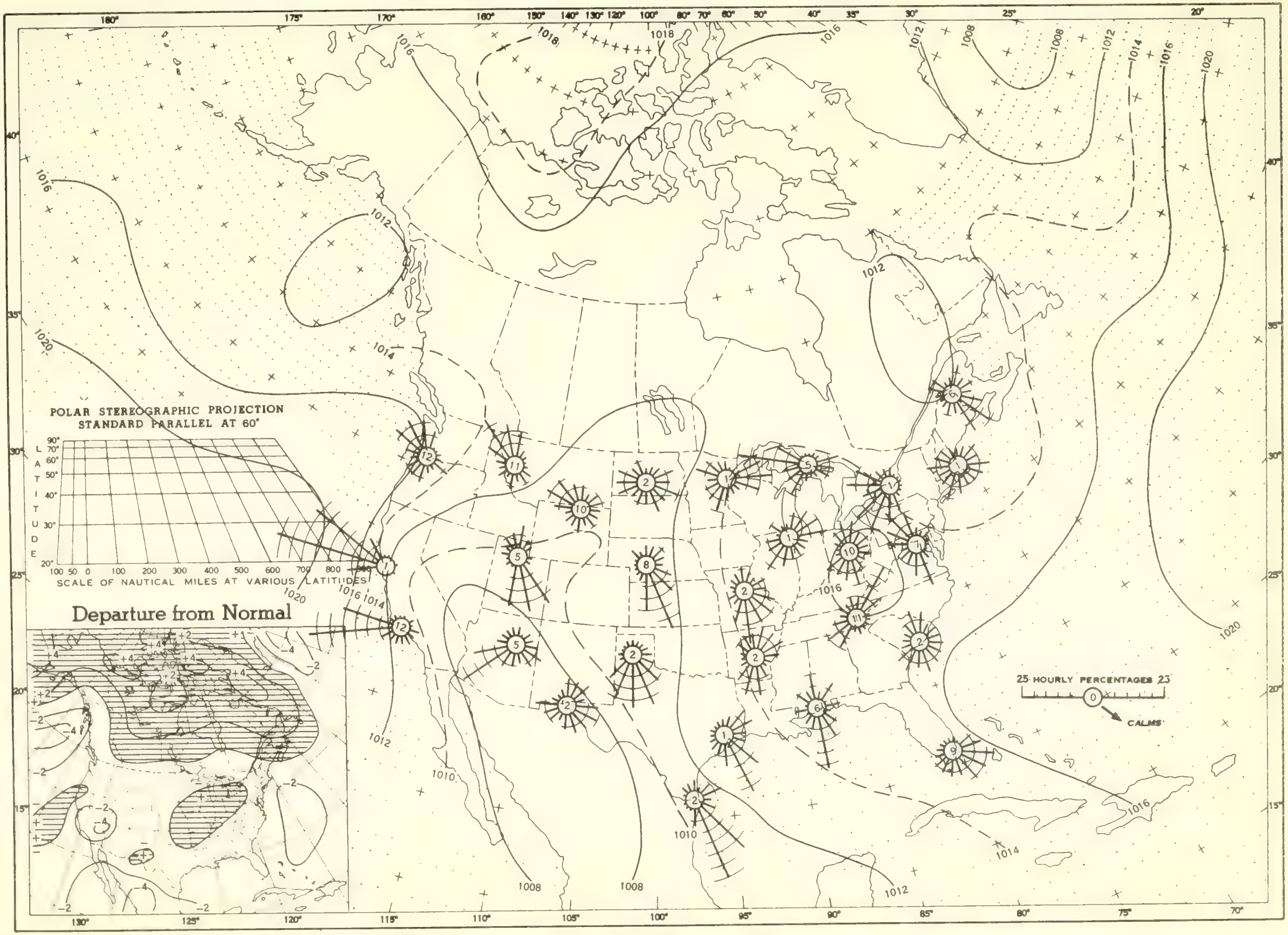
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart X. Tracks of Centers of Cyclones at Sea Level, June 1959.



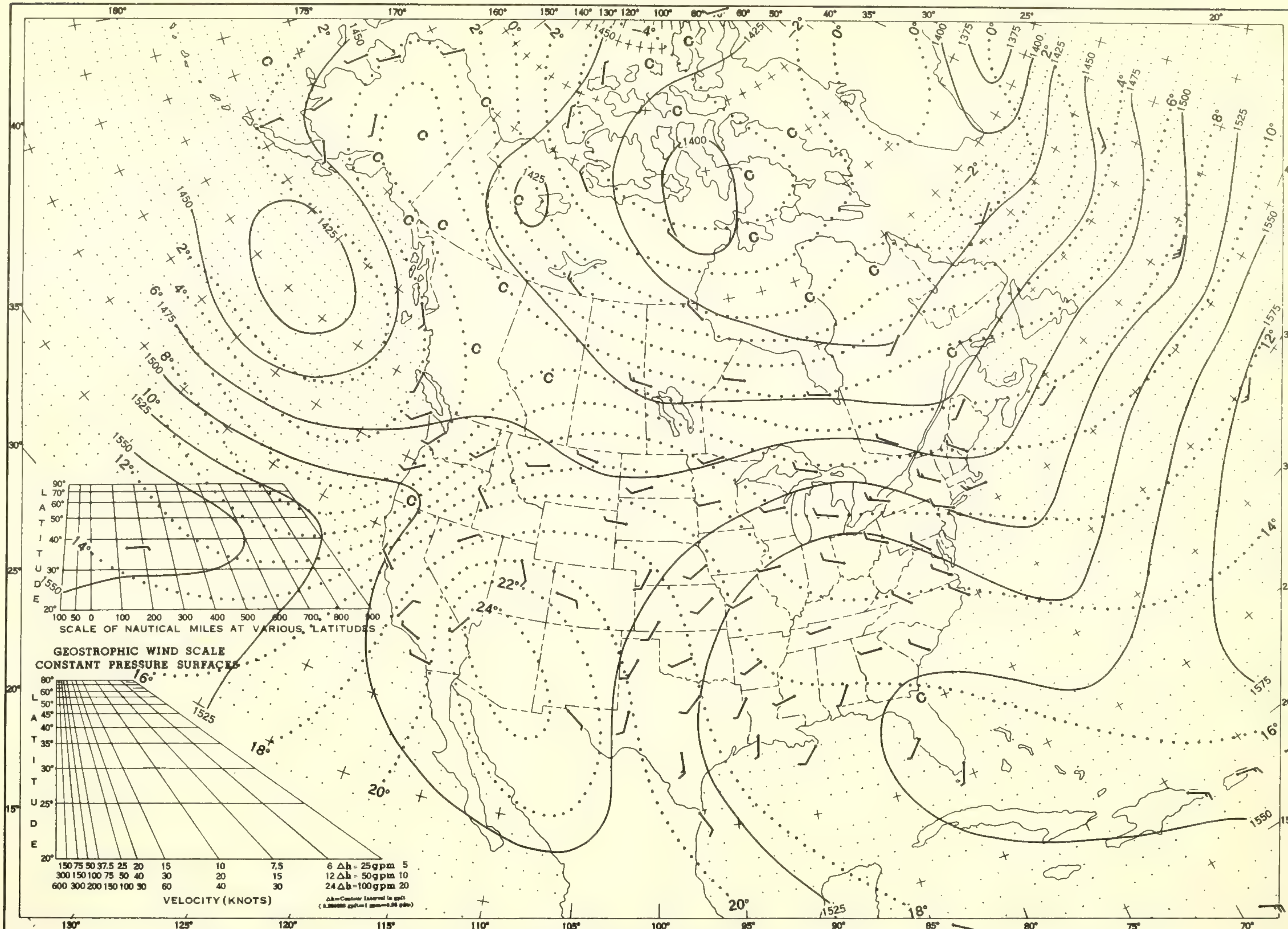
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, June 1959. Inset: Departure of Average Pressure (mb.) from Normal, June 1959.



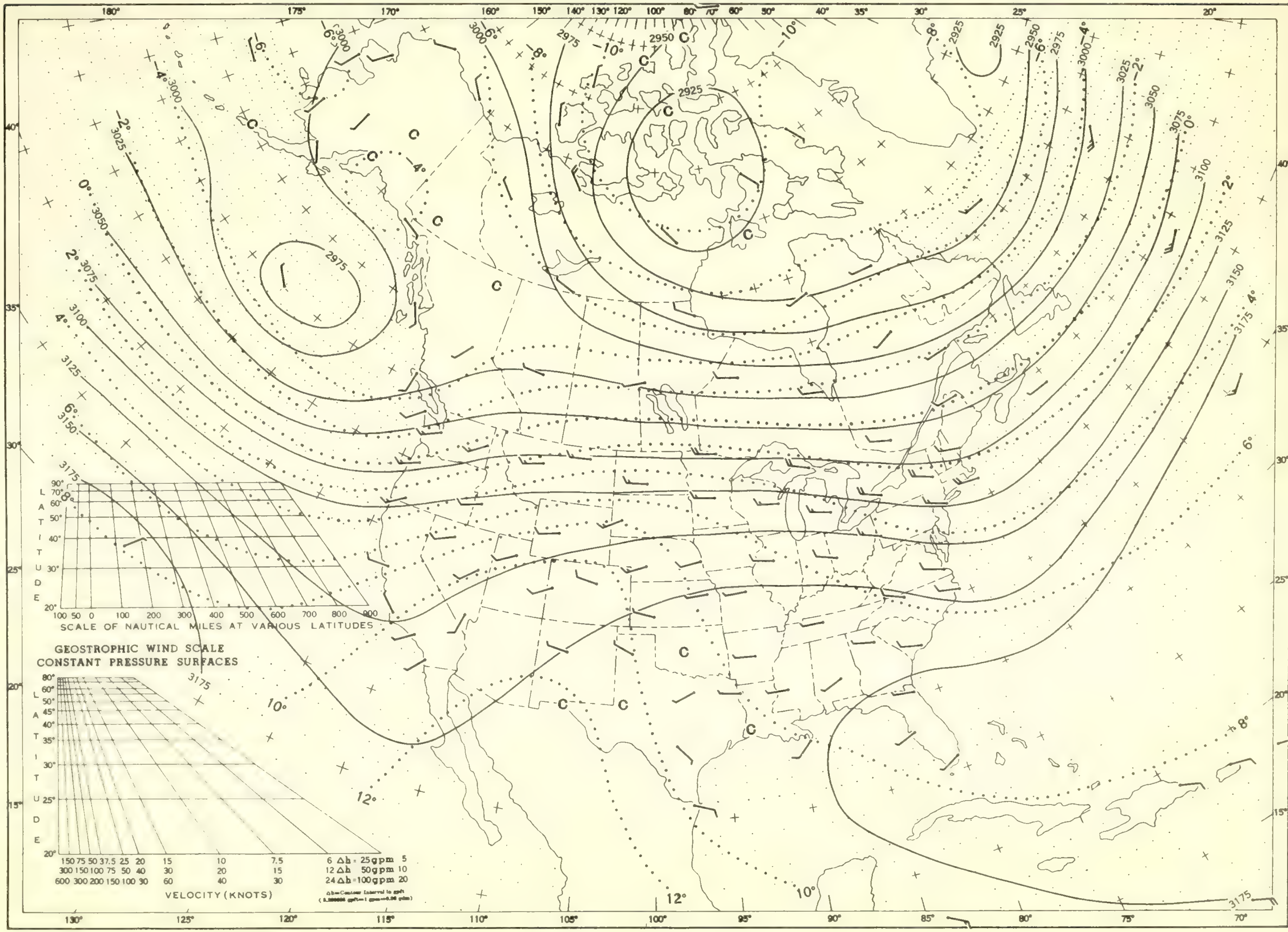
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, June 1959. Average Height and Temperature, and Resultant Winds.



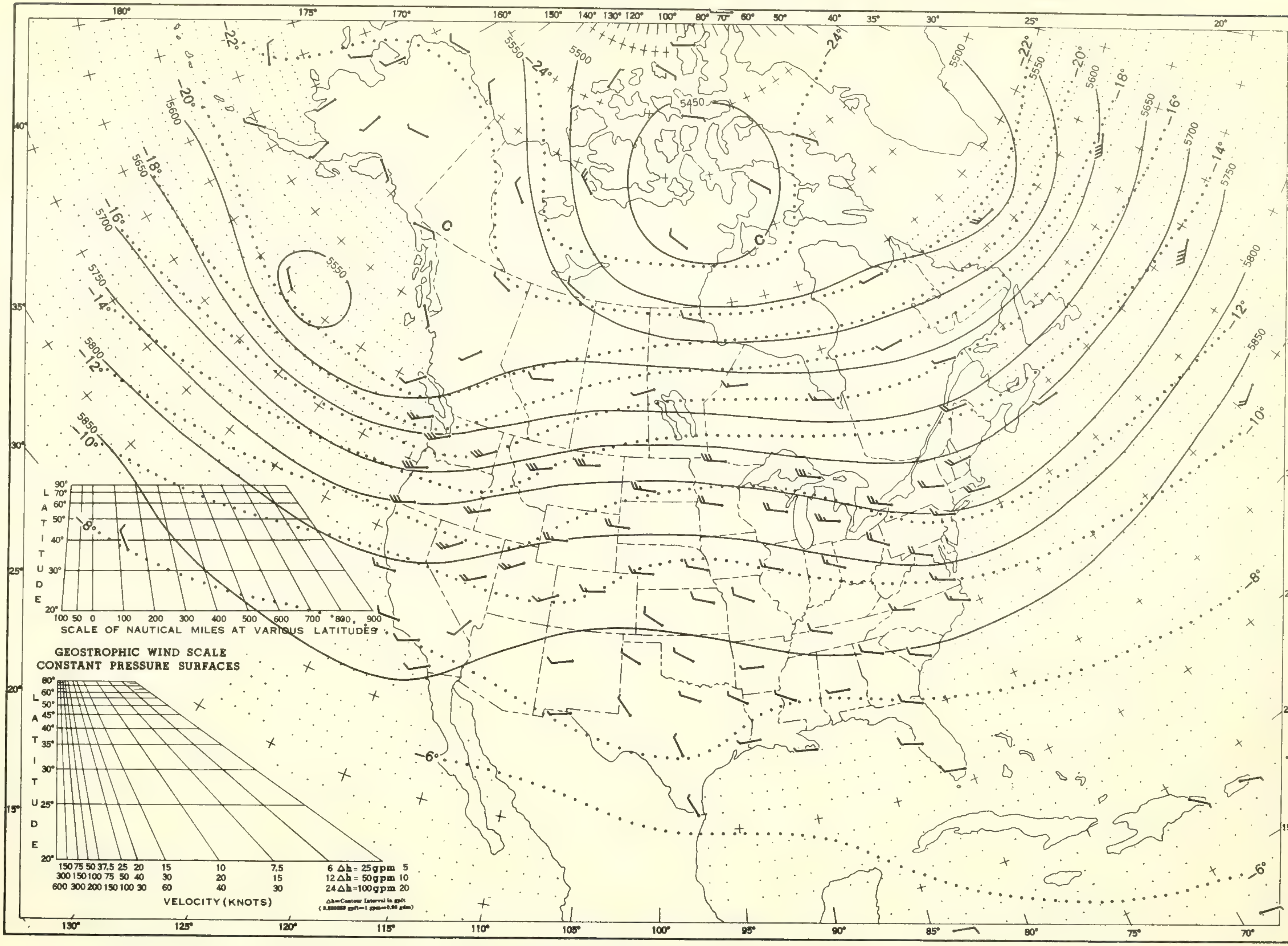
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, June 1959. Average Height and Temperature, and Resultant Winds.



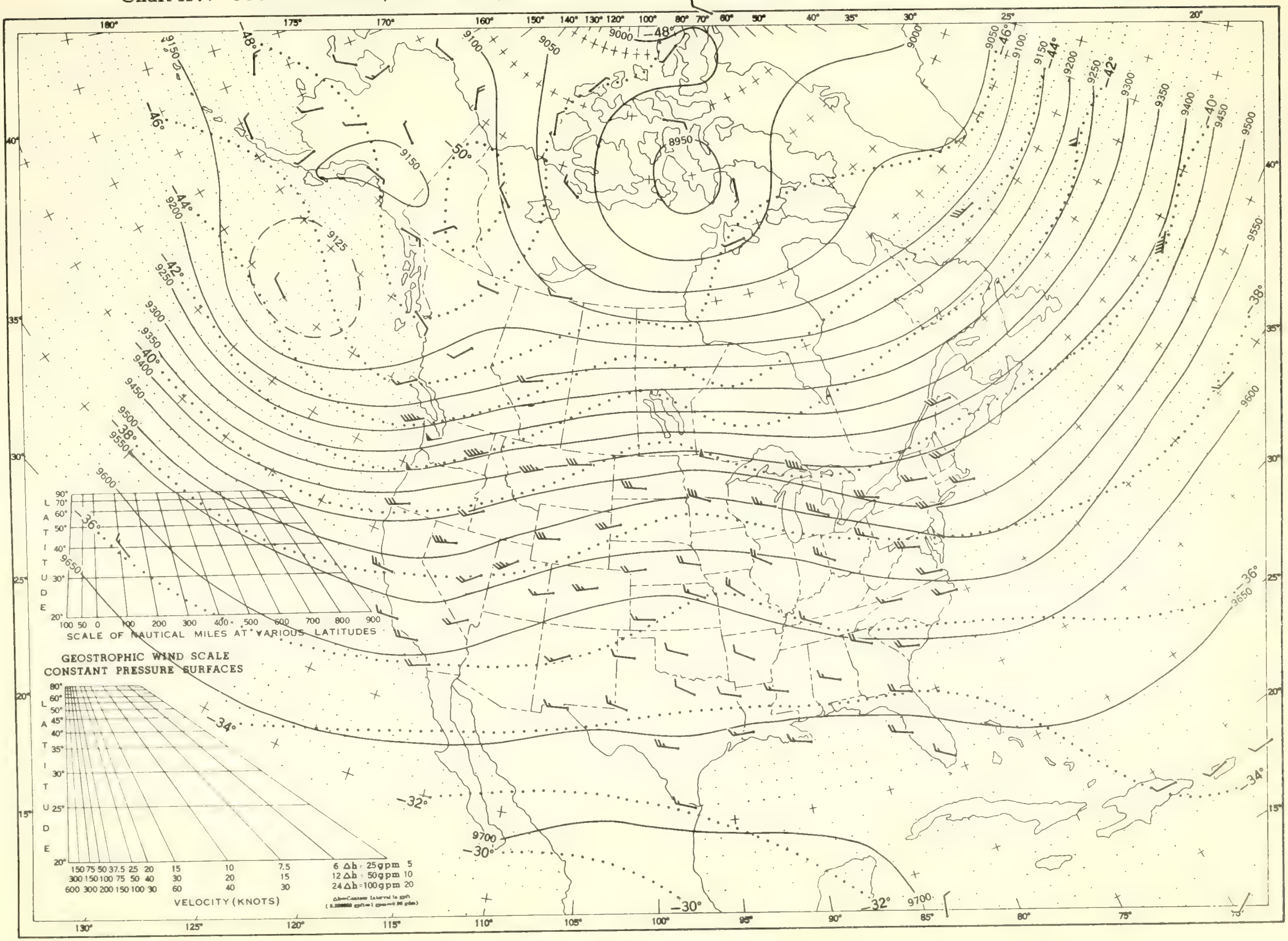
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, June 1959. Average Height and Temperature, and Resultant Winds.



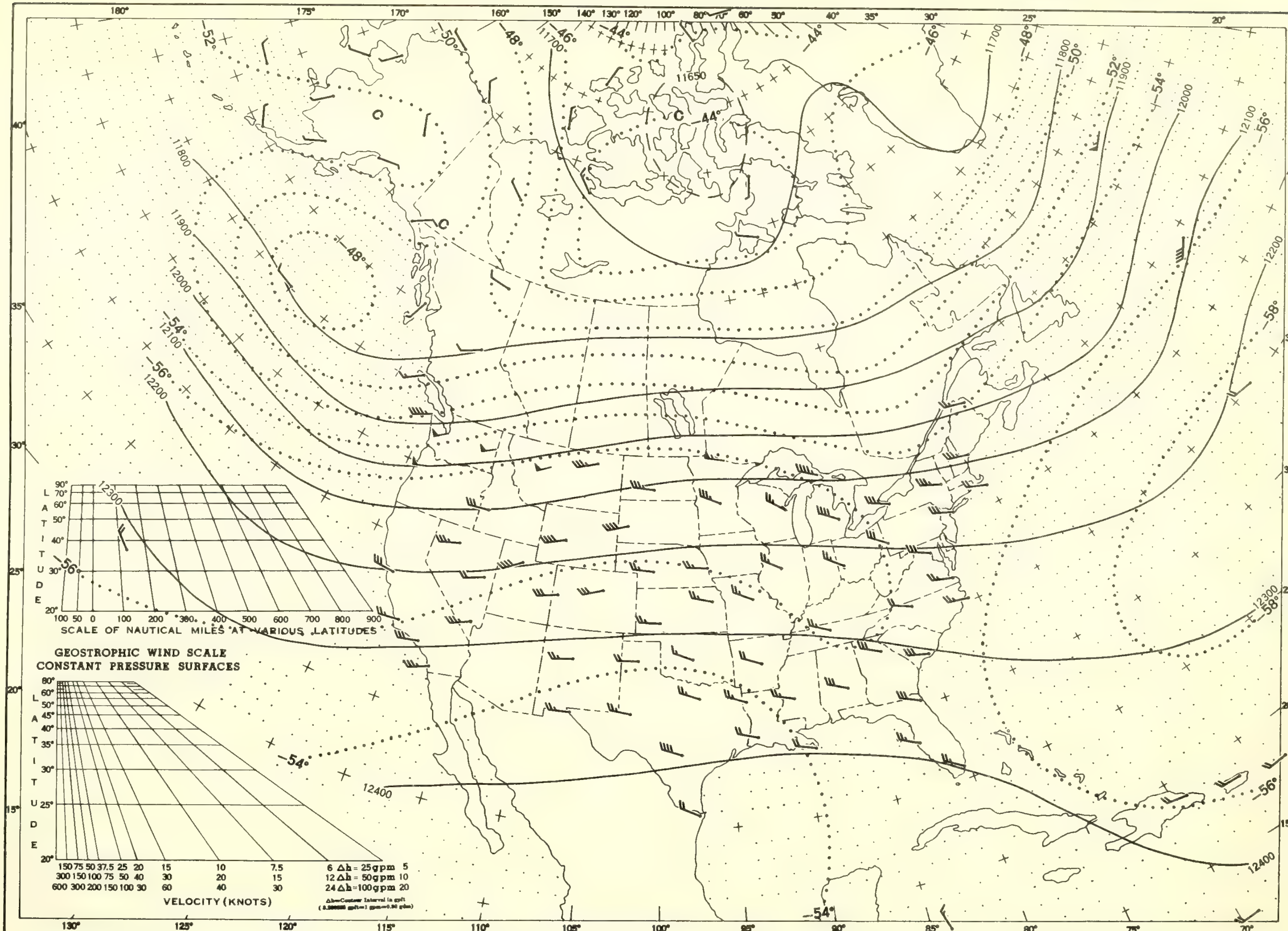
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, June 1959. Average Height and Temperature, and Resultant Winds.



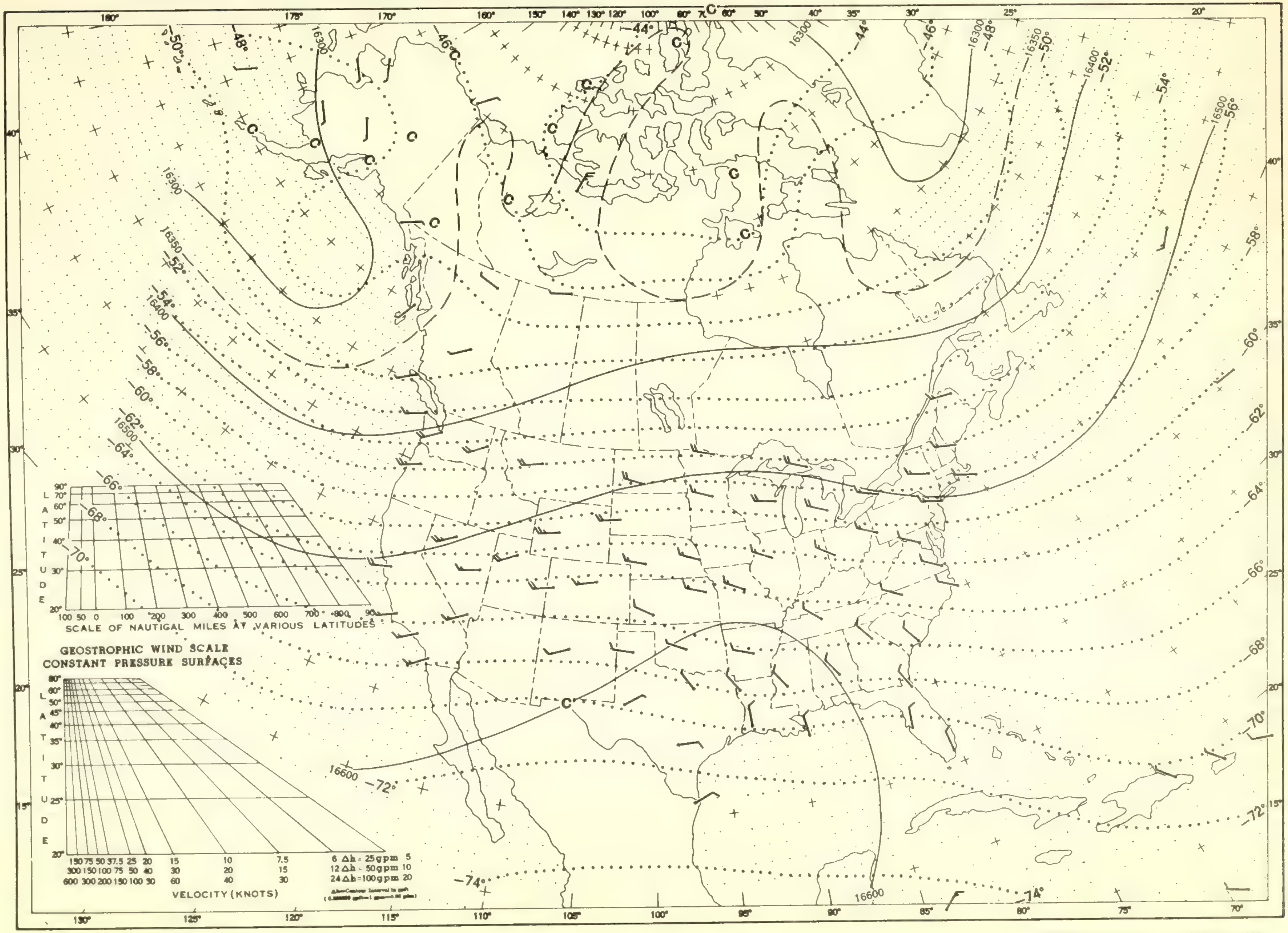
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, June 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, June 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 9/4/59 - 2225

U. S. DEPARTMENT OF COMMERCE
FREDERICK H. MUELLER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

JULY 1959
Volume 10 No. 7

ASHEVILLE: 1959

CONTENTS

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 7 JULY 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

Extreme heat, accompanied by little or no rain, continued to dominate the Far West and the northern Great Plains. Hot, humid air predominated in the northeastern portion of the country, while frequent cloudiness and heavy rains held temperatures below normal throughout the central portion of the Nation and along the Gulf and the south Atlantic coasts. Especially heavy rains accompanied the passage of hurricane Cindy along the East Coast and hurricane Debra through eastern Texas into Oklahoma. Little severe storm damage took place in July.

TEMPERATURE.--Temperatures averaged slightly above normal from southern Georgia and Alabama northward over the Appalachian Mountains, the eastern Ohio and Tennessee Valleys, the middle Atlantic coast, and into the eastern and northern Great Lakes region, with the exception of northeastern Ohio where the temperatures were slightly below normal. High humidities also accompanied the above-normal temperatures in these areas. It was 90° or above 7 days at Syracuse, N. Y., whereas the normal number of such days for the entire year there is only 8. At Erie, Pa., a maximum of 91° on the 1st was the highest temperature there since June 1957. It was 90° or above on 23 days at Louisville, Ky., almost double the mean number for July. New England temperatures averaged from around 2° above normal in southern portions to over 6° above normal in northern Maine. An average temperature of 69.5° at Caribou, Maine, was the second warmest monthly mean of record there.

Abundant cloudiness combined with heavy precipitation over the south Atlantic coast to give below normal temperatures. The average temperature was over 4° below normal at Charleston, S. C. Lynchburg, Va., reported only 43 percent of possible sunshine, a new alltime low for July. At Winston-Salem, N. C., a mean sky cover of 76 percent was the greatest for any July of record. There were only 4 days of 90° or above at Charleston, S. C., a record low for July.

Temperatures also averaged from below to well below normal over the central and southern Great Plains (except extreme southern Texas), the middle and lower Mississippi Valley, the southwestern Great Lakes region, the western Ohio and Tennessee Valleys, and the Gulf coast. Again, widespread cloudiness and precipitation were largely responsible for the below-normal temperatures, although two outbreaks of cool air from Canada the first week produced weekly temperature departures of 9° to 12° below normal in Iowa and eastern Nebraska. Lincoln, Nebr., reported that this was the first July on record to be both cooler and drier than normal. Usually a cool July is also wet and a warm July is usually accompanied by dry weather. An average temperature of 74.4° gave Topeka, Kans., its second coolest July in the past 45 years. To exemplify the persistence of cool temperatures, the daily average temperature was below normal 28 days at St. Joseph, Mo.

The passage of hurricane Debra through eastern Texas and Oklahoma, with the accompanying clouds and heavy precipitation, caused temperature departures up to 6° below normal the third week. The highest July maximum temperature was only 97° at Austin, Tex., the lowest July maximum since 1941. The average temperature of 78.1° at Midland, Tex., tied July 1945 for the coolest July of record.

Above-normal temperatures prevailed over the northern Great Plains, the Rocky Mountains, and the central Plateau with the exception of northern Idaho and western and northern Montana. The below-normal temperatures in Montana and Idaho were largely due to the influx of a cold air mass the last week which produced temperatures as low as 33° at Kalispell, Mont., and 30° at Drummond, Mont., on the 29th. Scattered frost occurred and damaged some garden produce. The 33° at Kalispell was the lowest July temperature of record there. Before the arrival of the cold air mass, Kalispell was quite hot, for the maximum temperature of 97° there on the 23d has not been exceeded since July 12, 1941.

Temperatures averaged well above normal along the West Coast and throughout the southern Plateau, thereby establishing many new records. New high average temperatures for any month were established at Yuma, Ariz., with 96.7° and Los Angeles, Calif., with 75.1°. In addition, new high average temperatures for July were established at San Diego, Calif., with 73.7°; Blue Canyon, Calif., with 72.8°; and Winslow, Ariz., with 80.9°.

Extremely high temperatures extended as far north as southern Oregon and southern Idaho and remained high there most of the month, thereby setting some records for persistence. Vale, Oreg., and Lewiston, Idaho, recorded 109° on the 23d, an alltime record high at Lewiston. On the same day the thermometer climbed to 102° at Spokane, Wash., the highest temperature at Spokane since July 1941. A new July record of 18 consecutive days of 90° or above was established at Pocatello, Idaho. At Medford, Oreg., it was 100° or above on 11 days, equaling the record of July 1911.

Coastal California experienced some unusually high temperatures on the 10th. Maxima of 97° at San Francisco and the Los Angeles Airport and 103° in downtown Los Angeles were the highest temperatures in 23 years of records. In the Interior Valley, Red Bluff had maxima of 100° or higher for 24 consecutive days, a new July record. It was 118° at Needles, Calif., on the 23d.

PRECIPITATION.--Much-above-normal precipitation in the East Coast States was confined to a band stretching northeastward from central South Carolina through central North Carolina, southeastern Virginia, and the Delaware and New Jersey coasts to eastern Massachusetts. This band coincides rather well with the path traced by hurricane Cindy from the 7th to the 11th. More than 200 percent of the normal precipitation fell in central South Carolina, southeastern Virginia, southern New Jersey, and eastern Massachusetts.

New high July rainfall totals were reported at Columbia, S. C., with 13.87 inches; and Winston-Salem, N. C., with 10.86 inches. The second wettest July of record occurred at Florence, S. C.,

with 13.68 inches; and Richmond, Va., with 12.85 inches. Atlantic City, N. J., had an astounding 15.69 inches of rain, thereby breaking the old record of 14.87 inches set in August 1882. Heavy rains in eastern Massachusetts made the total precipitation at Boston, Mass., for June and July 16.75 inches, the wettest such June-July period of record.

Elsewhere in the East Coast States rainfall was near normal, except for a band along the New York-New England border, the only sizeable area where precipitation was less than 50 percent of normal. In that zone, Schenectady, N. Y., reported only 0.42 inch of precipitation, a record low for any month.

Rainfall was much above normal over the middle and lower Mississippi Valley and the southern Great Plains, with the exception of southeastern Texas. General showers and thunderstorms combined with the general rains associated with hurricane Debra to give the unusually high rainfall amounts recorded in many places. Hurricane Debra, as it passed northward across east Texas and northwestward through central Oklahoma on the 24th through the 26th, deposited 14.42 inches of rain at Orange, Tex., and up to 8 inches in Oklahoma.

Record July rainfalls of 8.44 inches at Oklahoma City, Okla.; 8.84 inches at Memphis, Tenn.; 15.29 inches at Meridian, Miss.; and 17.94 inches at Lake Charles, La., were reported. Lake Charles had a total of 48.97 inches of rain for the period January-July 1959, already 13.88 inches above the yearly normal.

Precipitation generally averaged near normal in the Great Lakes region and the upper Mississippi Valley, but a belt from eastern Nebraska, through Iowa, southeastern Minnesota, and northern Missouri, and into western Illinois was extremely dry. By midmonth the St. Louis, Mo., area was suffering a severe drought, with the total rainfall of May through July being the least for that period in 45 years. Locally heavy showers and thundershowers occurred over the upper Mississippi Valley, where Wadena, Minn., received 7.20 inches of rain on the 7th.

From the northern Great Plains across the northern and central Rocky Mountain States to California, southern Oregon, and eastern Washington precipitation was well below 50 percent of normal. Only a few scattered light showers fell over this entire region, as numerous minimum precipitation records were set. Only 0.17 inch of rain fell at Williston, N. Dak.; 0.04 inch at Great Falls, Mont.; 0.11 inch at Helena, Mont.; and 0.08 inch at Sheridan, Wyo., - all record low precipitation amounts for July.

Drought conditions predominated over the northern Great Plains and most of the Far West. Forests and ranges were seriously dry at the end of the month, with much timberland already burned over in the Sierra and Trinity Mountains of California. Two forest fires were still raging at the end of the month within 25 miles of Mount Shasta, Calif., and one of the fires had already burned over 10,000 acres. At Medford, Oreg., a number of high-producing water wells were failing, thereby threatening a further shortage of irrigation water.

Showers along coastal Washington and Oregon kept rainfall close to normal there. Showers and scattered thundershowers occurred in New Mexico and Arizona, particularly in southeastern Arizona where the precipitation was over 200 percent of normal and in southeastern New Mexico where it was over 150 percent of normal. Tucson and Douglas, Ariz., received more rain in the first week of July than in the preceding 6 months. Frequent thundershowers brought the heaviest rains since September 1958 to Roswell, N. Mex.

DESTRUCTIVE STORMS AND UNUSUAL PHENOMENA.--During July two hurricanes struck the Nation, but caused relatively little damage. Cindy hit the South Carolina coast near Bull Bay on the 8th, but as the storm moved inland the winds decreased rapidly. Property losses due to high winds and tides were relatively minor. Hurricane Debra passed inland between Freeport and Galveston, Tex., on the 24th, with peak gusts to 105 m.p.h., near Freeport. No deaths or injuries were reported, but considerable property damage was incurred.

A number of locally severe thunderstorms, some accompanied by hail, occurred in widely scattered sections of the country. Golf ball-size hail fell on the 5th about 20 miles east of Green Bay, Wis., stripping vegetation over a mile-wide path. On the 2d, local flash flooding occurred in the Jackson, Miss., area as over 6 inches of rain was measured unofficially.

A tornado occurred on the 22d at Edisto Beach, S. C. West Palm Beach, Fla., reported an unusually large number of waterspouts, with 6 occurring on the 18th, 3 on the 7th, and 1 on the 14th. Charleston, S. C., had a waterspout on the 11th.

On the 9th, as hurricane Cindy passed to the north, Charleston, S. C., recorded a sea-level pressure of 29.69 inches, its lowest pressure since 1917.

The incidence of fog was unusually high on the New England coast. Heavy fog occurred on 24 days at Block Island, R. I., the greatest fog frequency on record there.

CONDENSED CLIMATOLOGICAL SUMMARY

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	Geneva	102	1	New Market 2	54	8	Atmore State Farm	12.41	2 Stations	0.06
Arizona	Davis Dam	119	27	Fort Valley	36	1	Maverick	7.65	Harquahala Plains	.00
Arkansas	2 Stations	100	31+	2 Stations	49	3	White Rock	11.44	Gilbert	1.78
California	Cow Creek	125	17	White Mountain 2	23	1	Ranchita	2.87	382 Stations	.00
Colorado	Gateway 1SW	106	12	Grand Lake 1WNW	21	2	Allenspark	4.06	Lime 3SE	.00
Connecticut	Salisbury	95	29	Mansfield Hollow Dam	41	4	Coventry	6.74	Bridgeport WB Airport	2.67
Delaware	Newark University Farm	96	1	Georgetown 5SW	50	9+	Milford	13.03	Wilmington Porter Res	4.47
Florida	Blountstown 2SE	102	1	2 Stations	63	26+	Cross City FAA AP	15.33	Melbourne	1.90
Georgia	4 Stations	102	2+	Blairsville Exp Sta.	51	9	Surrency	14.18	Taylorsville	1.00
Idaho	3 Stations	111	23	Obsidian 3SSE	18	8	Conda	.98	12 Stations	.00
Illinois	McLeansboro	101	30	Jerseyville	46	2	Freeport Sewage Plant	8.98	Danville Sewage Plant	.38
Indiana	Henryville State Forest	100	1	2 Stations	41	7	La Porte	10.67	Bowling Green	1.19
Iowa	2 Stations	100	29+	Primghar	43	1	Montezuma	7.23	Pringhar	.07
Kansas	Syracuse	110	7	3 Stations	43	9+	Elgin	22.35	Wilson 8NW	.52
Kentucky	Fords Ferry Dam 50	99	9	Benton 2	49	3	Bonnieville	9.07	2 Stations	1.51
Louisiana	Camp Polk	100	31	Chatham	60	12	New Orleans Audubon	20.30	do	2.08
Maine	Millinocket FAA AP	97	28	Squa Pan Dam	33	1	Woodland	5.24	Long Falls Dam	.29
Maryland	Beltsville Pl Sta. 6	102	1	2 Stations	42	8+	Snow Hill	13.31	Unionville	1.88
Massachusetts	Lake Cochituate	99	30	Tully Dam	41	3	Quabbin Intake	9.08	Hoosac Tunnel	2.60
Michigan	Huron Mountain	96	29	Vanderbilt Trout Sta.	34	7	Dowagiac	9.57	Mt. Clemens AF Base	.79
Minnesota	2 Stations	100	27	Moose Lake 1 SE	37	12	Park Rapids	7.97	Worthington	.51
Mississippi	Cleveland	99	31	Holly Springs 2N	53	3	Saucier Exp Forest	18.37	Booneville	1.89
Missouri	3 Stations	99	30+	Berryman 6NW	44	13+	Hermitage	9.04	Weldon Springs Exp Farm	.99
Montana	do	109	24	Dell 12SSW	21	29	Knobs	2.37	11 Stations	.00
Nebraska	Enders Dam	105	8	4 Stations	38	9+	Barneston	6.74	Lyman	.00
Nevada	North Las Vegas Doxarm	120	17	Mountain City	20	8	Searchlight	1.86	5 Stations	.00
New Hampshire	2 Stations	97	30	First Conn Lake	34	1	Portsmouth	5.44	Lancaster	.77
New Jersey	Millville	99	1	4 Stations	44	8	Belleplain	16.64	Canistear Res	2.29
New Mexico	Jornada Exp Range	108	7	Gavilan	29	1	Cloudcroft RS	8.84	Shiprock 1E	.06
New York	Poughkeepsie	98	31+	3 Stations	40	26+	Rifton 1N	9.33	Schuylerville Lock 5	.23
North Carolina	4 Stations	104	1	Transou	47	7	Sloan 3S	17.99	Dix Creek	1.23
North Dakota	2 Stations	108	27	Belcourt Indian Res	36	11	Bisbee	5.85	Bismarck 12ENE	.16
Ohio	Cincinnati Hartwell	98	M30	Millport 2NW	43	7	Bourneville 1SW	10.61	Cincinnati Hartwell	1.55
Oklahoma	Kenton	106	3	3 Stations	50	12+	Stillwater 3NNW	17.68	Kenton	1.54
Oregon	Spray	113	22	Seneca	19	8	Otis 2NE	2.65	19 Stations	.00
Pennsylvania	6 Stations	98	29+	Kane 1NNE	37	8	Palmerton	9.81	Lake Minisink	1.16
Puerto Rico	2 Stations	97	6+	Garzas Dam	53	26	Lares	14.62	Vieques Is Esperanza	1.46
Rhode Island	Greenville	91	28	Kingston	49	4	Greenville	7.68	Providence WB AP	4.01
South Carolina	2 Stations	104	1	Chester 2WSW	53	5	Winthrop College	18.36	Hilton Head	2.82
South Dakota	do	110	27+	Deerfield 5NW	25	9+	Summit	3.86	Kyle	.12
Tennessee	Knoxville U of Tenn.	100	2+	2 Stations	50	3	Hartford	12.25	White Hollow	1.08
Texas	Presidio	108	28+	Mount Locke	52	21+	Port Arthur WB AP	18.71	4 Stations	.00
Utah	2 Stations	111	25+	2 Stations	25	9	Tropic	1.90	do	.00
Vermont	Saint Johnsbury	97	30+	West Burke	39	1	Mays Mill	6.06	Rutland	.45
Virginia	Piedmont Field Station	106	1	Monterey	42	8	Fort Lee	15.62	Brookneal	1.85
Washington	3 Stations	110	23+	Blue Glacier	28	7+	Startup 1E	2.97	11 Stations	.00
West Virginia	2 Stations	100	1	Canaan Valley	38	3	Alpena 1NW	8.45	Athens Concord College	1.76
Wisconsin	Danbury	95	31	2 Stations	36	25+	Ladysmith	9.59	Montello	1.01
Wyoming	Arvada 3N	108	24	Bondurant	21	29	Chugwater	2.54	2 Stations	.00
Hawaii	Makaha Valley	94	27	Mauna Loa Slope Obs	32	8	Puohokamoa 2	15.74	4 Stations	.00

\+ And also on an earlier date or dates. M One or more days of record missing.

Note: Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

JULY 1959

State and station	Elevation (ground)	Pressure: Station ø	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F	°F.	°F.	°F.		°F.		#		°F.	%	In.	In.	In.			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Birmingham	610	993.0	1018.1	91	71	81.1	1.5	98	31	68	13	21	0	70	74	3.61	-1.50	1.46	11	9	0.0	0	6.0	SSE	52	SE	12	1	15	15	7.2	69
Huntsville	605	995.0	1018.0	92	70	81.1	----	97	31+	64	12	26	0	69	71	3.17	----	.95	13	15	.0	0	5.2	SE	*21	NNW	31	3	15	13	6.8	--
Mobile	211	1015.0	1017.4	88	72	80.3	-.4	93	31	68	14	10	0	73	83	8.46	-.51	1.27	25	24	.0	0	7.0	E	*35	SSE	13	0	10	20	8.0	--
Montgomery	195	1009.6	1017.6	93	71	82.4	1.2	100	29	68	14+	29	0	71	75	3.30	-2.46	1.13	10	12	.0	0	5.0	E	32	NE	31	0	16	15	7.5	62
ALASKA																																
Anchorage	92	1007.1	1012.1	62	50	55.7	-1.6	70	6+	45	17	2	0	47	73	4.43	2.88	1.50	16	0	.0	0	8.3	S	*25	SE	6	0	1	30	9.3	23
Annette	110	1015.9	1019.9	61	52	56.6	-.2	76	9	47	26	2	0	51	82	10.85	5.26	2.40	17	0	.0	0	9.5	S	*30	SSE	13	2	6	23	8.5	--
Barrow	22	1008.1	1008.8	41	32	36.5	-3.2	60	1	28	30	0	19	34	88	1.42	.59	.34	16	0	1.5	T	14.7	WSW	56	SW	9	1	3	27	9.0	--
Barter Island	39	1007.1	1008.9	45	33	38.9	-1.9	63	9	27	24	0	14	36	88	1.96	.78	.64	16	1	2.5	1	11.5	E	*38	W	27+	1	1	29	9.0	--
Bethel	125	1010.5	1011.9	59	42	50.5	-4.0	68	30	31	17	0	1	44	79	1.35	-.94	.54	11	0	.0	0	14.3	SSW	*35	SSE	17	1	8	22	8.4	--
Cold Bay	90	1011.5	1015.2	52	44	47.7	-2.3	63	10	41	16+	0	0	44	88	3.23	1.09	.49	19	0	.0	0	17.6	WNW	*44	SSE	18	0	2	29	9.6	--
Cordova	40	1012.9	1014.5	58	45	51.6	-1.7	72	10	37	19+	1	0	47	82	14.33	7.89	3.02	21	1	.0	0	4.9	ENE	*25	ESE	16	0	4	27	9.3	--
Fairbanks	436	993.2	1010.2	65	46	55.5	-5.4	80	19	35	18	8	0	48	75	2.80	.88	.49	18	4	.0	0	7.3	SW	*24	SW	17+	0	6	25	8.7	--
Juneau	15	1016.3	1017.0	61	47	54.1	-.6	79	10	40	5	5	0	48	81	7.39	2.74	1.18	21	0	.0	0	10.4	ESE	*37	ESE	30	2	2	27	8.9	23
King Salmon	44	1010.2	1012.0	58	44	51.2	-3.4	76	10	35	12	2	0	46	84	1.45	-1.37	.28	15	0	.0	0	10.5	SW	*29	S	17	0	3	28	9.3	--
Kotzebue	10	1009.1	1009.7	53	42	47.2	-5.4	65	19	35	14	0	0	42	85	2.44	.91	.53	15	0	.1	T	13.1	WNW	*35	WNW	3	3	5	23	8.2	--
McGrath	334	998.3	1010.7	64	46	54.7	-4.0	74	2	33	12	6	0	45	69	2.36	.04	.48	18	3	.0	0	7.9	SSW	*25	S	9	0	5	26	8.7	--
Nome	13	1009.5	1010.2	51	40	45.3	-4.3	59	30+	32	16	0	1	42	86	1.47	-.99	.65	9	0	.0	0	11.7	WSW	*31	NW	11	0	9	22	8.4	38
St. Paul Island	22	1014.6	1015.6	49	41	44.7	-1.2	57	28	38	17+	0	0	42	93	1.02	-1.41	.75	11	0	.0	0	----	---	--	---	--	1	0	30	9.6	--
Yakutat	28	1015.2	1016.3	59	46	52.6	-.1	77	10	37	24+	1	0	49	86	21.49	12.86	5.36	21	1	.0	0	8.8	ESE	*35	ESE	16	1	4	26	8.9	--
ARIZONA																																
Flagstaff	6993	------	------	83	52	67.5	2.3	89	19+	44	8	0	0	--	--	2.93	.44	.65	21	25	.0	0	----	---	--	---	--	1	27	3	5.7	--
Phoenix	1109	970.9	1009.0	106	82	94.0	3.9	111	23	78	30+	31	0	60	34	.45	-.25	.45	1	5	.0	0	7.5	SW	*46	N	26	16	12	3	3.8	93
Prescott	5014	849.3	1012.3	94	64	79.0	3.0	100	26+	59	23+	28	0	47	--	2.02	-.69	.75	10	19	.0	0	9.6	S	50	NW	17	5	22	4	5.3	70
Tucson	2584	924.5	1010.2	99	74	86.6	.4	104	23+	68	17	31	0	60	45	3.92	2.12	1.42	15	23	.0	0	10.0	S	54	S	11	12	10	9	4.7	81
Winslow	4880	853.0	1009.8	96	66	80.9	3.7	100	26+	59	6	30	0	46	35	.98	-.26	.67	7	8	.0	0	11.1	WSW	*35	WNW	13+	10	16	5	4.9	--
Yuma	199	1003.7	1008.7	109	84	96.7	2.1	118	10	77	30	31	0	63	36	.11	-.12	.11	1	0	.0	0	10.5	S	31	S	18	20	8	3	3.4	85
ARKANSAS																																
Fort Smith	458	999.7	1016.4	90	70	80.0	-2.3	97	8	63	12	20	0	69	75	7.18	4.62	3.14	13	11	.0	0	7.4	ENE	37	W	22	8	7	16	6.7	51
Little Rock	257	1004.4	1017.5	89	71	79.6	-2.3	97	31	63	3	15	0	70	76	6.36	3.26	3.41	13	14	.0	0	7.6	ENE	36	SE	17	3	16	12	6.5	70
Texarkana	361	------	1016.7	90	71	80.7	-2.2	95	31	64	12	23	0	--	--	5.55	1.61	1.65	9	10	.0	0	5.9	ENE	--	---	--	--	--	--	---	--
CALIFORNIA																																
Bakersfield	494	993.6	1011.2	101	72	86.6	2.4	109	11	63	8+	30	0	51	31	.00	-.10	.00	0	0	.0	0	8.1	NW	*20	NW	23	25	3	3	1.7	--
Bishop	4108	874.4	1011.9	101	59	80.0	4.5	107	17	51	8	31	0	--	--	.05	-.05	.02	4	10	.0	0	----	---	--	---	--	21	9	1	2.8	--
Blue Canyon	5280	842.5	1012.5	83	63	72.8	5.0	90	10	48	7+	1	0	--	--	T	-.03	T	0	0	.0	0	6.5	SSW	21	SSW	6+	25	4	2	1.5	--
Burbank	699	987.1	1013.4	90	65	77.2	4.0	104	10	60	8+	14	0	60	61	T	.00	T	0	0	.0	0	3.9	S	*12	SSE	27+	26	4	1	1.9	--
Eureka (U)	43	1014.9	1017.3	60	52	55.9	-.5	65	23	48	28+	0	0	--	--	T	-.09	T	0	0	.0	0	6.5	---	25	N	28+	7	12	12	6.0	60
Fresno	331	999.0	1010.7	100	66	83.2	1.1	108	11	57	8+	30	0	50	35	.00	-.01	.00	0	0	.0	0	7.0	NW	18	NW	2	27	2	2	1.2	98
Long Beach	34	1012.2	1013.3	86	66	76.1	----	105	10	61	8	6	0	62	68	T	----	T	0	1	.0	0	7.0	WNW	*20	S	26	19	10	2	3.1	--
Los Angeles (U)	312	------	------	88	67	77.8	5.3	103	10	64	6+	11	0	63	67	T	.00	T	0	0	.0	0	5.5	W	20	W	10	23	7	1	2.4	88
Los Angeles	99	1009.1	1013.1	83	67	75.1	7.5	97	10	64	8+	2	0	63	69	T	.00	T	0	1	.0	0	7.8	WSW	*18	WSW	22+	19	7	5	3.4	--
Mt. Shasta (R)	3544	893.3	1014.6	89	52	70.8	3.6	97	16	40	7	21	0	--	--	.00	-.19	.00	0	0	.0	0	----	---	--	---	--	28	3	0	1.0	--
Oakland	3	1013.9	1014.2	74	56	65.3	2.6	99	10	52	8	2	0	54	72	.00	-.01	.00	0	0	.0	0	10.0	WNW	*24	NW	21	20	10	1	2.8	--
Point Arguello	367	------	------	67	52	59.1	----	86	10	44	2	0	0	--	--	.02	----	.01	2	0	.0	0	6.4	---	*20	WNW	7	4	7	20	7.5	--
Red Bluff	341	998.6	1011.0	102	69	85.3	2.1	111	10	60	7	30	0	43	26	T	-.02	T	0	0	.0	0	9.5	SSE	24	NW	28	26	5	0	1.1	99
Sacramento	17	1010.5	1011.5	96	60	77.7	3.1	107	11+	53	7	26	0	53	49	T	.00	T	0	0	.0	0	10.6	SSW	26	S	5	25	5	1	1.3	100
Sandberg (R)	4517	864.5	1012.2	90	67	78.8	4.9	98	25+	55	7	18	0	--	--	T	-.02	T	0	0	.0	0	12.0	NNW	*38	N	8+	25	6	0	1.5	--
San Diego	19	1009.5	1012.9	79	68	73.7	4.4	93	10	65	9	1	0	64	75	T	-.01	T	0	0	.0	0	6.5	SSW	18	SW	27+	17	8	6	4.2	73
San Francisco (U)	52	------	------	66	54	60.0	1.1	92	10	51	1	1	0	--	--	T	-.01	T	0	0	.0	0	11.0	---	27	W	25	--	--	--	---	82
San Francisco	8	1013.5	1014.4	74	54	64.2	3.8	97	10	50	8	2	0	52	71	T	-.01	T	0	0	.0	0	12.6	WNW	33	W	5	23	7	1	2.4	--
Santa Maria	238	1005.1	1013.8	74	54	64.3	2.1	93	10	45	7	2	0	54	74	.00	-.03	.00	0	0	.0	0	6.8	WNW	*23	WNW	7	19	8	4	3.5	--
COLORADO																																
Alamosa	7536	777.5	1018.6	83	46	64.5	.4	87	12	40	17+	0	0	--	--	1.09	.22	.61	7	9	.0	0	----	---	--	---	--	5	23	3	5.1	--
Colorado Springs	6173	815.8	1015.6	86	54	69.9	-1.3	94	7	48	2	8	0	42	42	.94	-1.78	.34	11	16	.0	0	10.1	NNE	*35	NNW	13	12	18	1	4.0	--
Denver	5292	941.5	1015.2	87	58	72.6	-.2	95	28	48	1	11	0	41	37	.83	-.53	.56	5	8	.0	0	8.8	S	43	SW	6	13	16	2	4.0	78
Grand Junction	4849	860.5	1012.3	94	65	79.5	1.3	100	24+	53	1	27	0	34	23	.08	-.71	.06	2	7	.0	0	10.0	ESE	45	NW	18	10	18	3	4.2	84
Pueblo	4639	859.5	1014.7	91	58	74.7	-.2	100	7	50	21	21	0	49	45	.74	-1.07	.47	6	9	.0	0	8.8	SE	43	N	27	16	12	3	3.8	83
CONNECTICUT																																
Bridgeport	7	1018.4	------	82	66	74.1	1.3	92	24	60	7+	1	0	--	--	2.67	-1.30	1.47	9	2	.0	0	----	---	--	---	--	6	10	15	6.7	--
Hartford	169	1012.4	1018.5	83	63	72.8	-1.0	91	29	53	8+	1	0	64	78	3.43	-.13	1.28	12	4	.0	0	6.1	S	18	NW	25+	7	7	17	6.9	51
New Haven	6	1018.5	------	80	65	72.4	1.2	86	29+	56	8	0	0	--	--	4.04	.38	2.00	11	2	.0	0	6.5	---	21	SW	19	6	10	15	6.6	47
DELAWARE																																
Wilmington	78	1015.4	1018.8	84	67	75.4	-.5	91	24	56	8	4	0	67	79	5.21	.72	1.73	10	8	.0	0	7.0	S	*29	WSW	24+	5	6	20	7.5	--
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	87	70	78.3	.5	95	29	62	8	9	0	--	--	5.55	1.44	1.21	11	--	---	--	5.8	---	25	W	24	--	--	--	---	--
Wash. Nat'l. AP	14	1014.2	1018.7	87	71	78.5	1.2	94	24	64	9+	6	0	68	72	4.38	.12	1.04	12	8	.0	0	7.6	S	25	SSW	20	2	15	14	7.4	51
FLORIDA																																
Apalachicola (U)	13	1015.2	------	87	75	80.8	-.5	92	31	71	14+	2	0	--	--	11.48	3.92	2.40	17	22	.0	0	6.2	---	29	E	28	6	13	12	6.4	78
Daytona Beach	31	1017.1	1019.0	89	72	80.9	.1	93	7+	69	23	13	0	73	82	5.68	-1.43	2.55	16	13	.0	0	7.7	SE	*23	SE	21+	5	18	8	5.9	--
Fort Myers	15	1017.0	------	90	74	81.9	-.1	93	30+	69	13	24	0	--	--	6.17	-2.55	1.76	23	26	.0	0	6.1	---	*35	S	17	0	25	6	6.5	--
Jacksonville	24	1017.2	1018.5	91	73	81.9	-.2	97	2+	69	14	22	0	72	78	4.51	-3.13	.96	13	17	.0	0	8.7	SE	28	SE	22	5	15	11	6.3	55
Key West	4	1016.1	------	89	78	83.1	-.6	93	4	70	13	13	0	--	--	4.13	-.11	1.31	20	19	.0	0	8.6	---	34	S	13	0	14	17	7.3	57
Lakeland (U)	214	------	------	90	73	81.5	.3	93	6+	69	13	19	0	--	--	8.03	-.13	1.28	19	22	.0	0	5.7	---	--	---	--	0	20	11	6.8	60
Miami	7	1016.4	1017.8	87	75	80.7	-1.9	91	4+	72	27+	2	0	73	80	8.20	1.47	1.94	20	22	.0	0	5.4	ESE	*21	S	6	2	19	10	6.7	--
Miami Beach	9	------	------	87	78	82.3	-.2	91	4	71	22	3	0	--	--	8.02	4.19	4.94	14	--	.0	0	----	---	¢31	E	21	1	22	8	---	¢37
Orlando	106	1014.0	1018.5	91	72	81.3	-.8	96	2	68	12+	21	0	72	81	8.02	.32	2.49	18	17	.0	0	7.3	E	*35	WNW	3	2	21	8	5.9	--
Pensacola (U)	13	------	------	88	75	81.4	.4	95	31	72	14	2	0	--	--	4.65	-2.94	1.44	17	19	.0	0	†6.5	---	18	SE	22	--	--	--	---	58
Tallahassee	64	1015.0	1017.8	89	73	81.0	.0	94	9	70	14	18	0	72	81	7.41	-.46	1.51	22	20	.0	0	4.7	SE	--	---	--	3	12	16	7.3	--
Tampa	19	1016.6	1018.2	92	74	82.9	1.2	95	25+	71	23+	27	0	73	79	7.29	-.82	1.64	23	27	.0	0	7.2	E	*30	ESE	8	2	19	10	6.9	54
West Palm Beach	15	1016.7	1018.0	91	75	82.7	.7	95	3+	72	22+	25	0	73	77	6.28	-.42	2.17	19	14	.0	0	7.4	ESE	*36	ESE	21	0	16	15	7.0	--
GEORGIA																																
Athens	798	990.6	1019.6	89	69	79.1	-1.7	98	1	62	5	15	0	69	78	10.39	5.58	3.95	11	12	.0	0	7.1	NE	*35	SW	20	1	9	21	7.6	--
Atlanta	975	977.4	1018.3	88	70	79.1	-.4	97	1	66	5	8	0	69	76	3.27	-1.14	1.34	14	12	.0	0	6.8	SE	*29	S	15	1	14	16	7.3	59
Augusta	143	1011.2	1017.9	91	70	80.4	-.6	99	30	62	5	20	0	71	77	2.36	-2.85	.65	12	16	.0	0	5.1	SE	*29	ENE	31	1	8	22	8.0	--
Columbus	385	1004.3	------	91	70	80.7	-.2	97	1	67	14+	21	0	--	--	5.61	-.31	2.56	14	18	.0	0	6.3	---	*24	ESE	22	3	14	14	7.0	--
Macon	356	1004.6	1018.2	92	71	81.5	-.9	98	31+	66	5	23	0	70	74	5.79	.45	1.40	13	16	.0	0	6.6	SE	31	W	1	6	10	15	6.7	58
Rome	637	995.3	------	91	68	79.3	-.7	98	1	62	8	22	0	68	73	2.68	-2.03	.96	17	15	.0	0	3.3	---	--	---	--	2	14	15	6.7	--
Savannah	48	1016.0	1018.7	90	71	80.4	-.8	96	2	67	5	17	0	72	79	5.86	-1.23	2.70	13	16	.0	0	6.1	SE	25	SW	12	3	8	20	7.3	56
Thomasville	283	------	------	92	72	81.8	1.2	97	1	69	4	24	0	--	--	5.52	-1.50	1.78	17	18	.0	0	----	---	--	---	--	--	--	--	---	--
HAWAII																																
Hilo	31	1014.9	1016.5	84	68	75.8	1.0	88	25	64	23	0	0	76	68	5.57	-4.32	1.13	27	0	.0	0	8.6	WSW	*25	ESE	15	5	15	11	6.2	64
Honolulu	7	1015.9	1016.3	87	73	79.8	1.0	89	30+	69	24+	0	0	67	67	.28	-.06	.20	3	0	.0	0	15.8	NE	34	E	14	10	17	4	4.7	88

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F or above	No. of days: Min. 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb.	Mb.	°F	°F	°F.	°F	°F		°F				°F	%	In.	In.	In			In	In	M p h		M p. h.			0–3	4–7	8–10	0–10	%
HAWAII (Cont'd.)																																
Lihue	115	1011.5	1016.6	85	73	79.0	1.6	88	31	68	24+	0	0	74	69	1.52	.35	.38	15	0	0.0	0	11.9	NE	26	NE	14+	3	21	7	6.2	64
IDAHO																																
Boise	2842	919.4	1013.5	92	60	76.0	1.2	106	23	43	4	22	0	42	33	T	.18	T	0	0	.0	0	8.2	WNW	30	SE	30	25	4	2	1.8	92
Idaho Falls 46W (R)	4933	850.7	1014.6	89	50	69.7	.5	98	23	37	29+	18	0	--	-	.05	.39	.05	1	4	.0	0	7.7	SW	a31	WSW	3	-	-	-	---	-
Idaho Falls 42NW (R)	4790	------	------	89	48	68.4	.3	99	23	37	9+	19	0	--	--	T	-.51	T	0				7.8	SW	a35	SW	7				---	--
Lewiston	1413	964.4	1015.0	91	57	74.0	-1.2	109	23	45	29	20	0	--	--	.36	.06	.32	2	1	.0	0	----	--	--	---		21	5	5	2.8	--
Pocatello	4444	864.5	1013.8	91	54	72.5	-.2	100	23+	37	8	20	0	40	32	.02	-.74	.02	1	2	0	0	11.6	SW	41	W	3	21	7	3	2.5	90
ILLINOIS																																
Cairo (U)	314	1004.4	------	88	70	79.1	-2.1	96	30	61	3+	12	0	--	--	4.31	1.71	.96	12	13	.0	0	5.8	S	34	NW	11	7	11	13	6.1	65
Chicago (O'Hare)	656	992.9	1017.5	84	63	73.3	---	94	29	52	2	4	0	61	69	5.18	----	1.55	13	7	.0	0	9.9	SSW	*52	NW	10	11	10	10	5.3	--
Chicago (Midway)	610	994.9	1017.5	85	65	74.8	.2	94	29	53	2	4	0	60	65	4.77	2.04	1.32	13	6	0	0	9.2	S	46	NW	10	11	11	9	5.0	61
Moline	589	994.9	1017.2	84	63	73.2	-2.3	92	29	50	2	2	0	62	70	4.48	1.26	1.34	13	13	.0	0	6.6	S	33	SW	30	11	11	9	4.9	71
Peoria	654	995.3	1017.6	85	65	75.0	-.7	93	8	52	2	8	0	61	65	2.83	-.87	1.41	10	10	.0	0	8.3	S	42	SW	21	13	7	11	5.0	72
Rockford	728	990.5	1017.7	83	61	72.2	-2.0	92	8	48	2	2	0	61	71	7.56	4.23	4.22	10	9	.0	0	7.1	S	*35	WNW	23	16	8	7	4.5	--
Springfield	589	994.2	1017.1	86	65	75.6	-.7	93	8+	54	3+	6	0	61	64	3.64	.53	1.38	10	12	.0	0	8.9	SSW	34	S	22+	12	9	10	5.1	71
INDIANA																																
Evansville	383	1002.7	1018.2	88	66	76.8	-1.4	95	30	55	2	10	0	66	72	5.44	2.44	1.93	14	9	.0	0	6.7	SE	36	W	18	5	10	16	6.3	76
Fort Wayne	801	989.2	1018.1	84	63	73.3	-.2	90	30+	54	12	2	0	61	68	2.02	1.26	.65	9	5	.0	0	9.3	S	34	SW	23	9	8	14	5.9	80
Indianapolis	793	988.2	1017.9	86	65	75.2	-.8	93	30	57	12	4	0	61	66	2.97	-.06	.64	10	8	.0	0	7.5	SW	41	W	1	8	10	13	6.0	75
South Bend	768	989.5	1017.6	83	61	71.7	-1.7	91	29+	50	7	2	0	60	70	4.12	1.08	1.54	11	10	.0	0	8.2	S	*37	NNW	10	11	10	10	5.1	--
IOWA																																
Burlington	694	991.9	1017.5	85	62	73.7	-3.1	94	8	50	2	5	0	63	71	2.15	-1.28	.80	11	9	.0	0	8.3	SE	31	NW	30	13	9	9	4.7	78
Des Moines	948	986.5	1017.5	85	63	74.1	-2.1	94	29	59	2	7	0	61	68	1.63	-1.31	.48	8	8	.0	0	9.1	SE	43	NW	8	14	7	10	4.9	73
Dubuque	1065	992.2	1018.0	81	59	70.1	-3.2	89	29	47	2	0	0	60	66	2.73	-.68	.91	9	9	.0	0	----	---	--	---	--	12	10	9	5.1	--
Sioux City	1094	975.3	1015.8	86	62	74.0	-2.3	98	29	49	1	8	0	59	64	2.85	-.07	1.75	6	7	.0	0	10.1	SSE	36	S	7	18	9	4	3.5	82
Waterloo	870	------	------	83	60	71.7	-2.8	90	29	50	2	1	0	--	73	3.44	-.32	2.35	8	4	.0	0	8.2	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	966.8	------	87	65	76.2	-3.8	99	30	53	1	10	0	--	64	.94	-2.45	.42	6	8	.0	0	6.1	SE	23	N	8	16	12	3	3.7	86
Dodge City	2594	929.2	1015.4	89	64	76.1	-3.8	99	29	55	9	14	0	59	61	1.78	-.87	.71	6	12	.0	0	10.5	S	47	E	23	12	14	5	4.5	73
Goodland	3645	890.6	1015.2	90	58	73.9	-1.7	105	7	44	1	16	0	53	55	2.54	-.26	.82	9	11	.0	0	12.3	SSE	*39	SSE	13	18	11	2	2.9	--
Topeka	877	978.0	1017.1	85	64	74.4	-4.8	95	31+	51	2	6	0	65	74	2.92	-.33	1.34	9	5	.0	0	8.9	ESE	45	N	31+	8	11	12	5.5	70
Wichita	1321	967.8	1015.7	86	66	76.4	-4.5	97	7	54	2	11	0	64	69	7.38	3.95	3.57	13	12	.0	0	11.0	SSE	34	NE	23	9	11	11	5.5	68
KENTUCKY																																
Lexington	979	983.2	1018.6	88	67	77.3	.7	94	9	56	3	10	0	62	70	4.05	-.20	2.40	14	15	.0	0	8.5	S	--	---	--	7	12	12	6.2	--
Louisville	474	998.5	1017.5	92	68	79.8	1.9	98	30+	58	3	23	0	65	67	2.61	-.47	1.27	11	8	.0	0	8.1	SSE	40	SW	1	7	14	10	5.9	61
LOUISIANA																																
Baton Rouge	64	1014.2	1017.1	92	72	82.0	.9	96	21+	68	7	24	0	73	83	10.11	4.24	2.56	17	24	.0	0	6.0	SE	--	---	--	0	16	15	7.4	--
Lake Charles	12	1014.6	1016.2	89	73	81.0	-1.2	93	20+	70	31	15	0	72	69	17.94	11.01	5.87	17	18	.0	0	7.2	ENE	*29	ESE	25+	0	17	14	7.0	--
New Orleans (U)	9	------	------	89	76	82.4	-.7	93	18	72	9+	14	0	--	81	18.16	11.07	3.63	21	20	.0	0	4.6	---	19	SE	2	1	12	18	7.5	35
New Orleans	3	1014.6	1016.7	89	75	82.0	.2	93	31	72	9	15	0	74	83	7.96	2.07	1.62	18	21	.0	0	6.6	SSE	*30	NNW	31	0	16	15	7.3	--
Shreveport	252	1007.1	1016.4	91	72	81.6	-1.9	95	22+	67	12	25	0	70	74	3.29	-.41	1.73	11	9	.0	0	8.1	SSE	--	---	--	7	16	8	5.8	73
MAINE																																
Caribou	624	992.4	1015.4	81	58	69.5	5.5	91	28+	43	1	4	0	58	70	2.18	-1.85	.95	10	5	.0	0	9.8	SW	*32	WSW	24+	4	15	12	6.5	--
Portland	61	1013.5	1017.7	81	58	69.8	2.0	90	28	49	4	1	0	62	79	2.06	-.77	1.03	6	4	.0	0	8.3	S	26	S	5	9	9	13	6.1	67
MARYLAND																																
Baltimore (U)	14	------	------	87	73	79.7	1.2	94	24	66	8+	10	0	--	--	4.83	.89	1.82	9	--	.0	0	----	---	--	---	--	--	--	--	---	--
Baltimore	146	1013.9	1018.9	86	68	76.7	.4	92	23+	56	8	8	0	67	76	6.00	2.06	1.65	10	7	.0	0	10.3	SSW	38	W	19	3	15	13	6.9	63
Frederick	294	------	------	87	65	75.9	-.8	92	23	53	8	8	0	--	--	3.51	-.14	1.38	11	--	.0	0	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs. (R)	629	------	------	80	62	70.9	1.7	89	29	55	3+	0	0	--	78	6.66	2.95	1.96	13	--	.0	0	12.3	SSW	31	WNW	25	--	--	--	---	52
Boston	15	1013.1	1017.9	83	66	74.7	2.5	92	22	59	2	4	0	63	73	8.12	4.94	2.42	11	5	.0	0	10.0	SW	29	NNE	11	5	9	17	6.8	66
Nantucket	43	1018.3	1019.3	72	61	66.6	-.5	79	27	53	4	0	0	64	91	4.16	1.33	1.60	11	3	.0	0	10.0	SW	34	S	11	1	4	26	8.7	55
Pittsfield	1153	977.7	------	81	59	69.7	2.1	89	29	48	4	0	0	--	--	3.45	-1.50	.88	9	4	.0	0	----	---	--	---	--	--	--	--	---	--
Worcester	986	981.9	------	79	63	70.8	.6	89	29	53	3	0	0	--	--	8.11	4.33	2.64	11	5	.0	0	11.2	---	*35	WSW	25	6	11	14	6.6	--
MICHIGAN																																
Alpena (U)	587	994.7	----	78	59	68.4	1.0	88	17	48	2	0	0	--	67	1.28	-1.17	.53	7	3	.0	0	8.8	SE	25	NW	1	13	11	7	4.7	74
Detroit	619	991.5	1017.9	85	64	74.1	1.0	92	30	54	2	2	0	59	62	1.27	-1.64	.45	10	3	.0	0	8.5	S	30	NW	1	12	11	8	5.0	70
Detroit (Willow Run)	722	989.5	1017.6	85	62	73.8	.3	92	30	51	2	3	0	58	62	1.79	-.70	.67	8	4	.0	0	9.4	SW	*29	SSW	17	8	13	10	5.4	--
Escanaba (U)	594	993.6	------	76	58	66.9	.0	88	31	46	25+	0	0	--	76	3.53	.31	1.67	8	7	.0	0	9.0	---	35	N	31	11	13	7	4.9	65
Flint	761	990.2	1017.9	83	57	70.2	-.8	89	30	46	7	0	0	57	66	5.55	2.66	2.25	9	8	.0	0	7.2	S	*22	WSW	9	10	14	7	5.2	--
Grand Rapids	681	992.6	1017.5	84	60	71.7	.2	92	30	46	2	6	0	58	66	2.08	-.57	.46	12	8	.0	0	8.8	WNW	27	W	29	9	14	8	5.3	70
Inkster (Wayne Co.)	630	993.6	1017.6	84	61	72.6	----	91	30	51	2	1	0	60	65	1.90	----	.51	10	3	.0	0	8.6	SW	--	---	--	10	11	10	5.4	--
Lansing	852	985.8	1017.5	84	56	69.9	-1.2	92	16	45	7	2	0	59	72	5.08	2.80	2.16	10	7	.0	0	10.6	S	56	NE	30	9	14	8	5.3	65
Marquette (U)	677	989.2	------	79	60	69.0	2.9	90	29	44	1	1	0	--	66	4.63	1.50	2.53	7	6	.0	0	8.3	W	28	S	4	7	16	8	5.6	79
Muskegon	627	994.6	1017.7	81	59	70.2	.3	90	16	49	7+	1	0	58	64	4.21	2.09	2.54	9	4	.0	0	----	---	--	---	--	15	9	7	4.7	--
Sault Ste. Marie	721	994.2	1015.6	77	54	65.1	1.2	87	28+	42	2	0	0	56	76	2.10	-.39	1.20	7	7	.0	0	8.4	WNW	*23	SSE	8	8	16	7	5.5	70
MINNESOTA																																
Duluth	1409	974.3	1015.4	79	55	67.0	.6	89	29	45	12	0	0	56	71	4.29	.65	2.72	8	8	.0	0	11.6	WNW	52	SW	8	8	17	6	4.8	80
Intern'l Falls	1179	972.6	1013.2	80	54	66.9	1.1	92	28+	40	12+	2	0	57	69	3.61	.17	1.65	8	10	.0	0	8.2	S	*46	WNW	4	7	16	8	5.6	--
Minneapolis	830	982.4	1015.6	85	64	74.5	.4	96	29	50	1	9	0	58	59	2.60	-.07	2.40	5	2	.0	0	10.2	S	30	N	8	19	10	2	3.2	83
Rochester	1017	979.7	1016.7	82	59	70.6	-1.2	92	26	48	12+	1	0	60	68	2.11	-1.36	1.14	6	4	.0	0	9.2	S	--	---	--	15	11	5	4.1	--
St. Cloud	1034	977.7	1015.0	84	58	71.2	.6	93	29+	46	12	6	0	58	87	2.64	-.41	1.39	9	10	.0	0	----	---	--	---	--	18	11	2	3.5	--
MISSISSIPPI																																
Jackson	305	1005.1	1017.0	91	71	80.8	-1.3	94	1	67	4	25	0	71	78	8.81	4.20	5.29	14	16	.0	0	3.7	SE	29	N	2	3	17	11	6.4	66
Meridian	292	1003.8	------	92	70	80.8	-.1	96	30+	67	14+	28	0	--	--	15.29	9.33	6.95	11	13	.0	0	----	---	--	---	--	1	20	10	6.3	--
Vicksburg (U)	234	1008.0	------	89	72	80.4	-1.1	93	21+	68	10	16	0	--	--	6.19	2.23	1.56	15	14	.0	0	6.2	---	32	SE	8	2	20	9	6.4	53
MISSOURI																																
Columbia	778	989.2	1017.6	88	65	76.1	-1.7	95	8	49	2	13	0	62	67	3.97	.96	1.64	13	6	.0	0	8.9	SE	36	W	31	11	10	10	5.3	69
Kansas City	741	982.4	1016.4	87	69	78.0	-2.9	98	30	56	2	8	0	63	63	5.29	2.46	1.70	8	6	.0	0	8.6	S	47	NW	31	8	13	10	5.7	74
St. Joseph	809	982.1	------	86	64	75.1	-5.0	95	30	52	2	8	0	--	--	4.33	1.24	1.63	9	5	.0	0	8.2	S	*35	NNW	31+	13	11	7	4.5	--
St. Louis (U)	465	------	------	87	70	78.5	-2.1	96	30	58	2	7	0	--	--	1.16	-1.75	.34	8	-	.0	0	----	---	--	---	--	--	--	--	---	--
St. Louis	552	997.0	1017.3	88	68	78.0	-1.7	97	29	56	2	10	0	64	64	2.08	-.50	.82	6	4	.0	0	6.5	S	26	NW	18	8	10	13	5.7	64
Springfield	1265	970.5	1017.5	84	65	74.4	-3.1	93	30	54	2	4	0	64	75	4.90	1.73	1.78	11	6	.0	0	10.4	SSE	47	N	5	7	12	12	5.9	71
MONTANA																																
Billings	3567	892.7	1013.9	88	58	72.8	-.5	102	24	46	8+	15	0	46	41	.31	-.83	.17	6	5	.0	0	9.6	SW	41	NW	24	20	8	3	3.1	85
Butte	5530	833.4	1018.0	79	42	60.7	-1.7	90	23	31	29	1	2	38	--	.76	-.48	.27	5	8	.0	0	7.6	NW	*32	NW	3	15	14	2	3.5	--
Glasgow	2277	940.4	1013.6	86	58	71.7	-.5	103	24	46	5	12	0	--	45	.57	-.90	.30	8	9	.0	0	----	---	--	---	--	20	7	4	3.5	--

See footnotes at end of table.

CLIMATOLOGICAL DATA

JULY 1959

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Date	Temperature: Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb	°F	°F	°F.	°F	°F.		°F				°F	%	In	In.	In			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
MONTANA (Cont'd.)																																
Great Falls	3664	889.6	1014.4	85	57	70.8	1.2	98	23	45	4	12	0	37	32	0.04	-1.31	0.04	1	2	0.0	0	8.5	SW	32	W	26	22	5	4	2.8	91
Havre (U)	2488	926.9	1014.6	86	56	71.3	.0	99	26	45	5	15	0	--	--	.07	-1.40	.07	1	3	.0	0	7.5	W	47	W	28	19	8	4	3.6	92
Helena	3893	875.7	1014.9	85	51	68.1	.1	97	23	40	29+	13	0	38	37	.11	-.87	.08	3	5	.0	0	8.2	WSW	36	NW	3	20	8	3	2.9	93
Kalispell	2965		-----	83	47	64.8	-1.2	97	23	33	29	8	0	--	--	.04	-1.12	.02	2	1	.0	0	----	---	--	---	--	21	7	3	2.6	--
Miles City	2629	930.9	1014.1	91	60	75.8	.8	106	24	49	9	20	0	45	--	.22	-1.19	.09	5	2	.0	0	10.1	SE	*30	W	4	15	13	3	3.5	--
Missoula	3200	904.2	1017.0	85	49	67.2	-1.2	101	23	36	8	12	0	41	43	.13	-.70	.10	4	2	.0	0	5.6	NW	35	NW	3	18	9	4	2.9	88
NEBRASKA																																
Grand Island	1841	950.6	1015.8	86	61	73.2	-5.7	95	29+	50	9+	9	0	59	65	.95	-1.68	.45	7	8	.0	0	11.7	SSE	--	---	--	19	8	4	3.4	--
Lincoln (U)	1166	------	------	86	65	75.1	-4.1	97	29	52	1	8	0	--	--	1.66	-1.44	.83	6	5	.0	0	9.1	S	43	NE	31	15	12	4	3.9	79
Norfolk	1544	961.1	1016.0	85	61	73.0	-3.2	95	26	51	9	8	0	58	60	2.16	-.87	.94	8	6	.0	0	----	---	--	---	--	16	9	6	3.8	--
North Platte	2779	917.7	1014.7	86	57	71.8	-4.0	98	7	42	9	9	0	57	64	1.27	-1.13	.50	8	10	.0	0	8.5	SE	47	NW	20	16	11	4	3.7	80
Omaha	978	977.3	1016.8	85	64	74.7	-3.8	95	29	52	1	7	0	60	65	.90	-2.44	.39	5	4	.0	0	9.5	SSE	42	N	31	15	10	6	4.1	72
Omaha N.Omaha AP	1323	969.2	------	83	63	72.7	-3.7	94	29	49	1	4	0	--	--	1.50	-1.84	.79	5	7	.0	0	----	---	--	---	--	11	15	5	4.5	--
Scottsbluff	3950	880.8	1013.9	88	57	72.5	-2.1	97	28	40	1	14	0	52	54	.56	-.89	.29	5	8	.0	0	10.4	ESE	*41	WSW	3	21	6	4	3.1	--
Valentine	2587	925.2	------	89	58	73.5	-1.1	101	25	42	1	15	0	--	54	.89	-1.81	.42	5	8	.0	0	11.1	S	43	NW	7	16	13	2	3.5	83
NEVADA																																
Elko	5075	846.9	1013.9	92	52	71.8	1.6	101	17	40	4	23	0	31	24	.18	-.19	.14	3	7	.0	0	6.3	SW	*29	S	12	17	10	4	3.5	--
Ely	6257	812.4	1013.3	90	49	69.4	1.0	96	11	35	9	19	0	35	31	.16	-.39	.07	5	11	.0	0	10.9	S	38	S	6	8	20	3	4.8	93
Las Vegas	2162	944.8	1008.2	108	79	93.4	2.9	116	11	65	2	31	0	39	18	.02	-.44	.02	1	4	.0	0	10.5	SSW	*37	NE	20	16	13	2	3.3	89
Reno	4397	863.9	1014.5	95	51	72.9	3.3	102	19+	38	8	23	0	40	35	.05	-.18	.05	2	3	.0	0	5.7	WNW	29	NW	7+	23	5	3	2.5	98
Winnemucca	4299	869.3	1013.9	95	53	74.1	-.1	103	22+	39	7	24	0	31	21	T	-.31	T	0	1	.0	0	8.3	W	40	E	12	19	7	5	3.4	77
NEW HAMPSHIRE																																
Concord	339	1007.4	1018.2	85	60	72.1	3.1	94	29	46	4	5	0	62	73	1.93	-1.64	.54	8	3	.0	0	5.9	S	19	NW	25+	7	14	10	6.0	65
Mt. Washington	6262	813.4	------	59	46	52.5	3.2	69	30+	35	3	0	0	--	86	3.67	-2.69	.97	11	3	.0	0	21.2	W	‡81	NNW	7	3	11	17	7.3	42
NEW JERSEY																																
Atlantic City (U)	10	------	------	79	69	73.7	.1	88	2	62	3	0	0	--	--	15.69	11.91	5.58	14	--	---	--	9.0	---	38	SE	1	--	--	--	---	36
Atlantic City	58	1016.2	1019.0	83	67	74.6	.3	91	29+	56	8	3	0	67	81	13.09	9.39	6.46	11	6	.0	0	9.6	S	--	---	--	6	1	24	7.6	--
Newark	11	1017.4	1018.8	85	68	76.7	1.4	93	19+	62	26+	8	0	65	70	2.49	-1.71	.57	10	5	.0	0	8.5	SSW	*29	SW	19	7	7	17	6.8	--
Trenton (U)	56	1011.4	1018.2	84	68	76.0	.7	93	29	61	8	3	0	--	--	5.11	1.05	1.83	10	7	.0	0	7.9	---	22	S	24+	5	12	14	6.6	55
NEW MEXICO																																
Albuquerque	5310	850.7	1012.1	93	65	78.6	-.4	97	22+	58	25	26	0	49	42	.73	-.70	.18	10	10	.0	0	10.1	ESE	56	N	18	17	13	1	3.9	75
Clayton	4969	849.0	1015.6	88	58	72.9	-1.2	96	3	51	2	11	0	--	--	1.30	-1.26	.68	10	13	.0	0	----	---	--	---	--	15	13	3	3.4	--
Raton	6379	810.4	1015.6	84	51	67.5	-1.1	90	25	46	21+	1	0	--	--	2.65	.15	1.32	11	24	.0	0	----	---	--	---	--	13	14	4	4.3	--
Roswell	3612	894.3	1012.5	94	65	79.3	.3	102	8	60	6	27	0	59	54	2.98	1.17	1.18	10	11	.0	0	10.9	---	59	N	5	15	16	0	3.8	--
NEW YORK																																
Albany	277	1013.8	1017.9	86	62	74.2	2.8	96	29	51	8	7	0	61	67	1.67	-1.63	.51	7	3	.0	0	7.8	S	29	SE	5	9	9	13	6.1	64
Binghamton	1590	960.2	1018.8	81	62	71.3	2.2	90	29	50	8	1	0	59	68	2.49	-1.33	.89	6	4	.0	0	7.0	SW	32	W	6	9	8	14	6.0	69
Buffalo	693	990.3	1018.3	83	63	72.8	2.2	92	29	55	8	3	0	61	69	1.98	-.45	.77	10	6	.0	0	9.8	SW	47	SW	1	9	16	6	5.0	81
New York (U)	10	1017.0	------	80	68	74.4	-.2	88	28	62	3	0	0	--	--	3.17	-1.07	1.08	10	4	.0	0	10.4	S	35	SW	19	7	10	14	6.4	56
New York	19	1016.8	1019.0	84	70	76.9	1.0	91	19	64	3	4	0	65	71	3.37	-.75	.98	10	5	.0	0	11.3	S	54	W	24	6	9	16	6.5	--
Rochester	543	998.3	1017.9	85	60	72.5	1.3	92	9+	52	26+	6	0	61	69	1.63	-1.46	.73	7	5	.0	0	8.9	SSW	38	W	6	11	12	8	4.9	81
Schenectady	217	------	------	87	64	75.2	2.5	97	29	54	3	10	0	--	--	.47	-3.10	.33	5	--	.0	0	----	---	--	---	--	17	12	2	3.6	--
Syracuse	424	996.3	1017.9	85	62	73.5	1.0	92	31+	52	26	7	0	61	67	2.54	-.72	.77	11	6	.0	0	7.9	S	33	S	1	11	10	10	5.3	78
NORTH CAROLINA																																
Asheville (U)	2203	941.1	------	85	64	74.4	.6	92	1	59	11+	2	0	--	--	3.38	-1.12	1.64	18	16	.0	0	5.9	---	26	NW	10	1	10	20	7.5	45
Cape Hatteras	[illegible]	1018.5	1019.3	85	73	78.7	.2	90	1	68	30	1	0	73	85	8.74	2.26	3.12	17	13	.0	0	9.5	SSW	--	---	--	3	5	23	8.0	--
Charlotte	725	991.0	1018.8	89	69	78.9	.3	96	2	60	5	15	0	69	78	8.33	3.66	2.26	17	13	.0	0	9.2	SSE	50	NW	10	4	6	21	7.7	59
Greensboro	891	988.2	1019.8	86	68	76.9	-.3	95	1	60	5	8	0	68	81	9.81	4.87	2.05	17	16	.0	0	7.1	SW	26	NW	2	2	6	23	7.9	60
Raleigh	433	1005.4	1019.2	87	68	77.5	-1.0	96	1	61	5+	11	0	70	84	8.83	3.38	2.15	18	15	.0	0	6.8	SSW	*35	NNE	29	2	7	22	7.9	36
Wilmington	30	1017.2	------	87	71	79.1	-.9	95	1	67	5	10	0	--	--	10.90	2.74	2.66	21	10	.0	0	11.2	---	35	SW	10	1	7	23	8.1	44
Winston-Salem	967	984.4	1019.4	87	68	77.4	-.1	96	1	60	5	9	0	67	76	10.86	6.29	2.41	16	17	.0	0	8.2	SSW	*27	S	20	3	7	21	7.6	--
NORTH DAKOTA																																
Bismarck	1650	955.0	1013.7	89	58	73.1	1.0	105	28	43	1	14	0	49	49	.41	-1.92	.15	6	5	.0	0	12.1	WNW	46	W	3	15	14	2	3.7	87
Devils Lake (U)	1471	960.7	------	84	56	69.9	.6	100	28	46	11	8	0	--	58	1.11	-1.56	.37	8	6	.0	0	7.6	NW	27	NE	27	20	10	1	3.1	80
Fargo	895	979.3	1014.0	85	60	72.2	.9	98	27	47	1	9	0	57	63	4.26	1.95	2.48	8	8	.0	0	14.6	S	49	S	3	15	13	3	3.8	85
Williston (U)	1877	999.3	1013.7	86	59	72.3	1.4	100	27	51	5	10	0	49	47	.17	-1.96	.13	5	4	.0	0	6.9	W	28	NW	29+	16	11	4	3.7	81
OHIO																																
Akron	1210	980.9	1018.9	83	62	72.3	-.1	90	17+	52	7	2	0	62	73	4.91	.71	1.84	11	9	.0	0	7.7	S	--	---	--	10	12	9	5.1	--
Cincinnati Obs.	761	------	------	89	66	77.3	.7	96	30	56	2	15	0	--	--	2.01	-1.69	.49	9	8	.0	0	4.5	---	26	W	18	--	--	--	---	73
Cincinnati	869	986.9	1018.4	88	65	76.7	1.6	94	31+	55	3+	13	0	63	67	2.77	-.98	.74	9	8	.0	0	7.5	SSW	*23	SW	23	7	9	15	6.5	--
Cleveland	787	990.4	1018.1	83	63	73.3	-.4	92	17+	53	7	3	0	61	69	4.32	1.28	1.32	10	7	.0	0	8.0	S	38	N	5	12	11	8	5.1	70
Columbus (U)	724	------	------	87	66	76.5	.7	93	1	57	2	5	0	--	--	3.40	-.13	1.14	11	10	.0	0	---	---	--	---	--	--	--	--	---	--
Columbus	815	988.8	1018.8	87	64	75.4	1.0	94	1	55	3	7	0	63	69	3.23	-.62	1.13	12	10	.0	0	5.4	SSW	33	W	23	6	11	14	6.5	64
Dayton	1002	982.3	1018.2	86	65	75.1	.1	93	1	55	2	3	0	61	66	4.10	.81	1.00	11	9	.0	0	8.0	SSW	40	W	29	9	5	17	6.4	70
Sandusky (U)	603	996.3	------	85	66	75.2	.6	94	1	59	26+	6	0	--	--	5.13	1.68	2.85	8	10	.0	0	6.2	---	55	W	1	16	15	0	3.2	87
Toledo	676	992.7	1018.1	85	61	73.2	.1	92	30	51	2	2	0	61	70	3.13	.48	1.34	9	9	.0	0	6.4	SW	32	NW	1	10	13	8	5.4	76
Youngstown	1178	976.4	1018.6	82	59	70.8	-1.5	91	1	48	13	1	0	61	74	4.40	.24	2.04	11	8	.0	0	8.4	SSW	*58	W	11	11	10	10	5.3	--
OKLAHOMA																																
Oklahoma City	1280	972.9	1015.7	87	68	77.4	-4.7	93	31+	61	10	10	0	69	80	8.44	6.29	1.93	11	10	.0	0	11.6	SSE	43	SW	27	8	12	11	5.7	68
Tulsa	672	991.9	1016.2	88	69	78.3	-3.8	95	31	60	2	13	0	68	75	9.85	7.16	2.40	15	13	.0	0	7.2	SSE	33	N	8	6	10	15	6.3	56
OREGON																																
Astoria	8	1019.0	1019.6	69	52	60.3	-.5	92	30	44	29	1	0	54	79	.91	-.16	.50	8	1	.0	0	10.2	NW	*25	NW	25	9	9	13	5.7	--
Burns (U)	4140	875.0	1014.9	89	53	71.3	1.5	100	22	35	8	18	0	35	29	.19	-.06	.18	2	3	.0	0	----	---	--	---	--	26	4	1	1.6	--
Eugene	361	1004.4	1017.8	85	52	68.2	1.6	98	30+	43	4	10	0	--	--	.32	.06	.22	2	0	.0	0	9.6	---	*25	WSW	23	22	5	4	2.5	--
Meacham	4050	------	------	79	53	66.0	2.8	97	22	37	28	3	0	--	--	.35	-.11	.34	2	0	.0	0	----	---	--	---	--	20	7	4	2.7	--
Medford	1312	968.5	1015.4	94	56	74.9	3.1	106	21+	45	28+	23	0	49	44	.00	-.17	.00	0	0	.0	0	5.3	WNW	*23	NW	23	26	5	0	1.2	--
Pendleton	1492	962.8	1015.5	90	59	74.6	.1	105	22	47	8	20	0	42	34	.41	.15	.29	3	1	.0	0	11.0	SE	*44	W	27+	20	8	3	2.5	--
Portland	21	1012.2	1017.6	81	57	68.7	1.4	98	30	47	27	7	0	54	63	.56	.14	.27	5	1	.0	0	7.3	NW	23	NW	26+	14	11	6	4.2	73
Roseburg	505	998.3	1016.6	88	52	70.1	2.9	102	18	42	3	12	0	--	--	T	-.20	T	0	2	.0	0	6.8	---	25	NW	12	24	5	2	2.0	87
Salem	195	1010.8	1018.3	85	51	68.0	.3	100	19	42	28+	13	0	52	62	.50	.18	.43	3	0	.0	0	6.6	N	*20	NW	26+	17	11	3	3.0	--
Sexton Summit (R)	3836	886.6	1014.9	78	53	65.8	2.6	93	22+	38	6	4	0	--	--	T	-.32	T	0	1	.0	0	11.7	N	--	---	--	28	1	2	1.2	--
PACIFIC AREA																																
Canton Island	9	1009.8	1010.2	89	78	83.7	-.5	92	5	72	31	16	0	74	73	1.01	-1.32	.23	7	0	.0	0	13.5	E	*24	E	15+	1	2	28	9.4	--
Guam (R)	361	------	------	88	72	80.1	.5	90	9+	66	8	5	0	--	--	6.15	-5.27	1.56	24	6	.0	0	5.2	E	21	E	9	--	--	--	---	82
Johnston Island	7	1012.9	1013.5	85	77	81.0	----	87	19	73	22+	0	0	72	74	1.02	----	.50	9	0	.0	0	15.1	---	35	NE	11	2	14	15	6.9	77
Koror (R)	94	1006.1	1009.8	86	75	80.6	.1	90	30	72	26+	1	0	87	76	22.53	3.72	7.31	24	5	.0	0	----	---	--	---	--	0	2	29	9.6	--
Majuro	10	1009.8	1010.2	85	77	81.3	----	88	30	74	14+	0	0	83	76	11.00	----	3.83	20	3	.0	0	7.8	E	24	NE	21+	0	5	26	9.0	58
Ponape (R)	120	1005.1	1010.5	87	73	80.1	-.3	90	22+	71	28+	3	0	87	75	19.12	2.06	3.84	26	6	.0	0	4.5	---	15	E	24+	0	3	28	9.2	54
Truk, Moen Island	5	1009.8	1010.2	88	75	81.4	1.1	91	23+	72	11	4	0	85	76	13.78	.32	4.64	22	0	.0	0	----	---	18	NW	27	0	2	29	9.4	--
Wake Island	11	1012.5	1012.9	88	78	83.0	1.0	89	25+	74	15	0	0	74	74	2.37	-3.05	.77	18	0	.0	0	12.8	ENE	*24	SE	16	4	12	15	6.9	--
Yap (R)	55	1008.5	1010.4	87	75	81.0	-.7	90	15	72	31	1	0	87	77	18.95	2.35	4.21	28	2	.0	0	4.2	E	*23	WSW	11	0	0	31	10.0	--

See footnotes at end of table.

State and station	Elevation (ground) Ft.	Pressure: Station Ø Mb.	Pressure: Sea level Mb.	Temperature: Average maximum °F	Average minimum °F	Average °F	Departure from normal °F	Highest °F	Date	Lowest °F	Date	No. of days: Max 90° F or above	No. of days: Min 32° F or below	Average dew point °F	Average relative humidity %	Precipitation: Total In.	Departure from normal In.	Greatest in 24 hours In.	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total In.	Snow, Sleet: Max depth on ground In.	Wind: Average hourly speed M.p.h.	Prevailing direction	Fastest mile: Speed M.p.h.	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear 0–3	Partly cloudy 4–7	Cloudy 8–10	Sky cover tenths (sunrise to sunset) 0–10	Possible sunshine %
PENNSYLVANIA																																
Allentown	376	1004.9	1019.0	85	64	74.3	0.2	92	29	52	8	3	0	64	75	5.87	1.09	2.43	[illegible]	10	0.0	0	7.0	[illegible]	31	WNW	6		7	16	6.4	--
Erie	732	------	------	82	62	71.8	1.4	91	1	53	13	1	0			2.31	-.88	.67	10	8	.0				[illegible]	[illegible]	20	10	14	7	5.0	--
Harrisburg	335	1004.8	1018.5	86	66	76.0	.6	92	30+	56	8	9	0	64	71	3.20	-.44	.93	7	9	.0	0	4.9	WSW	20	[illegible]	19		10	16	6.8	68
Philadelphia (U)	35	------	------	86	70	78.0	.8	94	28	65	7	6	0							-												
Philadelphia	7	1014.0	1018.5	84	67	75.9	-.4	92	29+	57	8	4	0	66	75	7.48	3.28	2.05	8	6	.0	0	9.0	[illegible]	47	[illegible]	31		6	20	7.5	59
Pittsburgh (U)	749	------	------	85	66	75.7	.3	93	1	58	8	3	0		--	4.14	.42	1.74	12		.0											57
Pittsburgh	1151	988.6	1019.4	83	63	72.7	.4	91	1	53	7	1	0	61	71	4.25	.34	1.04	13	6	.0	0	6.4	[illegible]	*21	[illegible]	11+	6		16	6.5	74
Reading (U)	266	1006.3	1017.9	86	68	76.9	1.2	93	29+	58	8	7	0	-	--	2.54	-1.89	1.02	9	7	.0	0	8.0		34	N	6	-	-	17	6.6	52
Scranton	940	985.1	1019.3	84	62	72.7	.5	92	29	50	8+	2	0	63	74	4.46	-.87	1.70	8	8	.0	0	7.3	SSW	26	[illegible]	10	7	10	14	6.2	59
Williamsport	527	999.9	------	84	62	73.3	.0	94	31	52	8	4	0			4.33	.62	.88	10		.0	0			--			4	17	10	6.4	--
RHODE ISLAND																																
Block Island	110	1014.0	1018.4	74	64	68.9	-.2	80	28+	58	8+	0	0		-	6.15	3.60	2.66	8	3	.0	0		-				4	9	18	7.5	--
Providence	55	1012.4	1018.7	81	64	72.5	1.5	88	24	56	4	0	0	65	79	4.01	.95	2.06	10	2	.0	0	10.6	SW	*24	SW	9	3	12	16	6.8	55
SOUTH CAROLINA																																
Charleston (U)	9	------	------	86	76	80.8	-.7	91	10	71	5	4	0			7.71	-.33	1.97	17	-	.0	0										
Charleston	41	1016.7	1018.8	86	70	77.9	-2.2	92	10+	67	26+	4	0	73	90	8.47	.43	2.92	15	11	.0	0	8.0	SE	47	N	8	0	11	20	7.8	80
Columbia	217	1005.6	1018.4	90	71	80.3	-1.1	97	30	63	5	17	0	70	78	13.87	7.31	5.81	17	16	.0	0	6.9	S	*32	WNW	9	3	10	18	7.4	71
Florence	146	1012.2	1018.1	88	71	79.7	-1.2	94	30+	64	5	16	0	72	83	13.68	7.23	3.55	16	17	.0	0	6.8	S	*23	S	15	2	12	17	7.3	
Greenville	1018	982.0	1018.9	88	69	78.3	-.1	96	10+	62	5	12	0	68	76	7.04	2.23	2.28	14	11	.0	0	6.1	S	29	N	10	0	8	23	8.1	55
Spartanburg	801	------	------	87	69	77.9	-1.0	94	30+	62	5	11	0	--	--	5.20	.50	1.06	11	12	.0	0	5.4		*21	NE	8+					
SOUTH DAKOTA																																
Huron	1282	967.8	1014.4	89	60	74.4	-1.0	99	27+	47	1	15	0	54	56	1.64	-.44	.91	9	9	.0	0	13.3	SSE	58	N	3	17	13	1	3.1	96
Rapid City	3165	902.8	1014.5	89	58	73.8	1.5	101	28	39	1	16	0	47	44	.67	-1.39	.43	4	12	.0	0	10.2	NNW	66	SW	15	20	7	4	3.3	80
Sioux Falls	1420	964.8	1015.5	87	61	74.3	-.5	99	26	51	11+	10	0	54	54	.39	-2.61	.14	4	3	.0	0	10.3	S	*40	NW	18	15	13	3	3.6	--
TENNESSEE																																
Bristol	1519	965.4	------	88	65	76.7	1.9	98	1	60	9+	8	0			1.57	-3.57	.41	13	13	.0	0	--	--				3	8	20	7.5	--
Chattanooga	670	990.6	1017.9	90	69	79.3	1.0	96	1	62	8	14	0	68	76	1.44	-3.90	.34	9	16	.0	0	5.0	S	24	W	1	0	12	19	7.7	68
Knoxville	950	983.6	1018.6	89	68	78.5	.1	96	31	63	12	12	0	68	74	2.97	-1.75	.87	13	14	.0	0	5.4	NE	35	N	10	2	9	20	7.6	35
Memphis (U)	271	------	------	88	71	79.5	-1.8	95	8	61	3	10	0			7.90	4.80	1.68	16		.0	0		-	-	-	-				--	
Memphis	263	1003.0	1017.6	89	70	79.3	-1.9	96	31	61	3	16	0	68	74	8.84	5.61	3.17	13	12	.0	0	5.8	S	28	N	9	7	11	13	6.5	57
Nashville	577	998.0	1017.9	90	69	79.1	-.9	96	29+	61	13+	20	0	68	75	3.90	-.06	1.34	13	12	.0	0	5.5	S	34	W	1	6	10	15	6.5	61
Oak Ridge	905	986.1	------	87	67	77.2	.5	95	1	62	9	8	0			3.23	-2.11	1.02	10	11	.0	0	4.1	-	31		18	4	12	15	6.5	--
TEXAS																																
Abilene	1759	955.0	1014.7	90	69	79.8	-3.3	97	4	64	27	22	0	67	69	4.93	2.88	2.60	10	9	.0	0	7.7	S	34	NW	27	12	6	13	5.7	58
Amarillo	3590	891.3	1014.2	88	63	75.5	-2.3	95	8+	56	26	13	0	58	59	2.85	.49	1.76	11	14	.0	0	10.4	SSW	45	SE	6	14	13	4	[illegible]	79
Austin	615	993.9	1015.1	95	73	84.2	.1	97	23+	70	26+	30	0	70	69	3.49	1.31	1.77	6	8	.0	0	7.5	S	34	N	25	7	17	7	5.4	68
Brownsville	16	1012.2	1015.0	92	75	83.5	-.3	98	25	71	25	28	0	74	77	1.09	-.88	.92	3	1	.0	0	10.0	SSE	27	S	18	12	13	6	4.7	84
Corpus Christi	41	1014.2	1015.6	93	75	83.6	-.2	97	23	71	25	28	0	74	77	2.29	.03	2.22	3	3	.0	0	9.7	SSE	24	SE	21	9	16	6	5.3	68
Dallas	487	997.3	1015.9	92	74	82.9	-2.6	98	23	70	27+	25	0	69	68	3.25	1.28	1.55	10	10	.0	0	9.8	SSE	36	N	23	8	12	11	5.8	64
Del Rio (U)	957	------	------	94	73	83.2	-1.5	100	11	67	20+	28	0	-	-	3.11	1.53	2.07	3	6	.0	0										
El Paso	3920	886.9	1011.9	96	70	82.9	1.6	105	8	63	13	29	0	53	39	.40	-.92	.22	6	6	.0	0	11.4	[illegible]	45	NE	17	14	16	1	3.9	80
Fort Worth	544	994.9	1015.5	93	74	83.1	-2.0	97	13+	69	12	26	0	70	69	3.27	1.38	1.27	9	9	.0	0	10.0	SE	*48	N	23	11	9	11	5.5	-
Galveston (U)	7	------	------	87	77	82.1	-.9	91	11+	67	11	2	0	-		10.68	5.88	5.26	13		.0	0	10.5		59	SE	25					66
Galveston	5	1013.5	1016.0	88	78	82.9	-.4	92	11	71	12+	10	0	74	76	11.04	6.33	5.46	12	15	.0	0	10.5	S				4	16	11	6.5	--
Houston (U)	41	1010.5	------	90	75	82.7	-1.1	97	11	70	11	24	0	--	-	8.17	3.72	4.49	14	17	.0	0	8.0	S	49	N	25	3	21	7	6.1	72
Houston	50	1012.9	1015.3	90	75	82.3	-.3	95	11+	70	26	22	0	73	79	9.67	4.88	5.38	13	18	.0	0	9.3	SSE	-	--		2	20	9	6.5	--
Laredo	500	998.3	1013.4	100	76	88.0	.3	105	11	72	20	31	0	67	57	2.68	1.28	2.12	4	8	.0	0	13.7	SE	*31	NNW	21	13	14	4	4.1	--
Lubbock	3243	905.2	1014.5	89	65	77.2	-2.1	96	22	58	26	17	0	62	64	1.30	-.59	.81	8	11	.0	0	10.9	S	*32	ENE	11+	15	11	5	4.4	--
Midland	2854	917.0	1014.3	90	67	78.1	-3.9	97	4	62	20+	19	0	64	66	4.46	2.65	3.64	8	11	.0	0	8.0	ESE	*29	NNE	12	7	13	11	5.8	--
Port Arthur	16	1014.2	1015.7	89	73	81.3	-.4	94	17+	70	13+	17	0	74	83	18.71	11.91	3.96	22	25	.0	0	8.6	SSW	39	SE	25	0	18	13	7.2	60
San Angelo	1903	948.5	1014.5	89	69	78.9	-3.8	97	4	64	18	18	0	66	67	7.21	5.64	2.95	12	11	.0	0	8.5	S	*36	ESE	6	12	10	9	5.3	--
San Antonio	792	990.5	1014.8	95	73	84.0	-.2	99	11	67	4	31	0	68	66	1.48	-.43	.82	6	6	.0	0	8.6	SE	40	NW	11	7	19	5	5.2	77
Victoria	110	1010.5	1015.1	93	73	82.9	-1.9	96	22	70	26+	29	0	72	71	1.03	-3.10	.40	9	8	.0	0	6.8	SE	‡36	NNW	11	9	13	9	5.7	--
Waco	500	994.2	1015.1	94	73	83.4	-1.6	97	17+	70	20+	26	0	70	69	1.84	-.10	1.24	5	6	.0	0	10.8	S	*40	NNE	9	8	15	8	5.4	--
Wichita Falls	1020	978.3	1014.5	91	71	81.0	-2.8	97	31	66	15	21	0	67	68	4.65	2.46	1.72	8	8	.0	0	8.8	SSE	*23	SW	18+	15	9	7	4.4	--
UTAH																																
Milford	5028	846.3	1013.2	95	57	75.8	1.8	101	23+	40	9	28	0			.10	-.67	.07	3	12	.0	0					-	9	18	4	4.8	-
Salt Lake City	4220	868.6	1013.1	93	61	77.2	.6	101	23	47	1	25	0	41	31	.19	-.42	.19	2	3	.0	0	7.5	SSE	26	SW	14+	17	9	5	3.5	81
VERMONT																																
Burlington	331	1002.4	1017.1	84	61	72.5	2.1	96	30	51	26+	4	0	60	66	1.81	-1.94	.74	9	3	.0	0	6.5	SSW	25	SW	6+	7	13	11	5.9	74
VIRGINIA																																
Lynchburg	947	985.7	------	85	67	75.8	-.2	96	1	59	8+	2	0	--	--	4.56	.41	1.63	14	11	.0	0	6.8		36	N	26+	3	7	21	7.8	43
Norfolk	26	1018.2	1019.5	86	72	78.7	1.2	95	1	63	4	8	0	71	81	7.49	1.44	2.03	15	12	.0	0	8.3	SW	45	W	10	0	9	22	8.1	59
Richmond	162	1013.4	1019.5	86	70	77.9	.4	93	1	60	8	8	0	70	82	12.85	7.21	4.58	17	15	.0	0	6.8	S	27	N	1	3	7	21	7.7	51
Roanoke	1174	977.9	1019.7	88	66	77.1	1.2	93	26+	55	[illegible]	10	0	65	72	2.81	-2.10	1.25	18	13	.0	0	5.9	SE	--		--	3	6	22	7.6	--
WASHINGTON																																
Olympia	190	1011.5	1018.7	79	50	64.7	1.9	97	31	44	26+	6	0	50	64	.30	-.42	.17	3	0	.0	0	7.2	SW	*26	W	27	17	5	9	4.0	--
Seattle (U)	14	------	------	78	58	67.8	2.2	94	31	52	28	3	0	--		.77	.25	.50	6	--	.0	0	---	---	36	SW	5	--	--	--	---	67
Seattle	14	1017.4	1018.3	--	--	----	---	--	--	--	--	--	--	50	58	----	----	----		0	---	--	7.2	NNW	--					--		-
Seattle-Tacoma	386	1004.4	1018.6	77	55	66.1	2.2	93	31	48	28	2	0	51	62	.93	.35	.48	6	0	.0	0	10.1	NNE	*25	SSW	5	17	5	9	3.7	-
Spokane	2357	947.2	1015.4	86	56	70.6	1.0	102	23	42	4	13	0	42	38	.05	-.31	.03	2	0	.0	0	8.7	SW	37	W	27	21	5	5	2.8	88
Stampede Pass (R)	3958	883.2	1020.3	67	48	57.9	1.0	85	31+	38	28+	0	0	--	-	2.20	.91	.99	8	0	.0	0	-	---				18	5	8	3.7	--
Tatoosh (R)	101	1016.3	1019.3	61	52	56.4	.9	80	30	48	21	0	0	52	88	1.40	-.59	.57	6	0	.0	0	11.2	SSW	47	SW	5	12	5	14	5.3	59
Walla Walla (U)	949	979.0	1014.2	91	62	76.5	.3	107	22	51	28+	20	0	--	-	.05	-.23	.04	2	0	.0	0	5.5	[illegible]	30	W	27	22	5	4	2.4	93
Yakima	1061	977.0	1015.3	90	53	71.2	-.2	102	22+	41	7	20	0	44	41	T	-.18	T	0	0	.0	0	8.2	WNW	*33	WNW	27	22	6	3	2.2	--
WEST INDIES																																
San Juan, P.R. (U)	47	------	------	85	76	80.7	.7	90	24	71	19	1	0	--		3.49	-2.53	1.05	19	5	0	0										-
San Juan, P.R.	15	1014.5	1017.6	88	74	81.0	.9	91	16+	69	1	7	0	73	77	2.80	-3.94	.68	19	5	.0	0	8.9	ENE	29	E	19	1	23	7	6.1	74
Swan Island	31	1012.8	------	89	78	83.6	1.2	91	7	72	8	10	0	-		[illegible]	-2.76	.31	12	9	.0	0					--	1	17	13	6.4	
WEST VIRGINIA																																
Charleston	950	983.5	1018.7	87	64	75.7	.3	96	1	53	3	7	0	65	74	6.74	1.29	1.87	15	12	.0	0	4.8	SSE	*35	SW	18	2	8	21	7.5	
Elkins	1970	------	------	82	57	69.7	-.3	90	1	45	8	1	0	68		6.50	1.36	1.84	14	7	.0	0	4.0	NW	*21	NW	19	3	7	21	7.5	--
Huntington (U)	565	------	------	88	66	77.1	.2	98	1	57	3	13	0	--		7.78	2.96	2.63	14		.0	0	-	-				-	-	-	---	--
Parkersburg (U)	615	------	------	87	65	76.2	.5	96	1	55	3	10	0		--	2.17	-1.99	.66	10	11	.0	0	5.0		30	S	18	8	9	14	6.2	55
WISCONSIN																																
Green Bay	[illegible]	994.2	1017.2	81	57	68.8	-1.1	90	8	46	25	1	0	60	74	4.21	1.62	2.95	8	0	.0	0	9.8	SW	49	SW	8	15	9	7	4.3	73
La Crosse	652	991.5	1016.1	82	62	72.3	-1.7	91	29	52	12	2	0	60	64	2.34	-.87	1.20	8	6	.0	0	9.3	S	*35	NW	23	15	9	7	4.3	--
Madison	857	982.4	1017.3	84	58	71.0	-2.0	92	17	48	12	4	0	58	67	4.12	.82	2.16	8	5	.0	0	7.5	S	38	SW	29+	12	8	11	5.0	72
Milwaukee	672	992.9	1017.9	81	[illegible]	70.2	-1.1	93	8	50	1	2	0	60	72	6.82	4.39	4.35	11	10	.0	0	9.0	S	30	S	8	15	5	11	4.5	76
WYOMING																																
Casper	5319	840.2	1013.2	87	53	70.0	-1.1	100	24	39	8+	12	0	38	36	.27	-.90	.15	3	10	.0	0	10.3	WSW	*46	W	7	20	9	2	3.0	
Cheyenne	6131	816.5	1015.6	84	53	68.2	.1	93	28	43	9+	4	0	42	44	.80	-1.16	.35	7	14	.0	0	11.7	WNW	46	N	18	13	14	4	3.9	77
Lander	5563	838.1	1014.1	87	55	70.9	.5	97	24	42	8	12	0	41	38	.15	-.73	.07	3	7	.0	0	6.9	SW	57	W	6	19	9	3	3.2	90
Sheridan	3942	886.2	1015.2	87	53	69.7	-.9	104	24	41	5	13	0	43	43	.08	-1.30	.03	3	6	.0	0	6.7	NW	52	NW	7	24	3	4	2.5	86

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

\+ And also on an earlier date or dates.

a Maximum hourly average.

Ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.

\# Number of days maximum 70° or above for Alaskan Stations.

ç City Office Data

† Airport Data

‡ Peak Gust

HEATING DEGREE DAYS

(Base 65°F)

JULY 1959

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ALABAMA			
Birmingham	0	0	0
Mobile	0	0	0
Montgomery	0	0	0
ALASKA			
Anchorage	284	284	239
Annette	253	253	262
Barrow	877	877	784
Barter Island	803	803	
Bethel	442	442	326
Cold Bay	533	533	
Cordova	409	409	363
Fairbanks	285	285	149
Juneau	328	328	319
King Salmon	422	422	
Kotzebue	545	545	384
McGrath	315	315	206
Nome	603	603	477
St. Paul	623	623	592
Yakutat	379	379	381
ARIZONA			
Flagstaff	6	6	49
Phoenix (U)	0	0	0
Phoenix	0	0	0
Prescott	0	0	0
Tucson	0	0	0
Winslow	0	0	0
Yuma	0	0	0
ARKANSAS			
Ft. Smith	0	0	0
Little Rock	0	0	0
Texarkana	0	0	0
CALIFORNIA			
Bakersfield	0	0	0
Bishop	0	0	0
Blue Canyon	13	13	36
Burbank	0	0	0
Eureka (U)	276	276	267
Fresno	0	0	0
Los Angeles (U)	0	0	0
Los Angeles	0	0	31
Mt. Shasta (R)	18	18	37
Oakland	29	29	84
Red Bluff	0	0	0
Sacramento (U)	0	0	0
Sacramento	0	0	0
Sandberg (R)	0	0	0
San Diego	0	0	11
San Francisco (U)	165	165	189
San Francisco	49	49	144
San Jose (U)	1	1	7
Santa Maria	51	51	98
COLORADO			
Alamosa	29	29	64
Colorado Springs	2	2	8
Denver	0	0	5
Grand Junction	0	0	0
Pueblo	0	0	0
CONNECTICUT			
Bridgeport	0	0	0
Hartford	0	0	0
New Haven	0	0	0
DELAWARE			
Wilmington	0	0	0
DIST. OF COLUMBIA			
Washington (U)	0	0	0
Washington	0	0	0
FLORIDA			
Apalachicola (U)	0	0	0
Daytona Beach	0	0	0
Fort Myers	0	0	0
Jacksonville	0	0	0
Key West	0	0	0
Miami	0	0	0
Miami Beach	0	0	0
Orlando	0	0	0
Pensacola (U)	0	0	0
Tallahassee	0	0	0
Tampa	0	0	0
West Palm Beach	0	0	0
GEORGIA			
Athens	0	0	0
Atlanta	0	0	0
Augusta	0	0	0
Columbus	0	0	0
Macon	0	0	0
Rome	0	0	0
Savannah	0	0	0
IDAHO			
Boise	12	12	0
Lewiston	16	16	0
Pocatello	17	17	0
ILLINOIS			
Cairo (U)	0	0	0
Chicago	0	0	0
Chicago University	0	0	
Moline	4	4	0
ILLINOIS (Cont'd.)			
Peoria	1	1	0
Springfield	0	0	0
INDIANA			
Evansville	0	0	0
Ft. Wayne	0	0	0
Indianapolis	0	0	0
South Bend	1	1	5
IOWA			
Burlington	5	5	0
Des Moines	6	6	5
Dubuque	13	13	8
Sioux City	4	4	8
KANSAS			
Concordia (U)	2	2	0
Dodge City	0	0	0
Goodland	2	2	0
Topeka	0	0	0
Wichita	0	0	0
KENTUCKY			
Lexington	0	0	0
Louisville	0	0	0
LOUISIANA			
Baton Rouge	0	0	0
Lake Charles	0	0	0
New Orleans (U)	0	0	0
New Orleans	0	0	0
Shreveport	0	0	0
MAINE			
Caribou	26	26	85
Greenville (U)	29	29	
Portland	2	2	15
MARYLAND			
Baltimore (U)	0	0	0
Baltimore	0	0	0
Frederick	0	0	0
MASSACHUSETTS			
Blue Hill Obs. (R)	5	5	
Boston	1	1	0
Nantucket	12	12	22
Pittsfield	6	6	25
MICHIGAN			
Alpena (U)	22	22	50
Detroit	0	0	0
Detroit (Willow Run)	0	0	0
Escanaba (U)	43	43	62
Grand Rapids	4	4	14
Lansing	7	7	
Marquette (U)	43	43	69
Muskegon	12	12	26
S. Ste. Marie	76	76	109
MINNESOTA			
Duluth (U)	51	51	66
Duluth	46	46	56
Internat. Falls	49	49	70
Minneapolis	5	5	8
Rochester	11	11	24
St. Cloud	12	12	32
MISSISSIPPI			
Jackson	0	0	0
Meridian	0	0	0
Vicksburg (U)	0	0	0
MISSOURI			
Columbia	0	0	0
Kansas City	0	0	0
St. Joseph	2	2	0
St. Louis (U)	0	0	0
St. Louis	0	0	0
Springfield	0	0	0
MONTANA			
Billings	23	23	8
Glasgow	20	20	14
Great Falls	26	26	24
Havre (U)	9	9	20
Helena	41	41	36
Kalispell	94	94	47
Miles City	2	2	6
Missoula	67	67	22
NEBRASKA			
Grand Island	4	4	0
Lincoln (U)	2	2	0
Norfolk	3	3	0
North Platte	6	6	7
Omaha	3	3	0
Scottsbluff	5	5	0
Valentine	5	5	11
NEVADA			
Elko	7	7	6
Ely	11	11	22
Las Vegas	0	0	0
Reno	6	6	27
Tonopah	0	0	0
Winnemucca	6	6	0
NEW HAMPSHIRE			
Concord	0	0	11
Mt. Washington Obs.	382	382	
NEW JERSEY			
Atlantic City (U)	0	0	0
Newark	0	0	0
Trenton (U)	0	0	0
NEW MEXICO			
Albuquerque	0	0	0
Clayton	0	0	0
Roswell	0	0	0
NEW YORK			
Albany	0	0	0
Binghamton	6	6	16
Buffalo	1	1	16
New York (U)	0	0	0
New York	0	0	0
Rochester	0	0	9
Schenectady	0	0	0
Syracuse	0	0	0
NORTH CAROLINA			
Asheville (U)	0	0	0
Cape Hatteras (R)	0	0	0
Charlotte	0	0	0
Greensboro	0	0	0
Raleigh	0	0	0
Wilmington	0	0	0
Winston-Salem	0	0	0
NORTH DAKOTA			
Bismarck	4	4	29
Devils Lake (U)	20	20	47
Fargo	8	8	25
Grand Forks	21	21	
Pembina	19	19	
Williston (U)	10	10	29
OHIO			
Akron	0	0	0
Cincinnati (U)	0	0	0
Cincinnati	0	0	0
Cleveland	0	0	0
Columbus	0	0	0
Dayton	0	0	0
Sandusky (U)	0	0	0
Toledo	0	0	0
Youngstown	3	3	0
OKLAHOMA			
Oklahoma City	0	0	0
Tulsa	0	0	0
OREGON			
Astoria	149	149	138
Burns (U)	40	40	10
Eugene	38	38	33
Meacham	116	116	88
Medford	3	3	0
Pendleton	11	11	0
Portland (U)	24	24	13
Portland	26	26	25
Roseburg	20	20	
Salem	33	33	21
Sexton Summit (R)	114	114	88
PENNSYLVANIA			
Allentown	0	0	0
Harrisburg	0	0	0
Philadelphia (U)	0	0	0
Philadelphia	0	0	0
Pittsburgh (U)	0	0	0
Pittsburgh	1	1	0
Reading (U)	0	0	0
Scranton	0	0	0
Williamsport	0	0	0
RHODE ISLAND			
Block Island	2	2	6
Providence	0	0	0
SOUTH CAROLINA			
Charleston (U)	0	0	0
Charleston	0	0	0
Columbia	0	0	0
Florence	0	0	0
Greenville	0	0	0
Spartanburg	0	0	0
SOUTH DAKOTA			
Huron	3	3	10
Pierre	2	2	
Rapid City	8	8	32
Sioux Falls	3	3	16
TENNESSEE			
Bristol	0	0	0
Chattanooga	0	0	0
Knoxville	0	0	0
Memphis	0	0	0
Nashville	0	0	0
TEXAS			
Abilene	0	0	0
Amarillo	0	0	0
Austin	0	0	0
TEXAS (Cont'd.)			
Brownsville	0	0	0
Corpus Christi	0	0	0
Dallas	0	0	0
Del Rio (U)	0	0	
El Paso	0	0	0
Ft. Worth	0	0	0
Galveston (U)	0	0	0
Galveston	0	0	0
Houston (U)	0	0	0
Houston	0	0	0
Laredo	0	0	0
Lubbock	0	0	0
Midland	0	0	
Port Arthur	0	0	0
San Angelo	0	0	0
San Antonio	0	0	0
Victoria	0	0	0
Waco	0	0	0
Wichita Falls	0	0	0
UTAH			
Milford	0	0	0
Salt Lake City	1	1	0
VERMONT			
Burlington	5	5	19
VIRGINIA			
Lynchburg	0	0	0
Norfolk	0	0	0
Richmond	0	0	0
Roanoke	0	0	0
WASHINGTON			
Olympia	75	75	91
Seattle (U)	29	29	49
Seattle-Tacoma	59	59	75
Spokane	55	55	17
Stampede Pass (R)	260	260	251
Tatoosh Island (R)	258	258	295
Walla Walla (U)	6	6	0
Yakima	34	34	0
WEST VIRGINIA			
Charleston	0	0	0
Elkins	1	1	9
Huntington (U)	0	0	0
Parkersburg (U)	0	0	0
WISCONSIN			
Green Bay	20	20	32
La Crosse	5	5	11
Madison	6	6	13
Milwaukee	13	13	20
WYOMING			
Casper	23	23	13
Cheyenne	15	15	33
Lander	15	15	7
Sheridan	30	30	27

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

JULY 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ø ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROPERTY	†DAMAGE CROPS
Alabama	1	1	0	3	4					0	0	4	0	1	3	4	0												
Alaska						0	0	1	1	2	0	6	1													0	0	6	1
Arizona						0	0	0	*	2	3	6	0	1	2	0	0									9	0	5	0
Arkansas						0	0	3	4					2	0	0	0												
California						0	0	3	0	0	0	2	0																
Colorado						0	0	6	6	0	0	4	3	1	4	4	0									0	0	3	3
Connecticut														0	1	4	0												
Delaware																										0	0	5	0
Florida	4	4	0	0	*									2	9	3	0												
Georgia	3	3	0	7	4					0	0	4	0	0	0	4	0												
Idaho						0	0	0	4	0	0	4	3																
Illinois	3	2	0	0	4	0	0	0	*	0	2	D4	0	1	0	*	0												
Indiana	2	2	0	0	4	0	0	0	5	0	1	4	0	1	7	0	0												
Iowa	1	1	0	0	4	0	0	0	5	0	0	5	0	1	5	3	0									0	0	4	3
Kansas	3	3	0	0	0	0	1	5	5	0	1	5	0	1	3	4	0									0	1	0	0
Kentucky						0	0	3	4	0	5	4	3	3	1	4	0									0	0	3	0
Louisiana						0	0	3	0					0	1	2	0												
Maine										0	0	3	0	0	0	4	0									0	0	3	0
Maryland	2	2	0	0	3					0	0	5	0	2	4	5	0									0	0	5	0
Massachusetts										0	0	4	0	1	17	5	0									0	17	5	3
Michigan										0	0	4	C	0	8	4	0												
Minnesota	F8	2	0	0	5	0	0	4	6	0	0	5	0	0	0	3	0												
Mississippi	1	1	0	0	3									1	0	2	0												
Missouri	1	1	0	0	2	0	0	4	5	0	2	4	4	1	1	4	0												
Montana						0	0	0	5					1	0	0	0												
Nebraska	3	3	0	0	5	0	0	6	7	0	0	5	0	1	0	5	0									0	0	5	5
Nevada										0	0	4	0																
New Hampshire										0	0	3	0	0	0	4	0									0	0	4	0
New Jersey														1	3	4	0									0	0	3	0
New Mexico	5	4	0	0	3	0	0	0	4	0	0	4	0	0	3	0	0												
New York	2	2	0	0	4	0	0	0	5	1	5	5	0	6	4	5	0									2	N	6	0
North Carolina	3	1	0	0	4	0	0	4	6	0	0	6	5	1	7	5	0									2	0	6	6
Ohio	1	1	0	0	3	0	0	5	7	0	0	5	4																
Oklahoma	E15	7	0	0	4	0	0	4	6	0	1	5	0	0	2	4	0									0	0	0	5
Oregon						0	0	1	2	1	1	1	1	0	0	5	5												
Pennsylvania										0	1	0	0	4	1	5	0									2	3	4	0
Puerto Rico														2	1	0	0									0	0	3	0
Rhode Island																										0	0	3	0
South Carolina	W	0	0	0	0					1	0	5	5	2	2	4	0									0	0	4	4
South Dakota	2	2	0	0	4	0	0	4	6	0	3	5	5	1	1	4	0												
Tennessee										0	1	0	0	0	4	4	0												
Texas	12	12	0	0	5	0	0	5	4	0	0	4	4	5	6	5	3									0	0	6	C
Utah										0	0	4	0	0	1	2	0												
Vermont						0	0	3	3	0	0	3	0																
Washington										0	0	3	5																
West Virginia														1	0	3	0												
Wisconsin	2	1	0	3	4	0	0	*	*					0	6	3	0									0	0	*	*
Wyoming														1	2	0	0												

C Crop damage.
* Not estimated.
D Other damage occurred; estimates not available.
° Includes crop damage.
F Includes 3 funnels aloft.
N Numerous
W 3 waterspouts and 1 funnel cloud observed.
E Includes 12 funnels aloft occurring on 6 different days other than the tornado day.
‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

HURRICANES CINDY AND DEBRA, JULY 1959

Howard C. Sumner
Marine Section, Office of Climatology
U. S. Weather Bureau

Two tropical cyclones developed during July. Both reached the coastline of the United States and each was accompanied by winds that, for a short period, attained hurricane force. Both storms developed quickly and traveled only a relatively short distance before reaching the coast.

Cindy developed in a weak trough east of Florida with an early slow movement toward the northeastward. The storm later intensified, turned toward the west, and passed inland over the South Carolina coast between Georgetown and Beaufort during the night of July 8.

Debra developed rapidly near the east Texas coast on July 24 in an easterly wave, moved in a generally northward direction, and crossed the coastline between Freeport and Galveston attended by strong winds, high tides in parts of Galveston Bay, and heavy rains over the affected area.

These two hurricanes are covered in detail below with their tracks shown on figure 1.

CINDY.--Hurricane Cindy initially developed as a small low pressure area in a weak frontal zone over the Atlantic east of Florida. As the disturbance moved northeastward gradual development of tropical characteristics and strong winds occurred and by July 7 the disturbance had reached storm intensity. The initial advisory, carrying gale warnings and ordering a hurricane watch from south of Cape Hatteras, N. C., to north of Charleston, S. C., was issued at 6:30 p.m. e.s.t.

At this time the storm was nearly stationary about 190 miles east of Charleston and the highest winds were estimated at 60 to 65 m.p.h. During the night of July 7-8 the storm drifted erratically toward the west.

At this stage the storm was under close surveillance by Navy reconnaissance aircraft and Air Defense Command land-based radar. As movement continued to be toward the coast and there were indications of intensification the hurricane watch and gale warnings were extended southward to Beaufort, S. C., at 11:00 a.m. e.s.t. on July 8. Later in the day the storm just reached hurricane intensity when the highest winds in squalls near the center were 70 to 75 m.p.h. Hurricane warnings were ordered for the coastal area between Georgetown, S. C., and Beaufort at 2:00 p.m. e.s.t. on July 8.

At about 9:30 p.m. e.s.t. the center moved inland over the southern part of Bull Bay, (32°53'N., 79°38'W.) attended by winds of whole gale force, heavy rains, and a 4-foot storm tide.

Heavy rain accompanied the storm as it curved and passed northeastward over the Carolinas and out over the North Atlantic in the vicinity of Norfolk. Continuing a course to the northeast the center passed over Cape Cod, skirted the New England coast, and moved out over the Gulf of Saint Lawrence. Cape Cod reported gusts of 50 to 60 m.p.h.

Losses from wind, tide, and rain were relatively minor, consisting mostly of roof damage and downed trees and power lines. A number of tornadoes which attended passage of the storm over North Carolina and Virginia caused some damage to buildings. Although there was some flooding of streams in the Carolinas, the heavy and widespread rainfall was for the most part beneficial, ending a long period of dry weather. One death was reported when an automobile struck a fallen tree near McClellanville, S. C. For detailed meteorological information on Cindy see table 1.

DEBRA.--This hurricane developed in an easterly wave and was apparent as a disturbance in the Gulf of Mexico near 27°N., 92°W. late on July 22. The system drifted west-northwestward across the northern Gulf until it reached a position south of Galveston where on the morning of the 24th there were indications of rapid intensification. Winds of hurricane force developed during the afternoon. Moving slowly, the center passed inland a short distance northeast of Freeport, Texas, where the strongest winds were reported. At the Brazos River Floodgate, 5 miles west of Freeport, a peak gust of 105 m.p.h. from the west was observed at 11:00 p.m. on July 24. San Leon, on Galveston Bay, reported a peak gust of 90 m.p.h. from the east at 8:00 a.m. on the 25th. The peak gust at the Brazos River Floodgate, which occurred during a period of rapidly rising pressure, was probably recorded in a local squall as general squally conditions accompanied passage of the storm.

The lowest pressure during passage of the storm was 29.10 inches (985.4 millibars) reported by the Coast Guard Cutter BLACKTHORN late on July 24. The lowest land station pressure was 29.33 inches (993.2 millibars) reported at the Union Carbide Company in Texas City, Texas, at 5:30 a.m. on July 25. After passing inland the storm continued on a slow northward course during the remainder of the day.

The eye was centered over Dickinson, Texas, from 7 to 8:30 a.m. and over Kemah from 8 to 9 a.m. on the 25th. At 3:30 p.m. the center was located about 5 miles northeast of Cleveland, Texas, where the eye was still distinguishable but in the process of breaking up. Over east Texas the storm began to disintegrate into an area of heavy rains and squalls. At 10 p.m. of the 25th the remnants of the storm were located near Lufkin with highest winds about 35 m.p.h. After passing near Tyler, Texas, about 10 a.m. on the 26th the dissipating storm continued northward into Oklahoma.

Torrential rains fell during the passage of Debra with resultant flooding at Hitchcock, La Marque, Texas City, and Dickinson. The heaviest rainfall was reported some distance east of the center over Orange County, where the Churn Station at Orange, Texas, reported 14.42 inches and a cooperative station 14.76 inches. At Dickinson, Texas, for the 48 hours ending at 7:00 a.m., July 25, the amount was 13.40 inches. For a 24-hour period, prior to the 7:00 a.m. observation on the 25th the measurement was 10.82 inches. At San Leon, Texas, the combined fall for July 24 and 25 was 12.81 inches.

Since Debra developed near the coast and moved directly inland there was little time and fetch for development of exceptionally high or extensive tides. Waters in Galveston Bay rose about 6 feet above normal during the height of the storm. The highest tide reported was 7.9 feet above mean sea level at Morgan Point at the north end of Galveston Bay. This reading was taken by the Corps of Engineers from a well-defined water mark inside a building and is considered reliable. During the 25th a 10-mile stretch of the Gulf Freeway between Galveston and Houston was flooded.

Total damage in Brazoria, Galveston, and the eastern portions of Harris County has been estimated at $6,685,000. There was no loss of life, although a number of persons were temporarily reported as missing. Ten persons suffered minor injuries. For detailed meteorological information on Debra see table 2.

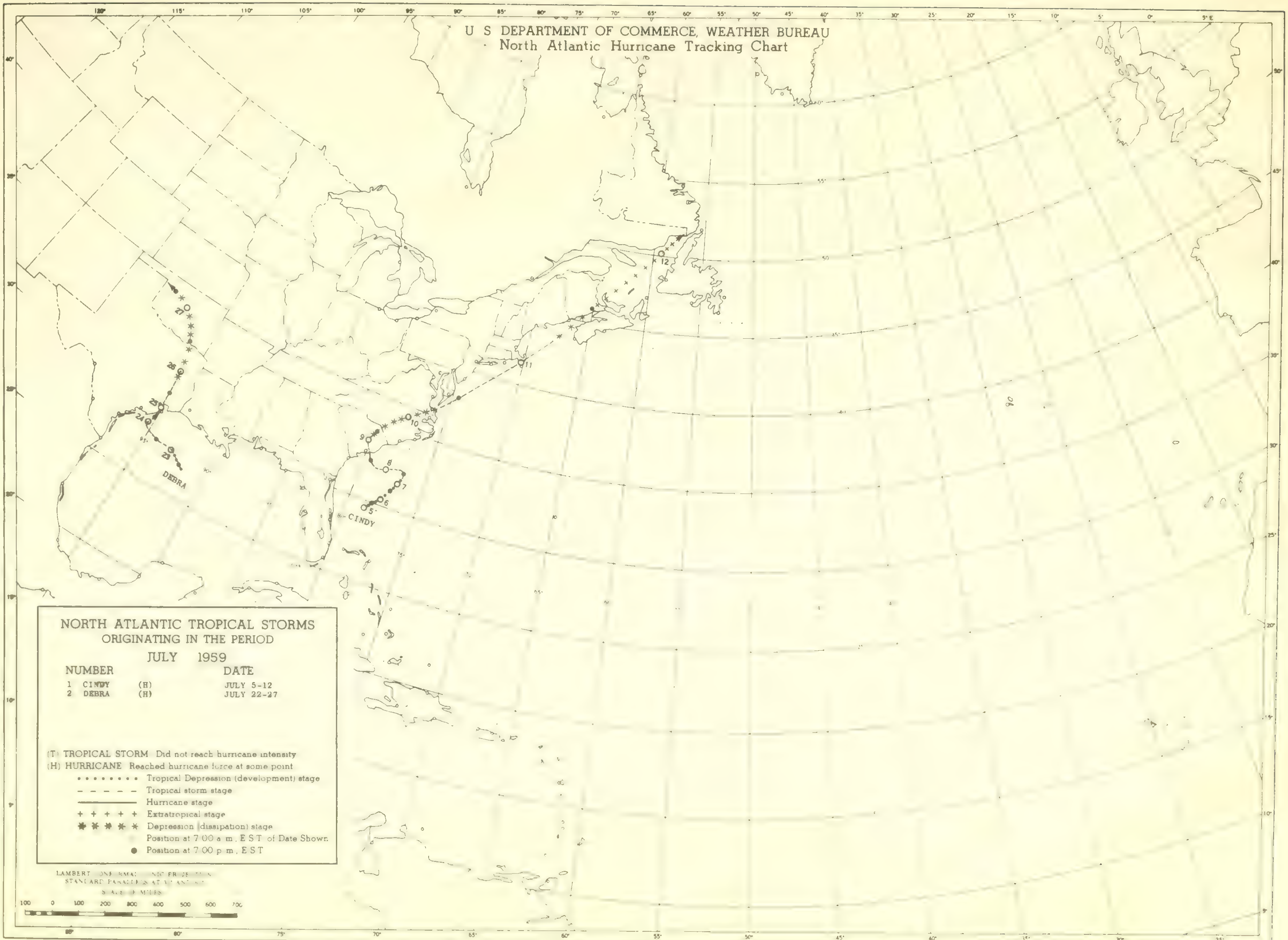

U S DEPARTMENT OF COMMERCE, WEATHER BUREAU
North Atlantic Hurricane Tracking Chart
NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
JULY 1959
NUMBER
DATE
1 CINDY (H) JULY 5-12
2 DEBRA (H) JULY 22-27
(T) TROPICAL STORM Did not reach hurricane intensity
(H) HURRICANE Reached hurricane force at some point
Tropical Depression (development) stage
Tropical storm stage
Hurricane stage
Extratropical stage
Depression (dissipation) stage
Position at 7:00 a.m. E.S.T. of Date Shown
Position at 7:00 p.m. E.S.T.
CINDY
DEBRA

FIGURE I

TROPICAL CYCLONE DATA

HURRICANE CINDY

JULY 5-12, 1959

Station	Date	Pressure (inches)		Wind (miles per hour)				Rainfall (inches)	Remarks
	July	Low	Time *	Fastest Mile	Time*	Gusts	Time *		
SOUTH CAROLINA									
Charleston (WBAS)	8	29.69	11:20p.	25 W #	10:59p.	47 N	12:45p.	2.17	Highest tide 6.6 feet above mean low water at 3:00 p.m. on the 10th
McClellanville	8					60-65 E			Damage negligible
Columbia (WBAS)	9	29.89	6:40a.	28 NNW#	6:20a.	45 NNW	6:20a.	5.82	$50,000 damage from collapse of Pool Mill Dam
Florence (WBAS)	9	29.85	6:00p.	19 S#		28		.66	No damage to crops from rain or winds
NORTH CAROLINA									
Wilmington (WBAS)	8	30.04	4:00a.	24 NE	9:04a.	48 S	9:32p.†	.79	No distructive winds or tides
Raleigh (WBAS)	10	29.82	5:30a.	20 NNE#	6:04a.	32 WNW	5:25p.	2.12	No casualties reported
VIRGINIA									
Norfolk (WBAS)	10	29.67	3:05p.	45	4:11p.	46	3:44p.	.56	
Richmond (WBAS)	10	29.83	2:00p.	17 NW	2:53p.	26 NNE	2:49p.	1.10	
NEW JERSEY									
Atlantic City (WBAS)	10					36 N	9:30p.	6.46	No significant damage

* Eastern Standard Time
† July 9, 1959
\# Highest 1 Minute Wind

TABLE 1

TROPICAL CYCLONE DATA

HURRICANE DEBRA

JULY 22-27, 1959

Station	Date	Pressure (inches)		Wind (miles per hour)				Rainfall (inches)	Remarks
	July	Low	Time*	Fastest Mile	Time*	Gusts	Time*		
TEXAS									
Anahuac (CHURN)†	25	29.57	10:30a.	50 SSE	10:45a.	65 SSE	10:45a.	6.95	
Dickinson	25	29.13	5:45a.					13.40	Center over Dickinson 7:00 a.m. to 8:30 a.m.
Freeport (Coast Guard)	25	29.15	1:30a.			89 WSW	1:00a.		Highest tide 2.7 feet above mean sea level
Freeport (Brazos Floodgates)	24	29.21	10:00p.			105 W	11:00p.		High tide 3.4 feet above mean sea level
Galveston (WBO)	25	29.55	5:30a.	57 SE	2:50a.	85 SE	2:55a.	5.88	High tide 2.8 feet above mean sea level at 4:25 a.m. on the 25th
Galveston (WBAS)	25	29.52	4:50a.			81 SE	3:15a.	7.96	
High Island	25	29.74	4:00a.			45 SE	3:00a.		High tide 1.6 feet above mean sea level on the 25th
Houston (WBO)	25	29.51	10:30a.	49 N	9:16a.	60 N	9:21a.	5.31	
Houston (WBAS)	25	29.42	6:55a.	58 NE	6:02a.	82 NE	4:35a.	8.98	Damage mostly to power lines and fallen trees
Jefferson Co. Airport	25	29.75	12:00n.	39 SE	1:15p.	48 SE	10:49a.	7.80	
Matagorda (Colorado Locks)	24	29.73	5:00p.			38 NNW	11:00a.		High tide 0.9 foot above mean sea level at 10:00 a.m. on the 24th
Sabine (Coast Guard)	25	29.74	12:30p.	40 SSE	4:00a.			6.00	
San Leon (CHURN)†	25	29.32	8:30a.	50 SSE	7:45a.	90 SSE	8:00a.	12.81	High tide 3.9 feet above mean sea level at 9:30 a.m. on the 25th
Sargent (CHURN)†	24	29.64	5:00p.			55 NNE	5:00p.		Peak tide estimated at 2.0 feet above mean sea level
Texas City	25	29.38	5:30a.			52 E	2:45a.		High tide 4.9 feet above mean sea level at 5:30 a.m.

* Central Standard Time
† Cooperative Hurricane Reporting Network

TABLE 2

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JULY 1959

Most noteworthy during July was the near record overflow along a portion of the Caney River in Oklahoma, and the serious flooding along the Chikaskia and Deep Fork Rivers, also in Oklahoma. Widespread flooding in these basins inundated a large number of roads and highways and forced a great many families to flee their homes. Elsewhere in Oklahoma, flash flooding in Stillwater and Okmulgee caused many people to evacuate their homes.

Serious flash flooding also occurred in Jackson, Miss., as a result of intense local thunderstorm activity.

Flooding along major streams during the month was mostly light.

ATLANTIC SLOPE DRAINAGE

Several days of heavy rain totaling more than 7 inches from the 11th through the 21st produced a general rise in the coastal streams of Massachusetts. Overflow occurred only at Norwood, Mass., on the Neponset River where the crest was just 0.7 foot above flood stage. No damage resulted.

Some minor local flooding of small creeks just to the north of Reading, Pa., occurred during the evening of the 31st as a result of localized heavy thundershowers in the area.

Rain fell frequently and in considerable quantity during the month over the Cape Fear and Neuse River basins in North Carolina. Day to day totals were extremely variable throughout the area, however, and the effect of the rains on the larger streams was minimized. The flooding along the Neuse River and on the lower Cape Fear River was light and no damage was reported. Flash flooding occurred on several small streams as a result of locally heavy showers.

Moderate to heavy rains spread across South Carolina and into North Carolina as tropical storm "Cindy" moved inland just north of Charleston, S. C., during the night of the 8th. The heaviest rains were concentrated over the coast in the McClellanville area, the northeastern portion of the upper Edisto basin, the lower Yadkin and Rocky River basins, and in a small area about 10 miles east of Columbia, S. C., airport where an unofficial measurement of 15 inches for the total storm was reported. From 5 to more than 6 inches fell over the Rocky River basin on the 9th and early on the 10th, causing the river to rise 24 feet in less than 24 hours at Norwood, N. C., exceeding the flood stage by nearly 10 feet.

The Pee Dee River at Cheraw, S. C., below its confluence with the Rocky and also below Blewett Reservoir, rose from a stage of 10 feet on the morning of the 10th to a crest of 29 feet on the morning of the 11th. This crest was 1 foot under the flood stage at Cheraw, and the crest was just under flood stage all the way to tidewater. The North Fork of the Edisto River crested just above flood stage on the 15th.

Light flooding of lowlands, mostly pastures, occurred on the Congaree River below Columbia, S. C., from the 10th to the 12th.

No damage resulted from the flooding along these streams.

Considerable general flooding by sea water occurred in the McClellanville-Bull Bay area of South Carolina and light flooding in the Georgetown-Winyah Bay area of the coast as tropical storm "Cindy" moved inland near the time of high water during a period of moderately high normal tides. No damage of consequence resulted from this storm tide, but wharves and low approach roads were inundated and the water reached the floor level of a packing plant on the shore of Bull Bay.

EAST GULF OF MEXICO DRAINAGE

Serious flash flooding developed along small streams in the Jackson, Miss., area as a result of a violent thunderstorm which dumped more than 6 inches of rain over portions of the city on the 2d. Water covered numerous streets, entered some residences and stores, and one church was flooded. A number of persons were evacuated by boat. Local runoff caused the Pearl River at Jackson to rise 6 feet in a 10-hour period.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--Rains totaling 2 to 5 inches on the 8th and 9th produced a crest to within 1 foot of flood stage on the Chippewa River at Durand, Wis.

July rainfall in southwestern Minnesota averaged about 50 percent of normal, and the deficiency was reflected in the river stage at Mankato on the Minnesota River where the mean July stage of 2.8 feet was 2.9 feet below the longterm mean and the lowest since July 1940. On the 27th, 30th, and 31st the stage of 1.7 feet equalled the second lowest stage of record.

Crests occurred on the 1st from rises that began in June on the North and Middle Rivers in Iowa. The crest of 22.6 feet at Norwalk, Iowa, on the North River was exceeded only by the 25.3-foot crest on June 13, 1947. Flooding along these rivers was confined to low-lying farmland, and only minor damage resulted as the flooded crops recovered rapidly.

The flooding from the 1st to the 3d along the lower Des Moines River from Tracy to Ottumwa, Iowa, affected only low-lying areas and damage was insignificant.

Missouri Basin.--Minor overflow of small tributaries of the Elkhorn River in the vicinity of Scribner and Snyder, Nebr., occurred on July 14 due to heavy local rains. Damage was insignificant.

Light flooding with little or no damage occurred in the Little Blue and Big Blue River basins in northeastern Kansas and southeastern Nebraska during the first decade of the month, following rains totaling 1.5 to 2.5 inches. More extensive overflow occurred along the Black Vermillion River, also in the Big Blue basin, when more than 3 inches of rain fell in the basin. Flood stage was exceeded by 7.5 feet at Frankfort, Kans., on the 4th. Damages were relatively light since the Black Vermillion had flooded at the end of May at even higher stages.

Ohio Basin.--During the evening of the 31st severe thundershowers occurred in the New Matamoras, Ohio, area. An unofficial measurement of 3.5 inches of rain falling in 45 minutes was reported at New Matamoras. Flash flooding of two creeks that have their confluence within the city limits caused damages estimated at $50,000, mostly to residential property.

Arkansas Basin.--Local flooding, which washed out a Santa Fe railroad bridge, occurred on the 14th on Dodd Creek in the Cottonwood River basin in eastern Kansas following a 6.5 inch rain at Diamond Springs, Kans. The overflow of the main Cottonwood River at Emporia, Kans., from the 18th to the 20th was minor.

Heavy rains fell in the Vardigris watershed on the 14th and 15th with Toronto, Kans., measuring 9.42 inches for the 2-day total. Extensive lowland flooding occurred and some stations in the upper and lower reaches of the river reported above flood stage readings for 7 to 10 consecutive days.

On the 15th, rains totaling 2.5 to 4.6 inches fell over the entire Walnut River drainage. As a result, flooding occurred northeast of El Dorado, Kans., and State Highway 13 was closed for several hours. Timber and Dutch Creeks near Winfield, Kans., flooded several hundred acres of bottomland and closed local roads for a short time.

On the 22d, rains totaling up to 6 inches fell over a relatively small area in the central portion of the Ninnescah River basin, causing extensive lowland flooding on the North and South Forks of the Ninnescah. A small bridge over a normally dry creek on U. S. Highway 54, west of Wichita, Kans., was washed out, halting traffic nearly all day.

Flash flooding occurred at Stillwater, Okla., on the 27th where 4.82 inches of rain fell, although there was an unofficial measurement reported of nearly 8 inches. More than 200 families in Stillwater were driven from their homes by the flood water.

Persistent rains, sometimes heavy, caused serious flooding along the Caney River in Oklahoma. The river left its banks twice at Bartlesville and on three occasions at Ramona. The crest at Ramona on the 24th was the second highest recorded at that station and just 0.3 foot lower than the record stage of 30.1 which occurred on October 3, 1945. Heavy upstream runoff was impounded by Hulah Lake, thus preventing even more serious overflow. More than 100 families in Bartlesville and in other areas of Washington County were forced to flee their homes. Nearly all the main highways and county roads in Washington County were flooded. Damages in Bartlesville were estimated at $195,000.

Serious flooding also developed on the Chikaskia River at Blackwell, Okla., on the 16th and again on the 23d. Many roads were closed and 30 families forced from their homes as several inches of water covered the city of Blackwell.

During the period from the 25th to the 27th about 4 inches of rain fell over the lower half of the Deep Fork River drainage, a tributary of the North Canadian River. These rains followed a rainy period from about the middle of July and produced a flood crest 3.2 feet above flood stage at Dewar, Okla., on the 28th. The flooding continued into August. The heavy rains on the 25th caused flash flooding on Okmulgee Creek at Okmulgee, Okla., and on Coal Creek at Henryetta, Okla. About 180 persons were evacuated from their homes in Okmulgee as about 80 city blocks were inundated. The flooding at Henryetta was less severe, there being no evacuations and the flood waters did not reach the business district.

Red Basin.--Four to 5 inches of rain fell over the Washita River basin in western Oklahoma on the 26th and 27th. This resulted in minor flooding of the Washita at Clinton and Carnegie, Okla. Overflow was confined to lowlands used chiefly for grazing.

WEST GULF OF MEXICO DRAINAGE

During the period 24th to 26th heavy rains associated with tropical storm "Debra" fell over an area from the lower Calcasieu River drainage westward through the lower Sabine River basin. Some of the heavier 3-day totals were: Lake Charles, La., 8.14; Old Town Bay, La., 6.59; DeQuincy, La., 8.66; Orange, Tex., 14.96; Deweyville, Tex., 11.83; Bon Weir, Tex., 5.63 inches. Stages were low in all streams at the beginning of the month and, although frequent showers occurred during most of the first two decades of the month, the rivers were not affected much. The hurricane rains caused the Calcasieu and the Sabine Rivers to rise to about one-half bankfull to near bankfull in the lower reaches.

The heavy local rains which caused the flash flooding during the latter part of June in the headwater areas of the Nueces and Frio Rivers, caused minor overflow along the Nueces from below Cotulla, Tex., to below Tilden, Tex., through the 13th; also, on the Frio from Tilden to near Three Rivers, Tex., through the 5th. No damage was reported.

Flash flooding again developed in the upper portions of the Nueces and Frio watersheds as a result of locally heavy showers from the 18th to the 20th.

Heavy rains of 1 to 4 inches occurred in the upper Colorado River watershed during the night of the 1st-2d causing minor flooding in Midland and Odessa, Tex., on the 2d. Excessive rains from the 19th to the 21st at and above Brownwood, Tex., in the Pecan Bayou basin caused considerable runoff into Lake Buchanan. Brownwood received almost 10 inches of rain during the 3-day period. Pecan Bayou reached a peak of 13.6 feet at Highway 377 bridge at Brownwood on the morning of the 21st and held at that stage through the morning of the 22d. This discharge was 4 feet over the Brownwood Dam spillway and the water was level with the bridge floor. At a reading of 12.2 feet a relief structure began diverting some flow from the main channel under the bridge. Only minor local flooding occurred in the city. Lake Buchanan was at a slightly above spillway level from midnight of the 24th through the 26th.

FLOOD STAGE DATA

(All dates in July unless otherwise specified)

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	Ft.			Ft.	
Neponset: Norwood, Mass.	9	21	23	9.7	22
Neuse: Neuse, N. C.	14	11	13	16.7	12
Smithfield, N. C.	13	12	14	16.9	14
Goldsboro, N. C.	14	16	22	19.9	20
Kinston, N. C.	14	18	25	16.6	23
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	12	14	22.4	13
Rocky: Norwood, N. C.	16	9 31	11 Aug. 1	25.5 19.4	10 31
Edisto: Orangeburg, S. C.	8	13	16	8.5	15
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Turkey: Garber, Iowa	11	June 30	1	13.45	1
North: Norwalk, Iowa	14	June 30	3	22.6	1
Middle: Indianola, Iowa	15	June 30	1	19.5	1
Des Moines: Tracy, Iowa	14	1	2	16.5	2
Eddyville, Iowa	15	1	3	17.8	2
Ottumwa, Iowa	9	2	3	10.1	3
Missouri Basin					
West Fork Big Blue: Dorchester, Nebr.		7	7	14.7	7
Little Blue: Deweese, Nebr.	6	4	6	9.6	4
Fairbury, Nebr.	10	4	6	11.7	6
Waterville, Kans.	16	4	4	17.2	4
Black Vermillion: Frankfort, Kans.	19	4	5	26.5	4
Big Blue: Crete, Nebr.	16	4 8	4 [illegible]	16.45 16.3	4 8
Barneston, Nebr.	18	4	[illegible]	19.9	4
Marysville, Kans.	35	4	4	36.0	4
Blue Rapids, Kans.	20	4	6	26.8	4
Randolph, Kans.	22	5	5	24.0	5
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Arkansas Basin					
Walnut: Augusta, Kans.	23	16	16	24.7	16
Chikaskia Blackwell, Okla.	26	16 22	16 23	27.2 29.6	16 23
Caney: Bartlesville, Okla.	13	15 22	16 24	15.2 18.6	15 22
Ramona, Okla.	27	16 20 22	18 20 26	29.15 28.4 29.8	18 20 24
Verdigris: Coyville, Kans.	28	14	20	34.2	14
Altoona, Kans.	23	14	21	27.5	15
Independence, Kans.	30	15	20	36.65	19
Coffeyville, Kans.	20	18	19	20.7	18
Lenapah, Okla.	30	16 18	16 20	30.75 30.6	16 19
Claremore, Okla.	38	17	27	43.6	25
Inola, Okla.	41	19	28	45.9	26
Cottonwood: Emporia, Kans.	20	18	20	22.0	19
Neosho: Oswego, Kans.	17	15	19	20.2	16
Deep Fork: Dewar, Okla.	18	24	1/	21.2	28
Arkansas: Van Buren, Ark.	22	28	28	22.5	28
Red Basin					
Washita: Carnegie, Okla.	18	29	31	21.0	29
Sulphur: Naples, Tex.	22	June 29	3	24.45	1
WEST GULF OF MEXICO DRAINAGE					
Frio: Tilden, Tex.	12	1	3	17.1	2
Calliham, Tex.	12	3	4	14.1	4
Nueces: Tilden 11S, Tex.	11	5	13	14.8	12

* Tentative
1/ Continued at end of month

RAWINSONDE DATA

Average monthly values

ALBANY, N. Y. (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	86	19.1	87	193	2.9
1,000	31	157	19.0	84	210	2.7
950	31	595	19.0	74	262	5.6
900	31	1,063	17.0	68	277	8.4
850	31	1,549	14.1	66	274	10.3
800	31	2,059	11.4	60	271	12.2
750	31	2,593	8.5	56	266	15.2
700	31	3,165	5.7	48	264	18.5
650	31	3,765	2.7	38	261	20.8
600	31	4,413	- .8		259	21.4
550	31	5,095	- 4.8	34	261	22.9
500	31	5,847	- 9.4		260	25.8
450	31	6,649	-14.6		256	27.0
400	31	7,538	-20.8		257	28.4
350	31	8,511	-27.7		254	32.1
300	31	9,602	-35.7		250	34.2
250	31	10,845	-45.1		247	39.1
200	31	12,303	-54.9		255	38.5
175	31	13,149	-58.2		258	35.4
150	31	14,115	-60.2		261	29.7
125	31	15,251	-60.7		264	20.6
100	31	16,644	-58.9		268	11.3
80	30	18,051	-56.8		287	1.6
60	27	19,889	-53.4		93	7.4
50	27	21,069	-51.0		90	11.3
40	26	22,527	-49.0		90	15.2
30	23	24,424	-46.8		92	19.2
25	21	25,632	-44.9		89	21.8
20	17	27,127	-42.0		91	23.5
15	11	29,090	-38.3			
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ALBUQUERQUE, N. MEX. (842 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,619	19.2	60	85	4.7
1,000	31	106				
950	31	557				
900	31	1,033				
850	31	1,533				
800	31	2,057	18.7	51	147	5.1
750	31	2,605	15.8	50	203	3.9
700	31	3,192	11.9	52	257	2.7
650	31	3,803	7.7	50	331	3.5
600	31	4,463	2.6	52	357	5.8
550	31	5,154	- 2.8	54	357	7.6
500	31	5,911	- 8.0	50	351	7.8
450	31	6,718	-13.1	45	346	9.9
400	31	7,612	-18.8		337	11.5
350	31	8,593	-25.7		328	14.6
300	31	9,691	-34.1		322	18.8
250	31	10,942	-43.8		314	23.3
200	31	12,406	-54.5		314	27.4
175	31	13,250	-60.1		311	23.9
150	31	14,199	-65.8		308	20.2
125	31	15,296	-69.5		330	11.7
100	30	16,629	-68.3		63	8.2
80	28	17,977	-64.2		75	12.4
60	28	19,762	-58.9		87	17.3
50	28	20,912	-56.4		88	24.3
40	26	22,342	-53.2		96	28.2
30	26	24,210	-49.5		88	28.8
25	26	25,410	-47.5		90	30.1
20	26	26,892	-45.1		90	33.6
15	19	28,824	-42.0		87	37.7
10	8	31,612	-37.7			
7						

AMARILLO, TEX. (895 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,095	18.5	81	225	3.5
1,000	31	127				
950	31	575				
900	31	1,045				
850	31	1,539	19.1	63	211	8.2
800	31	2,058	16.7	57	244	5.1
750	31	2,601	13.3	56	307	2.9
700	31	3,182	9.6	52	347	5.2
650	31	3,786	5.4	51	2	5.6
600	31	4,442	.9	53	359	6.8
550	31	5,126	- 3.6	49	357	8.2
500	31	5,883	- 8.2	45	346	10.5
450	31	6,687	-13.0		339	11.7
400	31	7,582	-19.1		337	14.8
350	31	8,562	-26.1		335	16.3
300	31	9,659	-34.3		325	19.2
250	31	10,909	-43.6		315	22.3
200	29	12,375	-53.9		309	23.5
175	29	13,222	-59.0		307	24.1
150	29	14,177	-64.1		314	21.6
125	27	15,286	-67.6		322	16.7
100	27	16,627	-67.7		8	6.2
80	27	17,981	-63.8		65	8.2
60	26	19,769	-58.8		88	17.9
50	25	20,920	-56.0		85	21.8
40	23	22,347	-53.3		90	25.1
30	21	24,216	-50.0		87	27.8
25	21	25,415	-47.6		88	29.7
20	18	26,893	-44.9		85	33.8
15	9	28,821	-43.1			
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ANCHORAGE, ALASKA (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	30	11.6	80	190	4.5
1,000	31	96			186	6.0
950	31	513	9.0	76	179	8.0
900	31	969	6.2	78	181	8.9
850	31	1,436	3.2	80	179	7.8
800	31	1,925	.6	81	180	6.2
750	31	2,438	- 2.1	81	181	7.0
700	31	2,988	- 4.7	80	188	6.2
650	31	3,563	- 7.9	73	200	7.0
600	31	4,187	-11.5	68	218	6.2
550	31	4,843	-15.5	63	224	6.2
500	31	5,563	-20.0	55	221	6.2
450	31	6,329	-25.3	52	221	8.0
400	31	7,181	-31.3	52	215	9.1
350	31	8,114	-38.1	50	215	8.9
300	31	9,159	-45.4		232	10.3
250	30	10,367	-51.0		248	12.6
200	27	11,815	-50.6		264	13.0
175	27	12,691	-48.3		262	11.5
150	27	13,708	-47.6		254	9.1
125	26	14,918	-47.2		256	6.0
100	25	16,396	-46.9		242	3.5
80	25	17,879	-46.1		205	2.1
60	22	19,800	-45.3		86	3.7
50	22	21,017	-45.2		90	4.3
40	22	22,509	-44.9		79	5.8
30	20	24,439	-43.8		77	11.9
25	19	25,667	-42.2		80	13.8
20	18	27,180	-40.3		85	14.4
15	16	29,149	-37.9		84	18.7
10	11	31,972	-33.9			
7	5	34,473	-31.2			

ANNETTE, ALASKA (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	37	12.1	90	161	3.3
1,000	31	166	11.8	87	175	2.3
950	31	589	9.7	86	194	4.3
900	31	1,042	7.4	84	210	6.0
850	31	1,512	5.2	78	210	7.4
800	31	2,005	2.7	74	229	8.7
750	31	2,521	.6	69	245	9.5
700	31	3,078	- 1.9	64	257	10.3
650	31	3,657	- 5.0	59	252	9.7
600	31	4,291	- 8.5	56	258	10.1
550	31	4,953	-12.4	55	250	12.4
500	31	5,684	-17.0	53	251	14.6
450	31	6,458	-22.2	49	302	3.7
400	31	7,325	-28.5	47	355	5.4
350	31	8,268	-35.8	41	167	9.1
300	31	9,322	-43.9			
250	30	10,520	-51.1			
200	30	11,962	-52.6			
175	29	12,832	-51.3			
150	28	13,827	-50.2			
125	28	15,018	-50.1			
100	28	16,477	-49.7			
80	28	17,941	-49.1			
60	26	19,835	-48.6			
50	26	21,035	-48.2			
40	26	22,511	-46.9			
30	24	24,423	-45.1			
25	23	25,642	-44.0			
20	19	27,149	-42.4			
15	6	29,127	-39.2			
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7						

ATHENS, GA. (991 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	246	21.5	94	97	1.6
1,000	30	170				
950	30	616	21.3	80	112	2.3
900	30	1,085	19.1	76	171	1.7
850	30	1,575	16.2	76	141	1.9
800	30	2,090	13.4	72	204	2.7
750	30	2,628	10.5	68	228	3.3
700	30	3,204	7.6	60	247	3.3
650	30	3,809	4.2	47	245	3.9
600	30	4,460	.7	49	255	4.7
550	30	5,152	- 3.1	44	228	3.7
500	30	5,903	- 7.7	41	230	2.7
450	30	6,705	-12.8	39	237	3.9
400	30	7,603	-18.6	39	259	3.7
350	30	8,585	-25.5	39	290	3.1
300	30	9,685	-33.8	37	298	4.3
250	30	10,938	-43.4		318	7.2
200	30	12,403	-54.8		325	10.5
175	27	13,242	-61.0		336	8.0
150	27	14,187	-66.4		357	8.0
125	26	15,285	-68.1		12	5.4
100	23	16,626	-66.0		55	6.2
80	22	17,988	-62.7		79	11.1
60	19	19,776	-58.4		89	19.2
50	19	20,931	-55.8		93	23.5
40	17	22,360	-53.4		96	26.6
30	14	24,218	-50.0		98	29.3
25	12	25,415	-47.6			
20	5	26,911	-45.5			
15						
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BARROW, ALASKA (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	[illegible]	1.3	94	241	1.4
1,000	31	68			90	5.1
950	31	479	1.9	85	144	1.7
900	31	917	.9	76	167	2.5
850	31	1,375	- .7	73	223	2.1
800	31	1,858	- 2.7	71	279	1.6
750	31	2,368	- 5.1	68	278	2.3
700	31	2,909	- 8.0	65	304	1.9
650	31	3,476	-11.3	60	261	3.9
600	31	4,092	-14.8	56	222	4.1
550	31	4,740	-18.9	50	237	3.3
500	31	5,450	-23.5	46	180	4.5
450	31	6,204	-28.9	43	170	3.1
400	31	7,045	-35.1	44	183	3.7
350	31	7,965	-41.0		121	1.6
300	31	9,002	-46.1		149	3.7
250	31	10,212	-46.6		142	3.5
200	30	11,713	-42.7		185	.8
175	30	12,616	-42.5		1	1.0
150	30	13,657	-42.6		29	3.9
125	29	14,889	-42.9		49	3.7
100	29	16,393	-43.1		48	3.7
80	27	17,907	-42.5		66	4.3
60	26	19,851	-41.8		51	7.4
50	26	21,087	-41.8		53	7.6
40	26	22,601	-41.3		57	8.0
30	24	24,559	-40.7		62	8.9
25	24	25,803	-39.8		69	11.7
20	20	27,341	-38.3		81	12.2
15	18	29,331	-36.0		80	11.7
10	15	32,173	-32.6			
7	7	34,712	-29.6			

BARTER IS., ALASKA (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	2.5	94	109	0.6
1,000	31	69			168	1.4
950	31	487	4.5	83	272	6.0
900	31	928	4.1	71	284	10.3
850	31	1,391	2.0	65	271	8.9
800	31	1,879	- .7	69	269	12.8
750	31	2,389	- 3.8	71	266	15.9
700	31	2,935	- 7.0	71	258	15.2
650	31	3,505	-10.4	69	253	15.2
600	31	4,123	-14.1	61	251	14.4
550	31	4,776	-17.8	52	252	15.9
500	31	5,486	-22.4	49	255	17.9
450	31	6,245	-27.6	48	255	19.2
400	31	7,090	-33.6	48	250	21.0
350	31	8,013	-40.4		250	25.8
300	31	9,049	-46.6		248	25.5
250	31	10,249	-49.4		252	24.7
200	31	11,727	-44.7		255	15.3
175	31	12,623	-43.9		255	11.1
150	31	13,659	-43.5		256	9.7
125	31	14,884	-43.6		239	5.2
100	31	16,386	-43.2		251	2.9
80	31	17,892	-42.3		194	1.4
60	31	19,841	-41.7		100	2.3
50	30	21,070	-41.3		73	5.1
40	25	22,586	-41.3		68	7.0
30	21	24,550	-40.4		81	8.5
25	20	25,796	-39.2		85	11.9
20	19	27,336	-37.6		93	10.7
15	16	29,334	-35.4		85	10.1
10	11	32,170	-31.2			
7						

BETHEL, ALASKA (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	7.8	91	277	5.4
1,000	31	97	8.4	88	281	4.5
950	31	520	7.1	80	250	2.5
900	31	963	5.5	73	233	3.5
850	31	1,429	3.3	72	248	3.9
800	31	1,919	.8	69	257	4.5
750	31	2,440	- 2.0	67	251	2.5
700	31	2,983	- 4.9	61	227	4.5
650	31	3,561	- 8.0	55	234	4.9
600	31	4,182	-11.6	50	238	3.9
550	31	4,840	-15.7	46	293	3.1
500	31	5,557	-20.5	47	302	4.1
450	31	6,325	-25.7	49	278	5.4
400	31	7,174	-31.8	49	334	5.8
350	31	8,104	-38.5		353	7.2
300	31	9,149	-45.0		352	10.3
250	31	10,357	-48.8		341	12.0
200	31	11,821	-48.9		330	11.7
175	31	12,700	-47.9		320	10.9
150	31	13,719	-47.3		322	14.6
125	31	14,925	-47.5		328	11.9
100	31	16,401	-47.3		359	7.4
80	30	17,881	-46.7		360	7.0
60	30	19,791	-46.1		53	8.0
50	30	21,004	-46.0		56	7.2
40	29	22,489	-45.5		61	10.9
30	26	24,414	-44.9		74	10.3
25	19	25,638	-43.7			
20	5	27,103	-42.1			
15						
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BISMARCK, N. DAK. (956 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	505	15.1	75	63	0.8
1,000	31	115				
950	31	558	16.1	70	237	1.0
900	31	1,020	19.4	49	253	8.0
850	31	1,510	16.9	48	277	9.1
800	31	2,024	13.6	50	289	11.7
750	31	2,559	9.5	53	288	13.4
700	31	3,132	5.6	51	294	16.9
650	31	3,728	1.7	45	291	18.8
600	31	4,375	- 2.3	38	294	19.6
550	31	5,049	- 6.8	35	289	20.0
500	31	5,798	-11.9	33	289	22.5
450	31	6,586	-17.7		284	23.1
400	31	7,468	-24.0		289	23.5
350	31	8,429	-31.3		298	27.0
300	31	9,503	-39.3		297	32.4
250	31	10,729	-47.9		294	39.4
200	31	12,177	-54.5		293	42.7
175	31	13,031	-55.0		298	34.6
150	31	14,015	-55.5		297	31.3
125	31	15,176	-56.1		297	23.7
100	31	16,596	-55.7		306	15.0
80	29	18,017	-54.2		320	9.5
60	29	19,870	-51.7		31	4.7
50	29	21,057	-50.1		62	8.0
40	28	22,523	-48.2		80	12.4
30	25	24,432	-45.5		88	16.9
25	23	25,653	-44.0		93	20.0
20	22	27,157	-41.5		94	22.3
15	17	29,120	-38.8		91	26.6
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BOISE, IDAHO (917 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	868	17.3	44	162	4.3
1,000	31	112				
950	31	555				
900	31	1,025	20.4	34	178	2.3
850	31	1,520	21.5	24	318	2.7
800	31	2,042	18.4	25	309	4.1
750	31	2,590	14.5	26	294	7.8
700	31	3,171	10.2	28	268	10.9
650	31	3,777	5.4	33	263	14.6
600	31	4,431	.2	38	258	18.7
550	31	5,112	- 5.0	39	254	22.9
500	31	5,865	-10.4	38	257	24.9
450	31	6,664	-16.0		259	26.6
400	31	7,547	-22.3		259	27.8
350	31	8,515	-29.5		266	30.7
300	31	9,598	-37.6		265	38.3
250	31	10,833	-46.2		267	40.6
200	30	12,288	-54.2		266	42.6
175	29	13,147	-57.4		270	43.1
150	29	14,115	-59.9			
125	29	15,249	-61.9			
100	29	16,630	-61.6			
80	29	18,022	-59.0			
60	29	19,843	-54.8			
50	28	21,013	-52.9			
40	26	22,462	-50.5			
30	22	24,354	-47.7			
25	20	25,561	-46.2			
20	14	27,040	-43.8			
15	5	28,971	-42.2			
10						

BROWNSVILLE, TEX. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	24.2	96	164	3.1
1,000	31	129	25.1	87	166	9.5
950	31	578	23.5	78	175	18.5
900	31	1,051	21.3	66	173	18.3
850	31	1,545	18.6	58	168	15.0
800	31	2,063	15.5	57	161	11.3
750	31	2,604	12.3	52	147	7.4
700	31	3,183	8.7	54	129	5.6
650	31	3,784	5.1	52	122	4.9
600	31	4,441	1.3	48	111	4.5
550	31	5,130	- 2.7	42	95	3.9
500	31	5,887	- 7.3	39	87	5.2
450	31	6,695	-12.3	35	73	5.2
400	31	7,592	-18.0	30	81	6.8
350	31	8,575	-25.2		64	6.6
300	31	9,677	-33.5		57	9.5
250	31	10,930	-43.7		41	11.5
200	31	12,392	-55.2		41	12.0
175	31	13,232	-61.3		46	12.6
150	31	14,175	-67.1		56	13.8
125	30	15,263	-70.9		61	15.7
100	29	16,585	-69.7		72	16.7
80	29	17,927	-66.2		80	22.0
60	29	19,691	-61.1		80	28.6
50	28	20,832	-58.1		83	32.8
40	26	22,250	-54.9		86	37.3
30	24	24,102	-50.9		88	37.9
25	24	25,296	-48.6		89	35.2
20	22	26,769	-46.0		83	36.9
15	18	28,710	-42.8		85	41.0
10	5	31,398	-40.0			

BUFFALO, N. Y. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	182	18.9	82	219	2.7
1,000	31	151			117	.8
950	31	595	19.1	66	252	8.4
900	31	1,056	16.5	64	256	10.5
850	31	1,540	13.5	62	263	10.3
800	31	2,049	10.9	56	269	12.0
750	31	2,582	8.1	46	268	14.2
700	31	3,151	5.2	37	267	15.3
650	31	3,751	1.8		264	17.5
600	31	4,393	- 1.7		263	18.5
550	31	5,076	- 5.9		261	20.4
500	31	5,821	-10.5		262	23.5
450	31	6,620	-16.1		260	25.3
400	31	7,502	-21.8		256	28.4
350	31	8,472	-28.8		255	29.7
300	31	9,557	-37.0		253	31.7
250	31	10,793	-46.1		252	33.8
200	31	12,247	-54.6		253	39.6
175	31	13,095	-57.4		256	34.2
150	30	14,065	-58.4		260	26.2
125	29	15,210	-59.7		257	20.4
100	29	16,606	-58.8		263	12.8
80	28	18,013	-56.5		271	2.3
60	28	19,854	-53.1		88	5.4
50	26	21,039	-50.9		79	10.3
40	22	22,501	-48.5		84	14.2
30	18	24,399	-46.4		84	18.5
25	18	25,615	-44.7		83	20.0
20	13	27,116	-42.3		83	23.1
15	5	29,090	-38.8			
10						

BURRWOOD, LA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	3	26.6	84	215	2.7
1,000	31	145	26.2	81	216	3.1
950	31	596	23.5	79	209	3.9
900	31	1,069	20.5	79	191	4.3
850	31	1,562	17.6	78	168	4.7
800	31	2,079	14.4	77	165	4.5
750	31	2,617	11.4	74	159	4.1
700	31	3,199	8.4	70	141	3.1
650	30	3,806	5.1	67	147	3.1
600	30	4,459	1.3	68	154	1.9
550	30	5,152	- 2.7	63	92	2.1
500	30	5,906	- 7.2	58	57	3.3
450	30	6,714	-12.0	51	37	4.5
400	29	7,613	-17.9	46	66	3.5
350	29	8,598	-24.8	40	49	5.4
300	29	9,701	-32.9	39	65	5.6
250	29	10,958	-43.3		76	6.6
200	29	12,422	-55.3		55	9.1
175	29	13,262	-61.6		53	9.3
150	29	14,204	-67.6		48	12.6
125	29	15,294	-70.0		58	12.8
100	29	16,626	-68.5		72	11.9
80	27	17,972	-65.0		76	15.0
60	27	19,742	-60.4		85	23.3
50	27	20,885	-57.5		87	28.0
40	27	22,302	-54.7		89	33.2
30	22	24,153	-51.0		89	32.8
25	22	25,345	-48.4		88	33.0
20	19	26,817	-45.8		81	35.8
15	[illegible]	28,747	-42.7			
10						

CAPE HATTERAS, N. C. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	24.4	91	192	2.9
1,000	31	164	24.2	86	199	5.8
950	31	608	21.6	83	208	8.4
900	31	1,082	18.9	78	211	8.4
850	31	1,571	16.0	78	220	8.4
800	31	2,085	13.1	75	223	8.4
750	31	2,622	10.4	68	221	9.7
700	31	3,199	7.3	66	225	9.5
650	31	3,802	3.9	59	225	10.5
600	31	4,453	.1	59	228	10.3
550	31	5,139	- 3.8	53	224	9.9
500	31	5,893	- 8.0	50	224	9.5
450	31	6,700	-12.7	40	225	9.5
400	31	7,596	-18.6	42	240	9.7
350	31	8,579	-25.3	43	235	9.3
300	31	9,680	-33.4	38	242	8.2
250	31	10,935	-43.4		257	6.4
200	30	12,399	-55.0		295	8.9
175	30	13,240	-61.1		309	11.5
150	30	14,187	-65.4		321	7.2
125	30	15,294	-66.1		295	1.9
100	30	16,653	-63.9		25	2.3
80	29	18,029	-61.6		72	8.0
60	28	19,832	-57.1		80	17.1
50	25	20,998	-53.9		85	22.3
40	24	22,439	-51.3		90	24.7
30	18	24,327	-47.7		94	28.6
25	17	25,537	-46.0		91	29.1
20	10	27,038	-43.6			
15	5	28,993	-41.2			
10						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

Standard pressure surface (mb.)	CARIBOU, ME. (994 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	CHARLESTON, S. C. (1017 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	COLD BAY, ALASKA (1012 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	191	16.9	86	212	5.1	29	13	22.6	99	315	1.0	31	27	7.5	93	280	6.4
1,000--	31	135					29	164	23.9	86	263	2.1	31	122	7.3	92	309	8.7
950----	31	573	17.4	68	255	10.5	29	609	22.2	80	240	3.3	31	541	5.3	90	315	8.9
900----	31	1,035	15.4	64	276	13.0	29	1,083	19.6	77	246	2.1	31	984	3.9	88	324	10.5
850----	31	1,518	12.4	65	276	14.8	29	1,575	16.7	75	229	1.2	31	1,448	2.8	80	320	7.4
800----	31	2,024	9.1	63	274	16.1	29	2,090	13.6	74	214	1.2	31	1,938	1.1	73	316	11.3
750----	31	2,555	6.1	58	271	18.7	29	2,628	10.6	72	226	1.4	31	2,453	- .6	59	323	10.3
700----	31	3,119	3.1	52	272	21.2	29	3,204	7.5	68	224	3.5	31	3,005	- 3.2	55	324	11.3
650----	31	3,712	.3	40	273	23.3	29	3,809	4.1	63	220	5.1	31	3,580	- 6.5	53	328	12.0
600----	31	4,354	- 3.2	38	268	24.7	29	4,460	.7	55	220	4.9	31	4,209	-10.4	52	339	9.9
550----	31	5,032	- 6.9	34	264	27.8	28	5,148	- 3.0	50	226	3.9	31	4,864	-14.5	49	340	10.3
500----	31	5,776	-11.3		262	29.7	28	5,906	- 7.6	49	228	4.1	31	5,590	-19.1	49	329	12.8
450----	31	6,573	-16.7		263	32.3	28	6,713	-12.4	43	209	4.5	31	6,355	-24.2	42	321	11.5
400----	31	7,453	-22.6		261	35.6	28	7,611	-18.2	43	208	5.8	31	7,214	-30.4	39	355	6.4
350----	31	8,419	-29.5		259	38.3	28	8,595	-24.9	39	223	3.9	31	8,150	-37.2		349	6.4
300----	31	9,502	-37.3		262	43.7	28	9,698	-33.3	35	245	1.9	31	9,201	-43.8		308	7.8
250----	30	10,738	-46.3		263	47.6	28	10,954	-43.3		321	2.5	31	10,409	-49.8		24	1.9
200----	30	12,191	-54.9		263	48.0	28	12,418	-55.4		19	4.1	31	11,864	-50.1		312	9.1
175----	29	13,047	-56.9		266	41.2	28	13,258	-61.4		1	5.6	30	12,736	-49.0		295	6.2
150----	29	14,022	-57.4		266	33.6	28	14,202	-66.7		17	8.0	30	13,748	-49.0		303	7.8
125----	29	15,174	-56.9		268	26.4	28	15,300	-68.2		57	6.0	30	14,944	-49.4		293	9.1
100----	28	16,595	-55.7		281	14.2	28	16,644	-66.2		57	5.2	30	16,407	-49.2		303	3.5
80-----	27	18,023	-53.6		262	7.6	26	18,005	-63.2		68	12.6	30	17,873	-48.7		267	.6
60-----	26	19,886	-50.7		64	2.5	25	19,793	-58.6		79	21.8	30	19,769	-48.0		86	2.7
50-----	26	21,079	-48.9		102	8.5	24	20,947	-55.4		86	27.6	30	20,973	-47.6		47	3.7
40-----	24	22,555	-46.7		97	9.9	24	22,381	-52.4		91	28.8	29	22,451	-47.2		75	6.8
30-----	23	24,475	-44.8		94	12.8	22	24,257	-48.7		91	32.6	28	24,355	-46.4		99	11.7
25-----	20	25,691	-43.5		98	15.9	20	25,462	-47.1		88	30.9	22	25,573	-45.5			
20-----	15	27,202	-41.5		96	15.2	17	26,950	-45.0		82	33.2	12	27,079	-44.2			
15-----	9	29,186	-38.2				[illegible]	28,900	-42.4				[illegible]	29,031	-42.6			
10-----													5	31,804	-40.3			

Standard pressure surface (mb.)	COLUMBIA, MO. (990 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	DAYTON, OHIO (984 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	238	18.9	89	143	2.1	31	297	18.8	80	172	0.4
1,000--	31	150					31	158				
950----	31	594	21.2	69	190	4.5	31	600	20.3	67	228	1.9
900----	31	1,063	18.7	68	235	4.7	31	1,068	17.7	65	267	7.0
850----	31	1,553	15.9	65	251	4.9	31	1,555	14.8	63	267	8.9
800----	31	2,066	12.7	66	253	6.4	31	2,066	11.9	55	259	11.5
750----	31	2,602	9.6	62	265	8.0	31	2,600	8.9	51	258	13.0
700----	31	3,176	6.6	55	264	9.1	31	3,173	6.1	44	264	14.2
650----	31	3,776	3.4	45	264	10.3	31	3,770	2.8	41	263	14.6
600----	31	4,427	- .2	42	266	10.9	31	4,421	- .9		263	15.7
550----	31	5,113	- 4.1	38	272	11.7	31	5,100	- 5.0		265	15.9
500----	31	5,865	- 8.6	37	257	14.8	31	5,853	- 9.8		260	17.3
450----	31	6,671	-14.0		263	15.3	31	6,650	-14.9		264	18.8
400----	31	7,561	-20.1		265	16.7	31	7,540	-20.9		264	20.6
350----	31	8,537	-26.9		269	19.8	31	8,514	-27.7		266	25.6
300----	31	9,630	-35.1		275	25.3	31	9,605	-35.7		262	29.1
250----	31	10,876	-44.6		276	32.8	31	10,849	-45.1		258	34.8
200----	31	[illegible]	-54.3		274	35.9	31	12,307	-54.7		266	37.1
175----	31	13,185	-57.9		276	33.8	31	13,154	-58.2		267	33.6
150----	31	14,150	-61.0		282	27.0	30	14,122	-60.8		267	26.8
125----	31	15,275	-63.2		288	17.7	30	15,252	-62.3		267	18.3
100----	31	16,647	-62.6		295	9.1	30	16,631	-61.4		267	9.5
80-----	31	18,033	-60.2		28	3.7	30	18,019	-59.3		333	1.9
60-----	31	19,845	-56.0		79	12.4	30	19,838	-54.9		85	9.1
50-----	31	21,013	-53.2		88	15.2	30	21,010	-52.5		90	14.8
40-----	29	22,458	-50.8		89	19.6	30	22,459	-50.2		88	17.7
30-----	27	24,343	-47.8		87	21.2	29	24,349	-47.4		89	21.4
25-----	20	25,549	-45.9		87	23.5	28	25,558	-45.7		86	22.5
20-----	15	27,038	-43.3		85	28.2	25	27,049	-43.6		84	23.9
15-----	9	28,970	-40.5				17	28,992	-40.8		88	29.0
10-----							6	31,764	-37.1			

Standard pressure surface (mb.)	DENVER, COLO. (842 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	DODGE CITY, KANS. (927 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	EL PASO, TEX. (883 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,611	13.4	66	205	2.7	31	792	18.6	82	194	3.7	31	1,197	23.8	61	46	3.5
1,000--	31	125					31	135					31	96				
950----	31	565					31	582					31	546				
900----	31	1,035					31	1,047	21.0	65	198	6.0	31	1,025				
850----	31	1,526					31	1,542	19.5	54	243	2.5	31	1,530	22.2	53	101	4.3
800----	31	2,044	18.9	40	261	5.1	31	2,061	16.6	49	310	4.1	31	2,055	19.6	50	132	4.7
750----	31	2,596	16.5	35	278	4.7	31	2,607	12.9	49	332	6.4	31	2,599	15.8	52	103	3.5
700----	31	3,179	12.2	41	284	4.9	31	3,184	8.9	49	348	9.3	31	3,190	11.5	54	39	4.9
650----	31	3,792	7.6	43	303	8.2	31	3,791	4.6	51	348	10.9	31	3,795	7.0	55	27	6.6
600----	31	4,449	2.3	45	316	12.4	31	4,440	.0	49	349	10.7	31	4,458	2.1	55	48	9.7
550----	31	5,136	- 3.2	47	312	16.3	31	5,129	- 4.4	43	348	13.2	31	5,141	- 3.1	56	44	13.2
500----	31	5,892	- 8.7	46	309	17.3	31	5,876	- 9.3	39	341	14.0	31	5,902	- 7.9	50	41	11.3
450----	31	6,693	-14.1	40	304	16.9	30	6,680	-14.0	36	333	13.2	31	6,706	-12.3	44	30	9.3
400----	31	7,585	-20.1	35	301	19.2	30	7,569	-20.3		334	16.3	31	7,606	-17.9	35	19	8.4
350----	31	8,561	-27.3		300	24.3	30	8,544	-27.4		319	17.3	31	8,591	-25.0	34	9	8.5
300----	31	9,652	-35.7		301	28.6	30	9,635	-35.7		312	24.1	31	9,694	-33.5	34	346	11.7
250----	31	10,896	-45.1		301	36.1	30	10,878	-45.1		289	22.3	31	10,947	-43.6		346	12.4
200----	31	12,358	-53.7		300	42.6	29	12,336	-54.6		296	27.0	31	12,410	-55.0		346	17.5
175----	31	13,209	-57.6		299	41.0	29	13,183	-58.6		295	23.3	30	13,253	-61.2		347	15.9
150----	31	14,174	-61.3		297	35.0	29	14,143	-62.7		304	26.8	29	14,196	-67.3		345	14.0
125----	31	15,298	-64.1		293	23.1	29	15,258	-65.8		314	16.9	29	15,284	-71.4		13	10.1
100----	30	16,667	-63.7		309	8.4	29	16,616	-64.8		3	8.2	27	16,606	-70.0		79	7.8
80-----	29	18,043	-60.7		49	2.9	[illegible]	17,988	-61.5		70	9.5	27	17,946	-66.0		80	14.8
60-----	27	19,855	-56.0		[illegible]	10.3	28	19,794	-56.4		85	18.3	26	19,716	-60.1		89	19.8
50-----	24	21,023	-53.3		90	16.7	25	20,956	-54.1		94	19.6	26	20,862	-57.2		90	25.3
40-----	23	22,469	-51.0		94	20.0	25	22,394	-52.0		100	26.2	26	22,283	-54.2		92	28.2
30-----	19	24,358	-47.7		94	22.3	23	24,271	-49.4		90	26.4	26	24,147	-49.8		85	26.4
25-----	18	25,566	-46.2		89	23.9	22	25,469	-47.4		91	28.2	25	25,345	-48.1		87	29.0
20-----	17	27,051	-44.4		90	27.0	20	26,959	-44.8		88	29.3	21	26,819	-45.8		89	31.9
15-----	16	29,000	-40.4		90	31.9	9	28,888	-41.9				21	28,750	-42.5		87	37.3
10-----	6	31,760	-36.6										12	31,498	-39.1			
7------																		

Standard pressure surface (mb.)	ELY, NEV. (813 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	FAIRBANKS, ALASKA (994 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,908	11.6	48	187	7.4	31	135	10.1	88	310	0.8
1,000--	31	123					31	83				
950----	31	565					31	512	10.5	71	272	5.1
900----	31	1,037					31	960	7.7	69	282	8.4
850----	31	1,529					31	1,429	4.6	72	282	9.1
800----	31	2,043	17.5	35	181	3.9	31	1,920	1.0	76	273	8.7
750----	31	2,596	17.4	28	192	2.9	31	2,433	- 2.5	78	274	9.1
700----	31	3,180	13.8	31	212	5.6	31	2,982	- 5.7	77	279	8.9
650----	31	3,796	8.9	35	229	8.9	31	3,555	- 8.9	73	271	11.1
600----	31	4,456	3.4	43	234	8.0	31	4,176	-12.5	67	266	12.2
550----	31	5,145	- 2.4	48	228	10.5	31	4,831	-16.3	59	260	13.2
500----	31	5,902	- 8.3	50	239	13.8	31	5,548	-20.9	59	269	10.7
450----	31	6,708	-13.7	38	250	14.8	31	6,311	-26.1	58	263	14.4
400----	31	7,598	-19.8		254	18.1	31	7,163	-32.2	58	262	14.4
350----	31	8,576	-26.8		265	19.4	31	8,092	-38.9	54	256	13.4
300----	31	9,669	-35.3		261	21.8	31	9,133	-46.7		259	15.0
250----	30	10,920	-44.6		261	27.0	31	10,325	-52.1		268	14.0
200----	29	12,385	-53.8		259	34.0	31	11,776	-49.3		276	9.5
175----	29	13,234	-58.7		259	33.2	31	12,656	-47.4		275	7.8
150----	29	14,191	-63.5		272	27.4	31	13,678	-46.7		269	6.8
125----	29	15,301	-66.6		277	18.5	30	14,890	-46.0		272	6.2
100----	29	16,653	-65.3		296	2.1	30	16,376	-45.7		282	4.9
80-----	29	18,022	-61.7		83	3.5	30	17,867	-44.6		299	2.5
60-----	29	19,827	-56.7		78	9.5	30	19,796	-44.2		239	.8
50-----	29	20,990	-53.9		94	18.5	30	21,020	-44.0		106	1.6
40-----	29	22,431	-51.4		93	21.0	30	22,521	-43.4		96	3.3
30-----	28	24,312	-48.5		87	26.2	29	24,462	-42.4		82	7.2
25-----	25	25,524	-46.6		88	29.7	24	25,705	-41.4		91	9.5
20-----	24	27,011	-43.9		90	31.5	11	27,222	-40.2		104	11.5
15-----	21	28,939	-41.5				8	29,207	-38.2			
10-----	10	31,714	-36.5				7	32,024	-34.5			
7------							5	34,555	-32.2			

Standard pressure surface (mb.)	FLINT, MICH. (991 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	FORT WORTH, TEX. (995 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	GLASGOW, MONT. (935 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	234	16.8	88	220	1.7	31	180	23.7	86	190	1.9	31	696	14.9	69	71	2.1
1,000--	31	154					31	136					31	114				
950----	31	597	18.6	66	258	6.2	31	587	23.7	76	205	11.5	31	555				
900----	31	1,058	16.2	62	274	7.4	31	1,059	21.5	71	206	11.7	31	1,020	20.1	44	247	2.7
850----	31	1,542	13.5	55	269	9.1	31	1,553	18.4	72	210	7.2	31	1,510	17.2	42	284	8.0
800----	31	2,051	10.9	51	260	9.9	31	2,071	15.1	70	234	2.9	31	2,024	13.6	45	284	10.9
750----	31	2,583	8.0	53	263	11.5	31	2,611	11.6	67	237	1.0	31	2,561	9.4	49	291	14.6
700----	31	3,153	5.1	44	265	12.6	31	3,191	8.0	64	273	.8	31	3,132	4.9	55	294	16.1
650----	31	3,751	1.8	38	262	14.4	31	3,794	4.2	62	222	.8	31	3,727	.6	50	283	17.7
600----	31	4,396	- 1.8		263	17.1	31	4,446	.4	57	226	2.1	31	4,370	- 3.6	46	281	20.0
550----	31	5,079	- 5.8		264	17.9	31	5,134	- 3.4	49	251	3.7	31	5,044	- 8.0	42	278	22.3
500----	31	5,824	-10.4		265	20.0	31	5,889	- 7.7	44	262	3.5	31	5,787	-12.9	37	282	25.1
450----	30	6,618	-15.8		264	21.8	31	6,697	-12.4	32	285	3.9	31	6,575	-18.3	31	280	24.5
400----	30	7,503	-22.0		260	24.1	31	7,594	-18.0	35	285	4.3	31	7,450	-24.8		284	27.4
350----	30	8,472	-29.1		260	25.5	31	8,578	-24.9	38	279	6.0	31	8,407	-32.1		284	33.2
300----	30	9,555	-37.6		262	27.2	31	9,682	-32.8		293	7.8	31	9,477	-40.1		285	29.1
250----	30	10,791	-46.1		260	30.3	31	10,940	-42.5		301	9.3	31	10,698	-48.3		287	37.9
200----	30	12,246	-54.1		264	32.3	31	12,411	-53.9		303	12.8	31	12,143	-54.9		296	39.8
175----	30	13,099	-56.0		266	32.1	31	13,257	-60.1		305	10.9	31	12,998	-54.5		302	40.8
150----	29	14,072	-57.6		263	28.0	30	14,205	-65.5		318	8.5	31	13,985	-54.3		290	35.4
125----	29	15,219	-58.6		265	21.6	30	15,306	-67.8		10	9.1	30	15,150	-55.6			
100----	28	16,618	-58.0		263	13.2	29	16,644	-67.3		55	7.8	30	16,571	-55.7			
80-----	28	18,031	-55.8		273	4.9	29	17,997	-64.1		78	12.6	29	17,997	-54.1			
60-----	27	19,877	-52.8		84	4.5	29	19,782	-58.6		85	18.8	28	19,854	-51.6			
50-----	27	21,060	-50.5		85	8.7	29	20,936	-55.9		91	23.9	28	21,041	-50.2			
40-----	27	22,521	-48.6		96	13.2	28	22,364	-53.2		91	27.2	28	22,507	-47.9			
30-----	26	24,426	-45.6		88	19.6	25	24,233	-49.5		89	29.3	24	24,420	-45.4			
25-----	23	25,640	-44.3		86	19.6	23	25,429	-47.4		88	31.9	24	25,640	-43.8			
20-----	20	27,150	-42.3		[illegible]	20.6	20	26,908	-45.3		87	35.8	22	27,149	-41.7			
15-----	20	29,108	-39.2		91	28.8	15	28,840	-42.5		93	42.2	13	29,123	-39.3			
10-----	16	31,931	-33.6		93	30.3	6	31,624	-39.3									
7------	7	34,472	-30.8															

Standard pressure surface (mb.)	GRAND JUNCTION, COLO. (854 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	GREAT FALLS, MONT. (890 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,474	20.0	31	115	7.0	31	1,123	15.4	48	229	5.4
1,000--	31	84					31	112				
950----	31	536					31	556				
900----	31	1,014					31	1,026				
850----	31	1,515	20.7	31	121	7.2	31	1,513	17.7	38	236	10.3
800----	31	2,041	21.2	28	136	8.2	31	2,028	14.2	39	257	8.2
750----	31	2,596	17.9	30	152	2.9	31	2,564	10.1	43	267	9.3
700----	31	3,183	13.6	33	282	3.3	31	3,138	5.8	46	265	12.0
650----	31	3,797	8.5	38	288	6.0	31	3,735	1.6	45	259	17.1
600----	31	4,457	3.0	43	291	9.1	31	4,380	- 2.7	39	260	21.8
550----	31	5,146	- 2.7	48	292	12.2	31	5,055	- 7.1	33	265	24.3
500----	31	5,904	- 8.5	47	295	14.4	31	5,801	-12.2	34	271	27.0
450----	31	6,708	-14.0	41	300	16.9	31	6,591	-17.9		274	27.2
400----	31	7,598	-19.9		301	19.4	31	7,470	-24.3		274	30.3
350----	31	8,575	-27.1		299	24.3	31	8,429	-31.5		271	35.4
300----	31	9,666	-35.8		300	31.9	31	9,503	-39.5		270	40.6
250----	31	10,910	-44.6		301	35.9	31	10,728	-47.8		268	45.5
200----	31	12,372	-54.4		300	36.9	31	12,180	-54.3		273	48.2
175----	31	13,219	-59.0		307	34.2	31	13,034	-55.2		274	47.4
150----	31	14,175	-63.5		316	22.2	31	14,018	-55.5		275	40.0
125----	31	15,285	-67.3		330	14.0	31	15,179	-56.4		273	28.6
100----	30	16,637	-65.3		25	4.5	30	16,590	-56.6		277	18.5
80-----	30	18,004	-61.9		77	10.3	30	18,007	-55.5		290	8.2
60-----	27	19,804	-56.1		85	15.2	[illegible]	19,850	-52.6		59	4.5
50-----	27	20,969	-53.6		84	18.1	29	21,032	-50.9		75	8.4
40-----	27	22,411	-51.2		93	21.2	29	22,490	-49.1		79	11.1
30-----	26	24,296	-47.7		93	23.5	29	24,388	-46.5		83	14.0
25-----	25	25,504	-46.0		91	27.0	27	25,601	-44.7		[illegible]	16.3
20-----	24	26,997	-44.0		101	26.2	27	27,101	-42.4		88	17.5
15-----	18	28,937	-40.5				22	29,048	-39.4		85	21.8
10-----	[illegible]	31,771	-34.9				5	31,822	-35.3			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

JULY 1959

GREEN BAY, WIS. (992 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	210	15.8	92	251	3.9
1,000--	31	142				
950----	31	581	18.4	67	248	8.4
900----	31	1,044	15.8	64	256	10.1
850----	31	1,528	13.0	62	259	11.7
800----	31	2,036	9.9	58	265	12.0
750----	31	2,565	6.5	55	270	12.2
700----	31	3,133	3.5	47	272	15.3
650----	31	3,729	.1	45	273	16.7
600----	31	4,369	- 3.7	39	273	19.2
550----	31	5,047	- 7.5		273	20.6
500----	31	5,788	-12.1		271	19.4
450----	31	6,582	-17.5		268	20.2
400----	31	7,459	-23.6		271	21.4
350----	31	8,421	-30.6		264	23.1
300----	31	9,499	-38.7		271	19.8
250----	31	10,726	-47.9		268	21.4
200----	30	12,172	-54.9		273	29.1
175----	30	13,023	-56.2		277	25.1
150----	30	14,001	-56.8		276	24.5
125----	29	15,154	-57.8		276	17.9
100----	29	16,559	-57.7		291	12.0
80-----	29	17,972	-56.2		272	5.8
60-----	29	19,811	-53.3		72	7.2
50-----	29	20,989	-51.7		78	8.9
40-----	29	22,442	-49.8		76	15.3
30-----	28	24,330	-47.6		79	17.7
25-----	25	25,550	-45.8		86	20.4
20-----	20	27,041	-43.7		92	24.1
15-----	15	29,006	-39.9		86	29.3
10-----	6	31,796	-33.8			

GREENSBORO, N. C. (988 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	273	20.9	94	335	0.4
1,000--	31	172				
950----	31	613	20.9	83	277	3.1
900----	31	1,085	18.7	78	286	3.7
850----	31	1,575	16.2	74	280	3.9
800----	31	2,090	13.5	70	273	5.1
750----	31	2,630	10.2	69	276	6.0
700----	31	3,203	7.2	62	269	6.4
650----	31	3,805	3.8	59	259	7.4
600----	31	4,457	.0	60	250	8.2
550----	31	5,145	- 3.8	55	250	8.7
500----	31	5,897	- 8.2	55	243	9.7
450----	31	6,705	-13.0	51	247	10.3
400----	31	7,598	-18.9	49	247	11.3
350----	31	8,578	-25.7	45	251	12.6
300----	31	9,677	-34.1	41	258	12.6
250----	31	10,927	-44.1		266	14.0
200----	31	12,387	-55.4		287	13.0
175----	31	13,227	-61.2		290	15.3
150----	31	14,173	-65.6		295	10.1
125----	31	15,278	-66.6		283	5.4
100----	31	16,634	-64.0		32	2.5
80-----	31	18,011	-61.0		75	8.7
60-----	31	19,816	-56.9		83	16.3
50-----	31	20,978	-54.2		90	22.5
40-----	31	22,417	-51.9		91	25.6
30-----	31	24,297	-48.9		94	26.4
25-----	29	25,500	-47.1		93	28.8
20-----	29	26,981	-45.0		87	33.2
15-----	20	28,914	-42.2		89	34.2
10-----						

INTERNAT. FALLS, MINN. (971 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	360	14.3	81	220	2.9
1,000--	31	105				
950----	31	544	17.3	73	231	9.1
900----	31	1,004	16.2	62	256	14.2
850----	31	1,488	13.0	64	263	14.8
800----	31	1,995	9.5	64	265	14.2
750----	31	2,524	6.3	60	270	13.8
700----	31	3,091	2.9	56	272	15.5
650----	31	3,685	- .5	47	278	17.5
600----	31	4,324	- 4.0	39	281	19.2
550----	31	4,998	- 8.2	37	282	20.6
500----	31	5,740	-13.0	36	283	22.9
450----	31	6,530	-18.7	36	284	25.5
400----	31	7,404	-24.9	36	286	28.4
350----	31	8,361	-32.0		286	30.5
300----	31	9,432	-40.1		285	31.5
250----	31	10,655	-48.0		285	35.6
200----	31	12,108	-53.3		280	36.7
175----	31	12,966	-54.1		281	35.6
150----	31	13,957	-53.4		281	30.3
125----	31	15,129	-54.0		283	24.7
100----	31	16,563	-53.6		287	15.5
80-----	31	18,001	-52.4		292	8.4
60-----	30	19,869	-50.7		28	1.9
50-----	29	21,059	-49.2		74	4.7
40-----	26	22,527	-48.0		78	8.4
30-----	25	24,435	-45.5		79	13.6
25-----	24	25,652	-43.7		84	16.3
20-----	21	27,158	-41.7		82	17.1
15-----	14	29,130	-38.9		90	23.5
10-----	[illegible]	31,937	-34.8			

JACKSON, MISS. (1006 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	101	22.2	94	133	0.8
1,000--	31	151	22.6	92	155	1.4
950----	31	599	23.2	75	191	3.7
900----	31	1,071	20.5	74	183	4.7
850----	31	1,564	17.4	73	179	4.7
800----	31	2,080	14.3	70	182	3.3
750----	31	2,621	11.1	66	185	3.1
700----	31	3,196	7.7	66	196	2.9
650----	31	3,803	4.2	61	222	2.9
600----	31	4,451	.6	62	232	3.7
550----	31	5,139	- 3.2	54	229	3.9
500----	31	5,894	- 7.5	47	216	3.3
450----	31	6,705	-12.2	44	231	3.3
400----	31	7,599	-18.1	40	246	2.9
350----	31	8,583	-25.0	38	265	4.7
300----	31	9,687	-32.9	33	270	7.2
250----	31	10,945	-42.5		273	8.7
200----	31	12,415	-54.1		304	8.4
175----	31	13,260	-60.4		315	8.4
150----	31	14,208	-66.2		327	7.8
125----	31	15,305	-69.0		31	7.0
100----	31	16,645	-67.2		64	8.0
80-----	31	18,002	-63.6		78	12.8
60-----	31	19,787	-58.6		86	19.2
50-----	30	20,940	-55.5		85	25.8
40-----	30	22,371	-52.8		91	28.2
30-----	28	24,240	-49.3		91	29.9
25-----	28	25,441	-47.2		91	30.5
20-----	23	26,929	-45.1		87	32.6
15-----	13	28,861	-41.5		83	37.5
10-----						

JACKSONVILLE, FLA. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	23.9	94	220	1.7
1,000--	31	170	24.0	86	187	3.5
950----	31	615	22.3	78	190	5.2
900----	31	1,090	19.5	75	178	4.3
850----	31	1,581	16.7	73	166	3.9
800----	31	2,096	13.6	74	153	3.7
750----	31	2,634	10.6	68	146	3.9
700----	31	3,211	7.7	60	150	4.1
650----	31	3,811	4.5	56	151	3.5
600----	31	4,468	.9	52	149	2.9
550----	31	5,155	- 3.0	47	144	2.7
500----	31	5,913	- 7.3	46	131	2.7
450----	31	6,718	-12.4	39	122	3.9
400----	31	7,618	-18.2	35	121	4.3
350----	31	8,602	-25.1	31	87	5.4
300----	31	9,704	-33.4		64	8.7
250----	31	10,959	-43.4		53	12.0
200----	31	12,422	-55.3		48	16.1
175----	30	13,262	-61.5		43	17.5
150----	30	14,205	-66.9		51	17.1
125----	30	15,301	-68.3		63	13.4
100----	30	16,644	-66.8		79	9.3
80-----	30	18,000	-64.2		73	14.6
60-----	29	19,777	-59.9		85	25.3
50-----	29	20,924	-56.7		91	31.3
40-----	27	22,349	-53.5		95	32.4
30-----	26	24,208	-50.9		93	33.6
25-----	25	25,402	-48.5		88	35.6
20-----	21	26,870	-46.4		87	38.7
15-----	20	28,795	-43.2		85	40.8
10-----	10	31,538	-39.3			

KING SALMON, ALASKA (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	8.2	92	209	4.5
1,000--	31	98	8.2	88	222	3.9
950----	31	523	7.2	78	224	3.9
900----	31	966	5.5	78	222	3.3
850----	31	1,432	3.0	78	213	2.1
800----	31	1,921	.4	78	233	2.3
750----	31	2,437	- 2.2	71	261	2.7
700----	31	2,984	- 4.8	62	252	3.7
650----	31	3,561	- 7.9	59	259	3.9
600----	31	4,182	-11.7	54	266	3.7
550----	31	4,839	-15.8	48	258	5.2
500----	31	5,555	-20.4	46	249	4.7
450----	31	6,324	-25.4	49	240	5.6
400----	31	7,176	-31.4	45	252	4.9
350----	31	8,109	-37.8		247	2.9
300----	31	9,156	-44.8		248	7.2
250----	31	10,360	-49.5		266	7.4
200----	30	11,820	-50.2		302	7.6
175----	30	12,695	-48.8		289	8.4
150----	29	13,717	-48.1		308	8.4
125----	29	14,918	-48.2		303	6.2
100----	29	16,390	-47.8		312	3.9
80-----	29	17,866	-47.0		327	1.7
60-----	29	19,776	-46.5		58	2.3
50-----	28	20,987	-46.3		70	4.9
40-----	27	22,470	-45.9		75	7.4
30-----	25	24,390	-45.0		82	9.5
25-----	23	25,610	-43.9		87	12.0
20-----	19	27,104	-42.1		83	14.8
15-----	8	29,060	-40.2			

KOTZEBUE, ALASKA (1009 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	7.0	89	273	6.2
1,000--	31	79	6.7	[illegible]	264	5.8
950----	31	496	5.2	81	244	4.3
900----	31	941	3.2	76	222	6.4
850----	31	1,404	1.3	69	242	10.3
800----	31	1,891	- .7	65	244	10.3
750----	31	2,401	- 3.4	66	244	9.1
700----	31	2,948	- 6.3	62	252	8.2
650----	31	3,520	- 9.5	58	250	9.9
600----	31	4,140	-13.0	57	255	11.3
550----	31	4,794	-17.1	55	259	13.0
500----	31	5,508	-21.8	51	256	11.1
450----	31	6,270	-27.1	51	252	10.1
400----	31	7,116	-33.2	51	271	14.8
350----	31	8,042	-39.5		267	9.1
300----	31	9,083	-45.8		293	4.1
250----	30	10,275	-48.6		274	7.6
200----	30	11,753	-45.3		301	4.7
175----	29	12,640	-44.3		284	8.5
150----	28	13,675	-44.4		242	7.8
125----	28	14,897	-44.5		259	3.1
100----	28	16,392	-44.2		319	5.4
80-----	27	17,892	-43.6		337	7.0
60-----	27	19,828	-43.3			
50-----	27	21,057	-43.1			
40-----	26	22,562	-42.7			
30-----	22	24,504	-41.4			
25-----	19	25,748	-40.2			
20-----	13	27,289	-39.1			
15-----						

LAKE CHARLES, LA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	23.5	92	52	1.7
1,000--	31	144	24.6	86	114	1.4
950----	31	593	23.2	80	206	4.7
900----	31	1,067	20.5	78	189	6.0
850----	31	1,561	17.6	75	176	5.2
800----	31	2,078	14.6	72	149	3.7
750----	31	2,613	11.4	68	134	3.1
700----	31	3,197	8.2	67	118	2.7
650----	31	3,799	4.6	65	132	1.6
600----	31	4,456	.8	60	45	.4
550----	31	5,142	- 3.1	56	31	.8
500----	31	5,901	- 7.4	51	49	.6
450----	31	6,707	-12.3	46	109	1.2
400----	31	7,608	-17.9	38	155	1.6
350----	31	8,593	-24.7		148	2.1
300----	31	9,697	-33.1		198	1.0
250----	31	10,953	-42.9		159	2.5
200----	31	12,420	-54.6		97	2.9
175----	31	13,263	-60.9		101	5.4
150----	31	14,207	-67.1		62	7.2
125----	31	15,298	-69.6		66	9.5
100----	31	16,633	-68.0		68	11.3
80-----	29	17,986	-64.4		82	15.9
60-----	28	19,766	-59.0		88	23.3
50-----	27	20,917	-56.1		90	28.4
40-----	26	22,345	-52.7		96	30.5
30-----	23	24,219	-48.8		93	31.3
25-----	23	25,421	-47.4		92	31.7
20-----	17	26,900	-45.5			
15-----						

LANDER, WYO. (833 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,696	14.2	50	248	4.1
1,000--	31	116				
950----	31	558				
900----	31	1,026				
850----	31	1,521				
800----	31	2,037	17.8	31	298	2.7
750----	31	2,582	14.9	30	269	3.7
700----	31	3,167	10.9	32	265	7.0
650----	31	3,772	6.3	35	286	12.0
600----	31	4,431	1.1	40	289	17.7
550----	31	5,113	- 4.5	43	286	20.8
500----	31	5,867	-10.0	37	287	23.1
450----	31	6,661	-15.4		285	23.5
400----	31	7,552	-21.7		288	27.4
350----	31	8,521	-29.0		295	30.7
300----	31	9,604	-37.4		296	35.4
250----	30	10,836	-46.6		290	39.4
200----	30	12,289	-54.6		297	39.6
175----	30	13,137	-58.0		294	39.1
150----	30	14,103	-60.3		299	36.1
125----	30	15,232	-62.9		301	25.6
100----	29	16,610	-61.4		308	9.5
80-----	29	18,001	-59.0		320	1.9
60-----	28	19,823	-55.2		87	9.5
50-----	28	20,993	-52.8		97	15.7
40-----	27	22,440	-50.4		95	20.2
30-----	26	24,324	-47.5		90	23.7
25-----	23	25,532	-45.6		90	27.0
20-----	19	27,012	-44.0			
15-----	8	28,937	-40.9			

LAS VEGAS, NEV. (936 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	660	28.8	24	199	5.8
1,000--	31	62				
950----	31	521				
900----	31	1,009	30.6	22	227	6.0
850----	31	1,518	27.9	22	250	5.6
800----	31	2,051	24.1	25	230	6.2
750----	31	2,605	19.5	28	221	4.5
700----	31	3,199	14.4	33	213	4.3
650----	31	3,813	9.2	38	190	5.4
600----	31	4,476	3.7	43	192	6.4
550----	31	5,167	- 1.5	44	195	7.6
500----	31	5,929	- 7.1	42	218	6.2
450----	31	6,736	-12.5		245	7.8
400----	31	7,633	-18.4		257	10.7
350----	31	8,615	-25.6		254	13.6
300----	31	9,715	-33.8		253	19.0
250----	31	10,969	-43.3		245	26.2
200----	30	12,437	-53.7		240	31.3
175----	30	13,285	-59.5		244	29.9
150----	30	14,236	-65.3		244	24.5
125----	30	15,334	-69.7		255	15.7
100----	29	16,667	-67.9		217	2.9
80-----	29	18,018	-64.5		119	4.5
60-----	28	19,797	-59.1		91	14.8
50-----	27	20,948	-56.3		94	17.5
40-----	26	22,370	-54.1		92	20.4
30-----	26	24,228	-51.0		88	24.1
25-----	24	25,421	-49.5		89	26.8
20-----	21	26,885	-47.5		89	28.4
15-----	13	28,797	-44.4		88	34.4

LIHUE, T. H. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	36	24.1	80	52	8.5
1,000--	31	146	23.6	79	57	11.5
950----	31	595	20.4	82	73	16.5
900----	31	1,059	17.1	84	76	16.9
850----	31	1,545	14.0	83	79	16.3
800----	31	2,056	12.1	66	86	14.4
750----	31	2,596	10.8	41	89	12.6
700----	31	3,169	8.5	26	96	8.9
650----	31	3,777	5.0	26	92	7.8
600----	31	4,426	1.2	27	106	6.0
550----	31	5,115	- 2.8		78	2.9
500----	31	5,870	- 7.2		6	1.2
450----	31	6,679	-12.4		261	3.1
400----	31	7,573	-18.6		271	8.5
350----	30	8,556	-26.0		275	15.9
300----	30	9,654	-34.4		275	22.3
250----	30	10,904	-44.1		274	32.3
200----	30	12,365	-55.4		270	40.6
175----	30	13,206	-60.9		272	43.3
150----	30	14,154	-65.4		273	34.4
125----	30	15,256	-68.2		265	16.5
100----	29	16,592	-69.3		114	5.8
80-----	29	17,929	-67.2		91	16.9
60-----	29	19,683	-62.2		86	30.1
50-----	29	20,816	-59.8		90	35.6
40-----	27	22,218	-57.1		80	38.5
30-----	27	24,053	-53.1		89	41.2
25-----	20	25,237	-51.1		90	42.0
20-----						
15-----						
10-----						

LITTLE ROCK, ARK. (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	79	21.8	92	204	0.4
1,000--	31	152	22.2	[illegible]	179	.6
950----	31	601	21.8	76	200	4.7
900----	31	1,069	19.4	73	222	6.0
850----	31	1,559	16.5	72	234	6.4
800----	31	2,074	13.5	69	238	6.2
750----	31	2,616	10.2	66	244	5.1
700----	31	3,187	6.7	63	243	5.2
650----	31	3,789	3.1	60	246	5.8
600----	31	4,437	- .6	55	243	6.6
550----	31	5,124	- 4.4	52	245	6.6
500----	31	5,876	- 8.3	49	245	8.2
450----	31	6,682	-13.5	40	243	9.5
400----	31	7,574	-19.3	40	251	9.5
350----	31	8,554	-26.4		257	10.5
300----	31	9,651	-34.5		272	12.8
250----	31	10,902	-44.1		270	16.3
200----	31	12,364	-55.1		277	17.1
175----	31	13,208	-60.6		281	19.6
150----	30	14,153	-65.9		284	15.2
125----	29	15,252	-67.6		299	8.9
100----	[illegible]	16,598	-66.5		32	6.8
80-----	29	17,961	-63.0		66	11.5
60-----	29	19,753	-57.9		83	15.9
50-----	28	20,911	-55.7		83	21.4
40-----	27	22,341	-52.8		88	22.7
30-----	25	24,213	-49.3		89	25.3
25-----	23	25,409	-46.8		83	26.6
20-----	17	26,889	-44.5		81	29.0
15-----	7	28,851	-42.2			
10-----						

McGRATH, ALASKA (998 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	103	10.1	84	229	2.3
1,000--	31	90			252	3.5
950----	31	514	8.7	75	249	5.1
900----	31	960	6.0	75	232	5.2
850----	31	1,426	2.9	77	219	6.6
800----	31	1,915	- .2	79	255	2.9
750----	31	2,427	- 3.1	75	300	3.1
700----	31	2,973	- 5.8	70	272	4.3
650----	31	3,546	- 9.0	66	262	5.2
600----	31	4,166	-12.7	59	261	4.9
550----	31	4,821	-16.7	57	267	5.1
500----	31	5,535	-21.2	56	269	5.2
450----	31	6,299	-26.3	53	267	6.0
400----	31	7,146	-32.2	52	264	7.2
350----	31	8,075	-39.2		269	8.4
300----	31	9,114	-46.8		284	7.4
250----	31	10,309	-51.1		308	11.3
200----	31	11,762	-49.9		355	8.7
175----	31	12,640	-48.1		345	8.9
150----	31	13,658	-47.4		350	9.1
125----	31	14,864	-47.3		341	8.7
100----	31	16,341	-47.0		345	3.3
80-----	31	17,824	-45.9		360	4.5
60-----	31	19,743	-45.4		53	6.0
50-----	31	20,960	-45.3		62	6.4
40-----	30	22,452	-45.0		61	7.8
30-----	30	24,379	-44.3			
25-----	26	25,601	-43.4			
20-----	23	27,107	-41.7			
15-----	20	29,072	-40.0			
10-----	6	31,885	-37.0			

MEDFORD, OREG. (970 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	401	15.3	66	230	0.6
1,000--	31	139				
950----	31	583	18.2	53	284	2.1
900----	31	1,042	17.8	48	302	2.3
850----	31	1,529	16.5	48	48	.6
800----	31	2,044	15.3	36	144	1.4
750----	31	2,588	12.5	32	217	6.4
700----	31	3,163	8.6	32	219	11.7
650----	31	3,765	4.6	27	221	14.8
600----	31	4,418	.4		230	16.7
550----	31	5,102	- 4.4		234	18.3
500----	31	5,855	- 9.6		235	20.8
450----	31	6,653	-15.4		235	22.2
400----	31	7,539	-22.2		240	25.6
350----	31	8,507	-29.4		235	29.5
300----	31	9,590	-37.7		233	32.1
250----	31	10,825	-46.1		233	35.9
200----	31	12,282	-54.2		237	41.6
175----	31	13,133	-56.8		233	37.3
150----	31	14,104	-59.4		235	29.5
125----	30	15,241	-61.6		232	20.8
100----	30	16,623	-61.1		244	4.3
80-----	30	18,017	-58.7		75	6.6
60-----	30	19,836	-55.4		78	13.6
50-----	30	21,003	-53.4		77	16.9
40-----	29	22,444	-51.5		83	16.7
30-----	29	24,321	-49.0		82	19.0
25-----	29	25,523	-47.1		84	19.0
20-----	29	27,007	-44.5		81	25.1
15-----	24	28,942	-41.1		84	29.1

MIAMI, FLA. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	25.1	88	122	1.9
1,000--	31	156	25.9	76	124	4.1
950----	31	601	22.7	79	130	8.0
900----	31	1,077	19.7	77	135	7.4
850----	31	1,569	16.8	71	139	5.4
800----	31	2,084	13.9	68	144	4.3
750----	31	2,620	10.9	64	140	3.5
700----	31	3,200	7.6	62	138	2.9
650----	31	3,801	4.1	60	135	2.3
600----	31	4,455	.2	60	115	2.9
550----	31	5,133	- 3.7	55	95	3.7
500----	31	5,897	- 8.3	53	86	5.6
450----	31	6,698	-13.3	50	75	5.4
400----	31	7,596	-19.2	46	56	8.0
350----	31	8,575	-26.3	40	48	11.1
300----	31	9,671	-34.9	36	44	12.6
250----	31	10,916	-45.1		45	17.3
200----	30	12,368	-56.7		43	20.6
175----	30	13,203	-62.6		41	19.8
150----	30	14,145	-66.4		44	16.7
125----	30	15,247	-66.8		61	11.3
100----	30	16,591	-68.2		74	11.1
80-----	28	17,934	-66.5		76	18.8
60-----	27	19,692	-61.7		84	32.8
50-----	26	20,832	-58.7		90	37.7
40-----	26	22,244	-55.4		94	40.8
30-----	26	24,099	-50.9		91	37.5
25-----	23	25,293	-48.2		88	38.5
20-----	20	26,776	-45.6		83	36.1
15-----	10	28,706	-41.9			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

MIDLAND, TEX. (918 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	871	20.3	84	107	2.5
1,000	31	123				
950	31	579				
900	31	1,042	21.0	76	141	4.5
850	31	1,537	19.5	68	181	11.7
800	31	2,058	16.8	63	180	7.0
750	31	2,606	13.3	62	151	2.3
700	31	3,184	9.5	60	68	3.3
650	31	3,794	5.1	57	51	6.2
600	31	4,445	1.1	55	45	7.4
550	31	5,135	-3.2	52	42	7.6
500	31	5,889	-7.5	42	23	9.7
450	31	6,700	-12.5	35	13	8.4
400	31	7,593	-18.5		6	9.7
350	31	8,577	-25.3		354	11.5
300	31	9,678	-33.7	33	340	13.2
250	30	10,931	-43.5		337	13.4
200	30	12,396	-54.9		319	14.4
175	30	13,238	-60.8		328	12.8
150	29	14,183	-66.1		340	13.0
125	29	15,278	-69.7		10	12.2
100	28	16,612	-68.6		56	10.1
80	28	17,961	-64.6		78	15.0
60	28	19,741	-59.2		82	19.0
50	27	20,892	-56.5		85	25.6
40	27	22.318	-53.6		88	31.1
30	26	24,185	-49.3		88	32.1
25	26	25,387	-47.1		90	30.3
20	18	26,874	-45.0		84	33.6
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MONTGOMERY, ALA. (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	22.6	93	76	1.0
1,000	31	157	23.0	88	94	1.7
950	31	603	23.0	75	148	2.5
900	31	1,077	20.2	73	164	3.7
850	31	1,568	17.1	74	167	5.1
800	31	2,084	14.0	72	169	5.1
750	31	2,620	11.0	65	173	4.3
700	31	3,200	7.6	61	177	2.1
650	31	3,803	4.3	56	191	2.3
600	31	4,455	.5	51	195	1.9
550	31	5,144	-3.4	41	203	2.5
500	31	5,897	-7.5	37	187	2.9
450	31	6,702	-12.3	37	180	2.5
400	31	7,601	-18.1	38	179	1.2
350	31	8,586	-24.8	36	246	2.3
300	31	9,689	-33.0	35	244	3.1
250	31	10,947	-42.6		278	5.6
200	31	12,416	-54.3		319	8.5
175	31	13,260	-60.6		338	8.0
150	31	14,207	-66.1		352	7.6
125	31	15,304	-68.8		14	5.2
100	30	16,643	-67.0		83	6.2
80	30	18,002	-63.5		76	13.4
60	28	19,789	-58.4		86	21.6
50	27	20,942	-55.7		89	23.7
40	26	22,376	-52.8		91	27.4
30	25	24,250	-49.3		89	29.7
25	25	25,451	-47.1		88	30.7
20	25	26,934	-45.2		85	31.9
15	21	28,872	-41.8		86	34.2
10	[illegible]	31,648	-38.3			

NANTUCKET, MASS. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	14	18.6	94	231	3.7
1,000	31	163	19.5	85	249	8.2
950	31	605	19.0	73	258	10.1
900	31	1,069	16.9	70	263	10.9
850	31	1,556	14.5	62	263	11.3
800	31	2,067	12.2	55	267	12.8
750	31	2,604	9.6	52	275	13.4
700	31	3,176	6.6	48	273	14.4
650	31	3,777	3.2	45	272	16.3
600	31	4,426	-.4	47	266	18.8
550	31	5,113	-4.4	45	264	19.4
500	31	5,863	-8.9	45	265	19.4
450	31	6,665	-13.9	38	259	20.0
400	31	7,557	-20.1	33	266	19.8
350	31	8,534	-27.1		277	18.8
300	31	9,627	-35.3	34	271	17.3
250	31	10,871	-45.3		291	15.2
200	31	12,324	-56.4		313	15.7
175	30	13,163	-60.6		317	17.5
150	30	14,116	-63.0		310	15.3
125	29	15,239	-62.9		309	10.7
100	29	16,620	-61.0		326	6.8
80	29	18,016	-57.9		52	5.8
60	29	19,843	-54.7		81	10.7
50	29	21,014	-52.9		88	14.4
40	28	22,459	-50.7		92	19.2
30	24	24,341	-48.0		90	20.0
25	21	25,547	-46.2		88	20.8
20	18	27,038	-43.7			
15	8	28,969	-40.3			
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NASHVILLE, TENN. (998 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	177	21.0	92	217	1.0
1,000	31	158				
950	31	601	22.2	71	222	5.1
900	31	1,075	19.6	70	235	5.6
850	31	1,566	16.4	70	243	7.2
800	31	2,081	13.3	[illegible]	251	8.0
750	31	2,615	10.0	62	253	9.1
700	31	3,193	6.9	54	250	9.1
650	31	3,795	3.5	51	253	9.5
600	31	4,446	-.1	47	251	9.7
550	31	5,131	-4.2	47	248	10.7
500	31	5,885	-8.5	43	254	11.3
450	31	6,690	-13.8	42	252	14.2
400	31	7,581	-19.8	42	256	14.6
350	31	8,559	-26.8	37	260	16.1
300	31	9,653	-34.9	40	265	19.4
250	31	10,901	-44.3		270	21.6
200	31	12,362	-55.3		274	22.7
175	31	13,203	-60.7		281	21.8
150	30	14,151	-64.9		287	16.3
125	30	15,260	-66.3		292	9.5
100	30	16,614	-65.6		23	2.5
80	30	17,983	-62.0		66	8.5
60	30	19,785	-56.9		91	15.7
50	29	20,950	-54.4		91	20.0
40	29	22,387	-52.0		91	23.1
30	28	24,266	-49.0		91	26.0
25	22	25,465	-47.6		86	29.5
20	11	26,938	-45.2			
15	5	28,851	-43.8			
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N. Y. INT AP IDLEWILD (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	21.5	87	245	2.3
1,000	31	166	20.9	83	267	3.9
950	31	608	19.2	76	282	5.2
900	31	1,073	17.0	73	277	7.2
850	31	1,560	14.3	68	262	8.7
800	31	[illegible]	12.3	55	264	10.3
750	31	2,607	9.2	55	266	14.0
700	31	3,178	6.1	56	263	16.7
650	31	3,779	3.0	49	258	18.7
600	31	4,426	-.6	46	253	18.8
550	31	5,110	-4.6	43	255	18.8
500	31	5,861	-8.9	39	254	23.3
450	31	6,662	-14.2	40	251	23.1
400	31	7,554	-19.9	39	250	26.4
350	31	8,530	-27.0	38	251	28.4
300	31	9,623	-35.2	39	252	30.5
250	31	10,868	-44.9		252	31.7
200	31	12,323	-55.8		256	36.3
175	31	13,165	-59.9		263	34.0
150	31	14,122	-62.6		272	22.7
125	31	15,245	-62.8		268	17.1
100	31	16,624	-60.7		264	9.1
80	30	18,021	-58.5		31	1.9
60	30	19,848	-54.2		88	9.5
50	30	21,024	-52.1		91	12.4
40	29	22,477	-50.0		88	16.1
30	28	24,369	-46.9		88	20.0
25	27	25,586	-44.8		90	21.2
20	20	27,090	-42.6		85	25.1
15	12	29,042	-39.7			
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NOME, ALASKA (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	6.2	91	280	4.9
1,000	31	85	6.9	[illegible]	303	4.3
950	31	505	6.4	81	316	1.6
900	31	950	4.9	79	283	2.5
850	31	1,415	2.9	75	284	3.3
800	31	1,904	.7	68	275	5.4
750	31	2,416	-1.9	66	271	7.2
700	31	2,966	-5.0	62	268	8.4
650	31	3,540	-8.2	60	273	7.2
600	31	4,164	-11.4	58	271	8.7
550	31	4,819	-15.6	52	291	7.2
500	31	5,540	-20.5	49	299	7.4
450	31	6,307	-25.4	47	302	7.0
400	31	7,159	-31.4	46	318	6.2
350	31	8,092	-38.0		328	9.5
300	31	9,138	-44.7		340	5.8
250	31	10,347	-48.0		343	10.9
200	31	11,820	-47.0		341	15.0
175	31	12,708	-45.6		348	13.4
150	31	13,735	-45.7		345	14.2
125	31	14,950	-45.8		353	10.9
100	31	16,437	-45.6		360	7.4
80	31	17,927	-44.8		21	6.8
60	31	19,855	-44.3		33	6.6
50	31	21,077	-44.0		47	9.5
40	30	22,581	-43.6		58	10.5
30	28	24,521	-42.7		74	12.2
25	26	25,756	-41.8		77	14.8
20	25	27,270	-40.1		81	15.5
15	23	29,243	-38.2		82	16.7
10	15	32,063	-34.7			

NORFOLK, VA. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	9	23.3	89	184	1.9
1,000	31	169	23.0	85	211	3.3
950	31	614	21.3	80	227	6.6
900	31	1,084	18.8	76	231	7.0
850	31	1,574	15.9	74	239	8.4
800	31	2,087	13.1	70	244	8.9
750	31	2,625	10.2	68	242	11.3
700	31	3,200	7.1	65	239	11.7
650	31	3,805	3.7	60	237	12.0
600	31	4,453	.2	57	243	14.0
550	31	5,139	-3.9	50	239	14.4
500	31	5,894	-8.1	48	240	14.4
450	31	6,703	-13.0	50	246	14.0
400	31	7,595	-18.7	48	251	13.6
350	31	8,577	-25.7	43	250	14.0
300	31	9,676	-34.1	37	250	13.8
250	31	10,927	-44.0		269	13.8
200	31	12,389	-55.4		277	16.5
175	31	13,229	-61.2		287	15.3
150	31	14,176	-65.4		290	10.1
125	30	15,285	-65.9		273	8.2
100	30	16,644	-63.9		327	3.7
80	30	18,022	-60.8		83	6.8
60	29	19,830	-56.4		82	15.7
50	28	20,996	-53.8		87	21.8
40	28	22,433	-51.0		93	26.0
30	25	24,323	-47.7		92	27.0
25	24	25,533	-45.6		90	28.0
20	20	27,022	-43.2		88	30.1
15	15	28,977	-40.3		89	32.4
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NORTH PLATTE, NEBR. (919 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	858	15.7	88	134	2.1
1,000	31	123				
950	31	564				
900	31	1,027	18.9	72	177	4.7
850	31	1,520	19.2	55	222	11.7
800	31	2,039	16.6	50	243	8.9
750	31	2,583	13.3	47	282	7.2
700	31	3,163	8.9	50	305	8.2
650	31	3,765	4.4	50	312	8.5
600	31	4,419	-.4	49	313	14.2
550	31	5,099	-4.9	43	310	17.7
500	31	5,854	-9.6	40	308	18.1
450	31	6,652	-14.9		303	18.8
400	31	7,542	-21.4		299	22.0
350	31	8,513	-28.6		293	23.9
300	31	9,598	-37.3		294	25.6
250	31	10,833	-46.6		291	26.2
200	31	12,285	-54.7		295	27.0
175	31	13,134	-57.3		295	26.4
150	31	14,102	-60.4		295	22.7
125	31	15,232	-62.7		285	20.0
100	31	16,607	-61.7		296	7.6
80	31	17,996	-59.4		6	4.1
60	31	19,815	-55.1		82	12.8
50	31	20,986	-52.8		82	15.7
40	30	22,433	-50.5		88	18.7
30	27	24,319	-48.1		87	21.8
25	26	25,526	-46.3		84	25.3
20	24	27,013	-44.2		85	26.2
15	10	28,949	-40.9			
10	7	31,733	-35.6			

OAKLAND, CALIF. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	14.3	86	304	3.5
1,000	31	116	14.2	83	285	4.1
950	31	563	17.2	62	257	5.6
900	31	1,022	24.9	18	284	7.0
850	31	1,521	22.7	16	267	5.1
800	31	2,045	19.4		229	5.2
750	31	2,594	16.0		221	8.2
700	31	3,178	11.9	21	206	9.3
650	31	3,790	7.5	24	210	10.1
600	31	4,448	2.7	29	212	10.5
550	31	5,138	-2.3		215	11.3
500	31	5,897	-7.3		225	12.0
450	31	6,702	-13.1		226	17.1
400	31	7,598	-20.0		229	19.6
350	31	8,575	-27.1		231	22.9
300	31	9,668	-35.2		234	26.6
250	31	10,914	-44.3		233	31.7
200	30	12,384	-53.6		234	35.9
175	29	13,236	-58.4		232	36.1
150	29	14,195	-63.1		233	32.1
125	29	15,307	-66.4		237	21.6
100	29	16,658	-66.1		221	7.8
80	29	18,022	-62.7		134	5.6
60	29	19,814	-58.3		94	15.0
50	29	20,967	-56.0		95	17.3
40	29	22,393	-53.7		93	20.6
30	28	24,251	-51.3		90	24.7
25	28	25,438	-49.9		89	28.0
20	27	26,901	-47.9		92	30.9
15	22	28,810	-45.5		88	32.3
10	10	31,539	-40.5			

OKLAHOMA CITY, OKLA. (971 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	392	20.8	95	167	3.5
1,000	31	135				
950	31	582	22.3	80	187	8.7
900	31	1,052	21.1	70	216	12.0
850	31	1,546	18.6	63	229	8.5
800	31	2,063	15.3	62	243	6.6
750	31	2,602	11.6	63	250	4.9
700	31	3,181	7.8	63	266	5.1
650	31	3,785	3.9	59	269	4.3
600	31	4,435	.2	49	287	3.5
550	31	5,121	-3.8	41	286	3.7
500	30	5,876	-8.2	34	284	5.8
450	30	6,682	-13.1	27	298	7.4
400	30	7,576	-19.0		292	8.5
350	30	8,556	-26.0		294	9.5
300	30	9,654	-34.2		292	14.4
250	30	10,905	-43.9		290	19.8
200	30	12,368	-54.5		286	21.6
175	30	13,213	-59.6		288	18.3
150	29	14,167	-64.0		290	13.8
125	28	15,276	-66.8		315	11.3
100	26	16,624	-66.0		37	6.0
80	25	17,991	-62.4		71	11.9
60	25	19,791	-57.1		90	19.2
50	25	20,952	-54.2		89	24.1
40	25	22,393	-51.3		90	24.7
30	22	24,274	-48.6		90	29.3
25	22	25,480	-46.6		83	31.7
20	19	26,975	-44.3		87	36.7
15	13	28,911	-40.8		91	39.2
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OMAHA, NEBR. (969 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	403	18.0	85	177	3.5
1,000	31	135				
950	31	579	20.3	69	191	6.8
900	31	1,044	18.9	61	218	10.5
850	31	1,533	16.3	56	241	9.1
800	31	2,047	13.3	51	266	7.6
750	31	2,582	9.6	53	288	8.7
700	31	3,157	6.0	45	300	9.5
650	31	3,756	2.6	40	299	9.7
600	31	4,405	-1.0	31	296	12.0
550	31	5,087	-5.4		294	13.4
500	31	5,837	-10.0		295	15.0
450	31	6,639	-15.1		293	14.8
400	31	7,525	-21.4		293	16.5
350	31	8,497	-28.1		285	20.8
300	31	9,584	-36.7		283	24.1
250	30	10,824	-46.1		[illegible]	27.8
200	29	12,277	-54.8		287	30.9
175	28	13,129	-56.8		288	29.5
150	28	14,100	-59.7		286	26.2
125	26	15,234	-61.8		291	23.3
100	23	16,627	-61.5		287	10.5
80	22	18,017	-59.0		298	4.5
60	20	19,843	-55.1		69	7.0
50	18	21,014	-53.0		77	11.1
40	16	22,455	-50.8		83	14.2
30	14	24,340	-47.4		90	17.9
25	12	25,549	-46.3		84	17.7
20	[illegible]	27,035	-45.2			
15	7	28,964	-41.5			
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PEORIA, ILL. (994 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	201	18.5	85	180	0.8
1,000	31	149				
950	31	593	20.1	64	253	5.6
900	31	1,059	17.0	63	260	6.0
850	31	1,545	14.5	61	265	7.0
800	31	2,056	11.7	57	269	8.4
750	31	2,589	8.6	51	265	10.7
700	31	3,161	5.7	45	264	11.9
650	31	3,759	2.4	41	262	12.2
600	31	4,407	-1.0		263	13.4
550	31	5,088	-5.1		258	15.0
500	31	5,839	-9.8		263	15.2
450	31	6,640	-15.0		267	18.1
400	31	7,525	-21.1		268	19.4
350	31	8,497	-28.2		270	22.5
300	31	9,585	-36.5		273	26.8
250	31	10,824	-46.0		272	32.4
200	31	12,278	-54.9		269	38.7
175	31	13,126	-57.8		272	37.3
150	31	14,093	-60.1		276	29.3
125	31	15,227	-61.6		276	22.2
100	31	16,611	-61.0		281	13.2
80	31	18,005	-58.7		341	3.5
60	31	19,825	-54.9		74	8.4
50	31	20,996	-52.5		84	14.0
40	30	22,444	-50.4		88	18.3
30	28	24,330	-47.9		92	20.0
25	24	25,537	-46.3		88	23.3
20	19	27,029	-44.1		85	27.8
15	12	28,984	-40.3			
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PITTSBURGH, PA. (979 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	353	18.4	85	199	1.0
1,000	31	169				
950	31	609	19.7	74	223	4.1
900	31	1,075	17.4	74	256	6.8
850	31	1,562	14.7	70	267	9.7
800	31	2,073	11.7	68	270	11.5
750	31	2,607	9.0	57	264	14.2
700	31	3,180	5.9	49	264	15.3
650	31	3,781	2.8	41	267	16.9
600	31	4,427	-1.2	42	266	17.3
550	31	5,110	-4.9	43	258	17.5
500	31	5,861	-9.6		354	19.0
450	31	6,661	-14.9	41	250	21.6
400	31	7,550	-21.1	44	253	24.3
350	31	8,522	-28.3	43	252	27.4
300	31	9,609	-36.7		250	32.1
250	31	10,848	-46.0		255	37.5
200	31	12,300	-55.6		258	36.5
175	31	13,143	-59.1		261	33.0
150	31	14,104	-61.6		263	26.4
125	31	15,230	-63.0		262	17.9
100	31	16,607	-61.7		273	8.0
80	31	17,999	-59.5		30	2.5
60	31	19,819	-55.1		90	10.3
50	31	20,989	-53.1		88	16.1
40	29	22,434	-50.8		87	20.4
30	28	24,320	-47.7		90	22.3
25	24	25,531	-45.4		88	23.7
20	20	27,030	-42.9		86	29.1
15	9	29,000	-38.3			
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POINT ARGUELLO, CALIF. (1000 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	113	12.6	96	311	1.9
1,000	31	112			327	1.7
950	31	561	18.7	58	1	5.8
900	31	1,017	24.9	22	17	5.1
850	31	1,517	23.0	24	17	3.3
800	31	2,041	19.8	27	185	.8
750	31	2,595	16.3	28	207	4.7
700	31	3,176	12.2	29	193	6.4
650	31	3,789	7.7	33	188	8.9
600	31	4,445	2.7	33	193	9.5
550	31	5,135	-2.2	30	195	9.3
500	31	5,893	-7.5	30	201	9.3
450	31	6,701	-13.1		209	11.9
400	31	7,593	-19.1		215	14.0
350	31	8,572	-26.5		213	15.7
300	31	9,668	-34.6		217	19.8
250	31	10,918	-43.7		220	26.8
200	31	12,386	-53.8		221	27.6
175	31	13,234	-59.2		222	25.8
150	31	14,187	-64.9		225	22.3
125	31	15,288	-68.8		226	12.6
100	31	16,623	-68.1		179	2.7
80	30	17,979	-64.3		97	12.4
60	30	19,761	-58.7		97	18.5
50	30	20,913	-56.3		93	20.8
40	29	22,334	-53.9		90	24.3
30	26	24,194	-50.5		90	28.2
25	26	25,387	-48.7		91	31.7
20	26	26,859	-46.8		92	32.1
15	20	28,786	-42.7		91	36.3
10	12	31,515	-39.1			

PORTLAND, ME. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	20	18.5	89	275	1.9
1,000	31	156	19.2	76	289	2.9
950	31	596	19.0	64	292	4.7
900	31	1,061	16.5	60	276	6.6
850	31	1,546	14.0	56	276	8.4
800	31	2,056	11.0	55	277	10.3
750	31	2,586	8.0	51	272	12.8
700	31	3,159	5.4	41	270	15.9
650	31	3,752	2.3	39	266	18.7
600	31	4,404	-1.3	36	264	21.2
550	31	5,082	-5.1	38	264	22.3
500	31	5,836	-9.8	38	262	24.5
450	31	6,632	-14.7		262	26.4
400	31	7,525	-20.8	34	258	29.1
350	31	8,499	-27.7	37	255	31.3
300	31	9,589	-36.0		253	35.8
250	31	10,831	-45.6		261	39.4
200	31	12,285	-55.6		259	41.6
175	31	13,129	-59.2		263	36.3
150	31	14,092	-60.7		265	29.9
125	30	15,230	-60.5		261	20.4
100	30	16,625	-58.6		261	13.4
80	28	18,040	-56.2		292	3.5
60	25	19,883	-52.9		97	4.5
50	24	21,068	-50.7		92	8.4
40	22	22,524	-48.8		90	13.4
30	18	24,435	-46.4		90	18.8
25	15	25,650	-45.0		86	21.2
20	11	27,135	-42.8			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

RAPID CITY, S. DAK. (906 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	966	15.7	61	274	1.6
1,000	31	117				
950	31	557				
900	31	1,023	17.5	54	265	1.9
850	31	1,514	19.3	41	244	6.6
800	31	2,033	16.5	39	273	8.2
750	31	2,573	12.5	41	276	8.2
700	31	3,154	8.2	43	286	11.7
650	31	3,755	3.4	47	294	15.3
600	31	4,405	-1.3	41	295	16.5
550	31	5,088	-6.2	38	289	20.6
500	31	5,832	-11.1	33	290	22.5
450	31	6,629	-16.3		284	25.1
400	31	7,511	-22.4		287	29.0
350	31	8,478	-29.7		288	30.5
300	31	9,559	-38.1		289	35.2
250	31	10,789	-47.4		294	38.3
200	31	12,237	-55.1		291	41.8
175	31	13,087	-56.6		292	39.6
150	31	14,060	-58.7		292	35.9
125	30	15,201	-60.1		289	27.4
100	30	16,594	-59.5		291	15.7
80	30	17,994	-57.6		299	6.0
60	27	19,822	-54.5		62	7.0
50	25	20,993	-52.5		87	10.9
40	24	22,446	-50.0		85	14.0
30	22	24,338	-47.0		84	18.1
25	20	25,548	-45.4		83	18.8
20	18	27,043	-43.1		87	19.8
15	16	28,988	-40.3		83	24.7
10	9	31,809	-35.8			

ST. CLOUD, MINN. (978 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	316	15.8	88	171	2.3
1,000	31	125				
950	31	571	18.3	71	224	6.2
900	31	1,027	17.2	60	250	11.5
850	31	1,512	14.2	58	263	11.9
800	31	2,021	10.7	57	270	13.4
750	31	2,557	7.2	55	273	13.6
700	31	3,121	4.0	51	280	14.8
650	31	3,717	.5	49	283	16.7
600	31	4,358	-3.3	43	284	19.4
550	31	5,035	-7.5	40	287	19.0
500	31	5,777	-12.1	32	293	21.2
450	30	6,570	-17.7		291	22.3
400	30	7,444	-24.1		292	25.3
350	30	8,404	-31.5		296	24.7
300	30	9,477	-39.7		293	25.3
250	30	10,700	-48.3		290	30.3
200	30	12,144	-54.9		290	28.6
175	30	12,996	-55.9		287	24.5
150	30	13,976	-56.5		286	21.2
125	30	15,130	-57.3		294	17.9
100	30	16,542	-57.0		291	11.7
80	30	17,960	-55.6		311	6.0
60	30	19,805	-52.7		40	5.4
50	30	20,985	-51.3		70	9.1
40	28	22,442	-49.6		82	15.3
30	28	24,335	-47.6		91	17.3
25	28	25,543	-46.2		94	19.2
20	24	27,034	-43.8		94	24.7
15	20	28,978	-40.7		89	25.3
10	11	31,756	-37.2			

ST. PAUL IS., ALASKA (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	5.8	96	296	4.7
1,000	31	127	5.7	93	290	5.4
950	31	547	5.8	84	304	7.4
900	31	991	6.0	73	304	7.4
850	31	1,458	4.6	68	318	8.5
800	31	1,951	2.6	65	321	10.3
750	31	2,468	.0	61	319	11.9
700	31	3,021	-3.0	57	324	12.0
650	31	3,602	-6.2	54	333	13.4
600	31	4,228	-9.7	50	330	14.4
550	31	4,889	-13.5	38	317	13.8
500	31	5,615	-18.0	31	310	10.3
450	31	6,383	-23.7	32	325	13.0
400	31	7,247	-29.4	36	317	14.2
350	31	8,188	-35.9		328	14.6
300	31	9,243	-43.1		354	16.9
250	31	10,455	-49.3		6	17.7
200	31	11,907	-51.2		11	8.7
175	31	12,778	-49.8		351	8.5
150	31	13,788	-49.5		311	6.2
125	31	14,981	-49.8		331	4.5
100	31	16,442	-49.6		322	5.1
80	31	17,906	-48.7		12	2.3
60	31	19,801	-47.8		45	4.1
50	30	21,008	-47.5		76	6.6
40	30	22,485	-46.7		99	9.9
30	30	24,399	-45.5		90	13.2
25	30	25,617	-44.5		99	14.2
20	29	27,117	-43.1		87	15.9
15	26	29,072	-41.2		85	22.3
10	19	31,846	-38.8			

SALEM, OREG. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	12.4	89	235	0.4
1,000	31	158	14.2	79	344	1.6
950	31	593	14.8	66	11	7.0
900	31	1,049	14.5	57	[illegible]	6.0
850	31	1,532	13.9	40	322	4.3
800	31	2,041	11.5	35	275	3.9
750	31	2,575	9.1	25	263	7.8
700	31	3,145	5.9		255	11.9
650	31	3,743	2.5		248	15.0
600	31	4,391	-1.8		246	17.9
550	30	5,073	-6.2		252	20.0
500	30	5,821	-11.4		250	24.1
450	30	6,612	-17.2		249	27.4
400	30	7,494	-23.9		249	30.1
350	30	8,455	-31.1		247	33.6
300	30	9,529	-39.2		249	37.7
250	30	10,757	-47.1		250	42.2
200	30	12,211	-53.7		250	46.8
175	30	13,065	-55.7		249	43.1
150	30	14,044	-57.2		249	38.7
125	29	15,200	-59.2		249	27.6
100	29	16,598	-59.1		247	15.7
80	29	18,001	-57.7		244	5.4
60	28	19,827	-55.1		97	5.2
50	26	20,997	-52.9		93	8.5
40	25	22,441	-51.3		90	12.8
30	24	24,322	-49.1		89	16.7
25	22	25,522	-47.4		88	18.8
20	21	27,002	-45.0		[illegible]	20.2
15	16	28,948	-41.8		87	24.1
10						

SALT LAKE CITY, UTAH (873 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,288	18.5	46	152	4.7
1,000	31	101				
950	31	543				
900	31	1,020				
850	31	1,518	23.5	28	148	3.9
800	31	2,045	21.2	26	215	2.3
750	31	2,592	16.8	26	269	3.7
700	31	3,182	12.2	30	279	5.8
650	31	3,790	7.4	36	273	10.3
600	31	4,452	2.2	43	266	13.2
550	31	5,143	-3.4	45	268	15.7
500	31	5,896	-9.3	49	269	18.3
450	31	6,696	-15.2	48	275	20.2
400	31	7,584	-20.8		273	24.1
350	31	8,558	-27.7		270	26.8
300	31	9,648	-36.0		272	32.8
250	31	10,890	-45.3		270	39.2
200	31	12,347	-54.5		273	42.7
175	31	13,194	-58.7		272	37.5
150	31	14,152	-62.8		274	37.1
125	31	15,268	-65.3		280	25.5
100	31	16,627	-64.1		282	12.4
80	31	18,001	-61.2		19	1.6
60	30	19,807	-56.9		86	10.5
50	30	20,967	-54.4		85	15.0
40	29	22,407	-51.9		86	16.7
30	27	24,279	-49.2		89	20.6
25	27	25,480	-47.2		84	22.9
20	24	26,961	-45.3		83	26.2
15	19	28,903	-41.5		88	28.2
10	7	31,633	-38.0			

SAN ANTONIO, TEX. (988 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	243	23.2	89	160	1.0
1,000	31	134				
950	31	586	22.3	84	187	8.7
900	31	1,055	20.6	75	189	13.6
850	31	1,549	18.4	66	176	11.7
800	31	2,067	15.2	65	156	6.8
750	31	2,606	12.0	62	137	5.2
700	31	3,187	8.6	55	136	4.5
650	31	3,791	5.0	49	114	3.1
600	31	4,446	1.0	47	131	2.1
550	31	5,134	-3.2	46	161	3.1
500	31	5,890	-7.6	42	167	2.3
450	31	6,698	-12.5	39	141	3.1
400	31	7,595	-17.8		87	1.7
350	31	8,580	-24.6		27	2.7
300	31	9,683	-33.2		12	2.9
250	31	10,938	-43.1		34	5.1
200	31	12,404	-54.7		29	7.0
175	30	13,248	-60.8		34	6.4
150	30	14,194	-66.3		39	11.1
125	30	15,288	-69.5		54	14.4
100	30	16,619	-68.8		79	16.9
80	29	17,970	-64.7		79	18.5
60	29	19,747	-59.4		82	26.2
50	29	20,898	-55.9		88	41.3
40	29	22,326	-53.2		90	35.8
30	29	24,194	-49.3		92	40.8
25	28	25,395	-47.0		86	40.0
20	22	26,882	-45.1		84	40.8
15	19	28,807	-42.0		85	45.5
10	7	31,608	-36.7			

SAN DIEGO, CALIF. (998 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	124	19.2	91	305	1.2
1,000	31	106				
950	31	550	20.2	71	45	1.0
900	31	1,020	24.9	33	296	1.7
850	31	1,521	24.1	31	294	5.4
800	31	2,049	21.3	35	271	4.5
750	31	2,599	17.4	39	232	1.9
700	31	3,190	12.7	46	166	2.9
650	31	3,799	8.0	50	148	5.6
600	31	4,464	2.8	53	136	8.2
550	31	5,148	-2.5	55	140	8.7
500	31	5,914	-7.5	47	148	7.2
450	31	6,719	-12.4	33	155	4.7
400	31	7,621	-17.9		174	4.1
350	30	8,603	-25.0		196	6.8
300	30	9,706	-33.2		203	11.9
250	30	10,963	-42.7		202	16.9
200	30	12,434	-53.9		201	21.6
175	29	13,280	-60.0		204	21.6
150	29	14,229	-65.9		216	19.0
125	29	15,322	-70.7		221	5.4
100	29	16,646	-69.7		95	7.2
80	28	17,987	-65.8		88	11.7
60	27	19,754	-60.4		87	21.0
50	27	20,897	-57.4		91	24.5
40	26	22,314	-54.7		91	26.2
30	22	24,172	-52.0		90	31.7
25	19	25,356	-49.9		90	33.4
20	17	26,821	-47.7		86	33.8
15	14	28,730	-44.6		85	37.3
10	[illegible]	31,470	-39.9			

SANTA MONICA, CALIF. (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	38	19.0	89	127	1.0
1,000	31	111	18.8	86	144	1.4
950	31	557	20.2	64	93	2.1
900	31	1,022	23.6	32	359	1.2
850	31	1,521	23.2	26	280	4.1
800	31	2,047	20.6	27	252	5.8
750	31	2,595	17.0	30	232	6.4
700	31	3,185	12.7	34	203	6.6
650	31	3,794	8.0	39	179	7.6
600	31	4,457	2.8	42	168	8.5
550	31	5,144	-2.4	43	162	8.4
500	31	5,906	-7.6	39	175	7.2
450	31	6,708	-13.2	35	194	7.4
400	31	7,607	-19.0		204	8.9
350	31	8,588	-26.0		210	11.9
300	31	9,685	-34.4		216	16.9
250	31	10,935	-43.7		216	22.3
200	31	12,433	-54.3		215	25.3
175	31	13,246	-60.0		214	23.3
150	31	14,195	-65.7		216	20.8
125	31	15,290	-70.3		230	10.1
100	30	16,615	-69.5		175	2.7
80	28	17,959	-65.7		91	8.7
60	28	19,732	-59.9		92	17.3
50	28	20,878	-57.3		91	21.6
40	26	22,300	-54.8		91	24.1
30	26	24,153	-51.9		89	29.3
25	25	25,340	-50.1		91	30.5
20	22	26,809	-47.8		89	30.9
15	15	28,714	-45.2		90	35.6
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SAULT STE. MARIE, MICH. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	221	14.2	93	76	0.4
1,000	31	144				
950	31	582	16.6	73	262	9.3
900	31	1,040	14.7	69	269	12.4
850	31	1,522	11.9	69	271	14.0
800	31	2,028	9.0	66	272	15.7
750	31	2,557	5.8	63	271	17.1
700	31	3,122	3.0	58	267	19.0
650	31	3,717	-.1	49	266	20.4
600	31	4,356	-3.8	40	267	20.2
550	31	5,033	-7.9	33	266	22.0
500	31	5,774	-12.4		264	24.1
450	31	6,566	-18.1		264	26.4
400	31	7,441	-24.5		270	27.8
350	31	8,399	-31.8		271	30.7
300	31	9,471	-39.8		272	31.9
250	31	10,695	-48.0		269	32.1
200	31	12,143	-54.2		271	34.0
175	30	12,989	-55.4		271	32.8
150	30	13,972	-55.6		268	28.4
125	30	15,133	-55.9		265	23.1
100	30	16,552	-56.1		269	14.8
80	30	17,975	-54.8		282	6.2
60	30	19,824	-52.6		54	4.9
50	30	21,005	-51.2		80	8.0
40	30	22,462	-49.4		89	12.4
30	29	24,356	-46.8		90	17.7
25	26	25,573	-45.0		87	19.4
20	25	27,070	-42.4		86	23.1
15	23	29,030	-38.7		87	27.2
10	14	31,849	-33.5			

SEATTLE, WASH. (1004 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	125	13.9	82	37	1.9
1,000	31	156	14.0	79	34	2.9
950	31	592	14.8	65	37	4.1
900	31	1,047	13.3	60	349	3.1
850	31	1,527	11.2	58	296	3.1
800	31	2,032	9.1	48	256	3.1
750	31	2,562	6.9	32	251	7.0
700	31	3,129	3.9	31	254	10.9
650	31	3,723	.2	32	250	13.8
600	31	4,366	-3.9	29	252	16.7
550	31	5,037	-8.3		252	19.6
500	31	5,783	-13.1		250	23.1
450	31	6,566	-18.7		250	25.5
400	31	7,447	-25.3		251	29.3
350	30	8,397	-32.7		251	31.7
300	30	9,465	-40.6		251	35.2
250	30	10,686	-48.1		253	39.8
200	30	12,138	-53.0		252	44.5
175	30	12,998	-53.6		250	43.7
150	30	13,989	-54.3		253	37.3
125	30	15,154	-55.6		254	27.4
100	30	16,575	-55.6		248	16.9
80	30	17,998	-54.8		244	8.2
60	27	19,840	-52.5		123	2.3
50	27	21,022	-51.0		95	6.6
40	27	22,478	-49.2		90	9.1
30	26	24,374	-46.6		92	14.2
25	22	25,590	-44.8		87	16.3
20	20	27,084	-42.7		86	18.8
15	15	29,031	-40.0		89	21.4
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SHREVEPORT, LA. (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	76	22.5	93	158	2.1
1,000	31	144	23.2	87	173	2.9
950	31	592	23.0	77	203	6.0
900	31	1,065	20.4	76	192	7.0
850	31	1,558	17.4	76	193	5.6
800	31	2,075	14.3	73	189	4.3
750	31	2,611	10.9	70	185	4.3
700	31	3,191	7.3	68	192	4.7
650	31	3,797	3.8	64	211	4.1
600	31	4,445	.3	58	225	5.6
550	31	5,136	-3.4	56	231	6.0
500	31	5,889	-7.6	47	231	5.4
450	31	6,700	-12.5	40	239	4.9
400	31	7,594	-18.2	36	257	4.9
350	31	8,579	-24.9		285	5.6
300	31	9,683	-33.0		279	8.0
250	31	10,940	-42.7		275	10.1
200	31	12,410	-54.5		287	10.1
175	31	13,254	-60.6		293	7.8
150	31	14,201	-66.0		313	6.6
125	30	15,301	-68.6		41	5.8
100	30	16,636	-67.8		64	7.0
80	30	17,993	-64.1		75	13.4
60	29	19,778	-58.8		89	20.6
50	29	20,931	-55.9		88	24.5
40	29	22,361	-52.8		92	27.4
30	27	24,233	-49.1		89	28.6
25	27	25,436	-47.2		89	30.9
20	22	26,921	-44.9		85	35.4
15	12	28,848	-41.8		83	36.1
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SPOKANE, WASH. (933 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	722	14.7	56	166	3.7
1,000	31	125				
950	31	567				
900	31	1,029	19.1	37	201	3.9
850	31	1,518	16.5	35	240	5.8
800	31	2,030	12.7	39	242	7.6
750	31	2,564	8.3	42	253	9.3
700	31	3,134	4.6	38	258	13.0
650	31	3,727	1.0	31	256	17.5
600	31	4,373	-2.9	28	255	21.0
550	31	5,048	-7.4	30	256	24.9
500	31	5,792	-12.2		255	26.4
450	31	6,580	-17.9		254	28.4
400	31	7,460	-24.2		255	33.4
350	31	8,420	-31.4		252	37.1
300	31	9,493	-39.7		255	40.4
250	31	10,719	-47.9		257	45.9
200	31	12,172	-53.2		259	47.8
175	31	13,032	-53.9		260	44.5
150	31	14,020	-55.1		263	40.2
125	30	15,180	-56.3		260	28.4
100	30	16,599	-55.9		261	15.7
80	30	18,020	-54.9		266	6.0
60	30	19,869	-52.5		76	1.9
50	30	21,051	-51.0		92	7.2
40	30	22,508	-49.2		82	10.5
30	29	24,404	-46.3		86	15.2
25	28	25,617	-44.6		87	17.7
20	25	27,120	-42.1		89	20.8
15	18	29,084	-39.8		88	23.7
10	6	31,865	-35.7			

SWAN ISLAND, W. I. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	26.8	87	67	10.1
1,000	31	126	25.9	87	72	12.0
950	31	579	22.9	85	93	15.2
900	31	1,047	20.2	78	93	19.6
850	31	1,540	17.3	71	93	20.4
800	31	2,057	14.7	63	[illegible]	20.0
750	31	2,595	11.6	54	100	18.7
700	31	3,176	8.4	53	100	16.7
650	31	3,780	4.8	54	107	15.5
600	31	4,435	1.5	43	106	13.4
550	31	5,128	-2.5	39	102	11.9
500	31	5,883	-7.1	41	110	7.6
450	31	6,691	-12.7	46	101	6.6
400	31	7,587	-19.1	48	94	5.1
350	31	8,568	-25.9	42	30	4.1
300	31	9,666	-34.1		346	6.4
250	31	10,917	-44.2		339	7.2
200	31	12,373	-56.4		303	13.2
175	30	13,209	-62.7		303	18.8
150	30	14,145	-68.8		300	15.2
125	29	15,230	-70.6		351	6.4
100	29	16,549	-72.0		86	19.2
80	29	17,870	-69.6		91	25.3
60	27	19,610	-63.5		81	36.1
50	27	20,737	-60.5		87	42.6
40	26	22,138	-56.9		91	39.1
30	25	23,984	-52.0		94	31.5
25	24	25,179	-48.0		100	28.4
20	16	26,667	-45.0		95	24.1
15	12	28,591	-42.8		88	23.9
10	[illegible]	31,339	-38.7			

TAMPA, FLA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	24.0	92	91	4.1
1,000	31	159	23.7	84	113	5.2
950	31	606	21.8	79	155	7.0
900	31	1,076	19.1	75	164	7.0
850	31	1,566	16.3	70	163	5.4
800	31	2,080	13.4	68	151	4.5
750	31	2,620	10.4	63	142	4.9
700	31	3,194	7.1	61	134	3.7
650	31	3,800	3.5	61	135	2.7
600	31	4,446	.0	56	117	3.3
550	31	5,136	-3.9	53	116	3.9
500	31	5,887	-8.4	54	95	5.1
450	31	6,698	-13.5	49	79	5.6
400	31	7,585	-19.4	44	67	8.2
350	31	8,564	-26.7	37	60	10.5
300	31	9,658	-35.1	36	49	12.2
250	31	10,904	-45.1		40	17.1
200	31	12,356	-56.9		50	22.0
175	31	13,190	-63.0		48	21.6
150	31	14,127	-67.9		53	20.0
125	31	15,220	-68.7		60	14.0
100	31	16,559	-67.8		74	12.2
80	31	17,905	-66.3		74	15.2
60	30	19,672	-61.1		85	27.8
50	30	20,811	-58.7		89	31.1
40	29	22,224	-55.3		91	34.0
30	28	24,075	-51.2		93	37.3
25	25	25,266	-48.7		92	37.3
20	22	26,744	-45.5		85	35.0
15	15	28,664	-44.2		81	43.5
10						

TATOOSH IS., WASH. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	31	12.1	92	181	5.4
1,000	31	154	13.2	83	185	3.7
950	31	587	14.4	68	245	2.5
900	31	1,042	12.7	56	265	2.5
850	31	1,520	10.4	53	269	3.3
800	31	2,023	8.3	43	278	5.4
750	31	2,545	5.8	39	265	8.0
700	31	3,115	2.5	41	261	10.5
650	31	3,700	-.9	34	256	13.0
600	31	4,345	-4.4	34	258	16.3
550	31	5,009	-8.9	29	258	17.9
500	31	5,755	-13.9		255	20.2
450	31	6,535	-19.6		254	21.4
400	31	7,412	-26.2		254	27.2
350	31	8,363	-33.3		253	28.4
300	31	9,428	-41.3		256	31.9
250	31	10,644	-49.1		260	37.9
200	31	12,093	-53.2		252	42.2
175	31	12,952	-53.7		250	40.0
150	31	13,942	-54.1		250	36.1
125	31	15,109	-54.7		253	28.2
100	31	16,536	-54.8		250	15.5
80	31	17,963	-54.1		243	8.0
60	31	19,814	-52.2		101	4.1
50	31	20,996	-50.9		92	7.4
40	31	22,452	-49.4		94	9.3
30	27	24,347	-46.7		85	13.0
25	24	25,559	-45.3		83	14.2
20	7	27,064	-43.1			
15						
10						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

Standard pressure surface (mb.)	TOPEKA, KANS. (986 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	TUCSON, ARIZ. (924 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	269	18.9	91	130	1.9	31	781	24.8	65	143	6.8
1,000--	31	146					31	86				
950----	31	592	20.8	72	181	6.8	31	537				
900----	31	1,057	18.8	67	218	6.8	31	1,019	26.3	48	146	6.0
850----	31	1,547	16.2	66	232	6.2	31	1,522	24.4	41	102	1.7
800----	31	2,061	13.4	60	265	5.6	31	2,050	21.0	44	31	2.9
750----	31	2,601	10.3	56	275	5.4	31	2,598	16.9	49	31	3.9
700----	31	3,174	7.1	50	297	7.2	31	3,189	12.6	54	67	5.1
650----	31	3,775	3.4	45	303	7.6	31	3,800	8.2	56	81	6.4
600----	31	4,425	- .3	36	305	8.0	31	4,463	3.3	64	81	7.4
550----	31	5,106	- 4.1		297	10.5	31	5,157	- 1.7	67	76	8.7
500----	31	5,862	- 8.8		291	11.7	31	5,916	- 6.9	63	65	8.9
450----	31	6,665	-13.9		284	13.8	31	6,720	-11.6	47	56	7.6
400----	31	7,556	-20.1		280	16.3	31	7,626	-16.9	39	49	5.6
350----	31	8,532	-27.2		283	19.4	31	8,615	-23.9	41	41	4.9
300----	31	9,627	-35.4		280	24.5	31	9,722	-32.1	40	323	2.7
250----	31	10,870	-44.9		278	30.5	31	10,983	-42.1		303	3.9
200----	31	12,330	-54.4		275	36.1	31	12,455	-53.9		282	9.1
175----	31	13,179	-58.2		280	32.8	31	13,300	-59.9		283	10.3
150----	31	14,142	-61.1		291	27.8	30	14,251	-66.1		306	7.4
125----	31	15,269	-63.4		296	20.4	30	15,342	-70.8		344	5.2
100----	31	16,640	-63.5		299	9.3	30	16,664	-70.2		75	6.8
80-----	30	18,016	-60.7		21	2.9	29	18,001	-66.3		81	12.4
60-----	30	19,825	-56.2		74	12.4	28	19,773	-60.0		87	22.0
50-----	30	20,992	-53.3		86	16.7	28	20,918	-57.4		90	23.9
40-----	28	22,433	-51.3		94	19.2	25	22,333	-54.7		92	26.6
30-----	26	24,311	-48.6		95	22.0	21	24,187	-51.5		93	31.3
25-----	24	25,517	-47.0		90	22.3	18	25,379	-49.0		90	32.1
20-----	15	27,001	-44.8		86	28.6	13	26,851	-46.9		86	38.3
15-----	11	28,937	-40.6				6	28,800	-43.7			
10-----												
7------												

Standard pressure surface (mb.)	WASHINGTON, D. C. (1009 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	WINNEMUCCA, NEV. (871 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	88	21.3	90	209	1.7	31	1,310	15.3	35	120	0.8
1,000--	31	168	21.5	86	215	2.5	31	109				
950----	31	609	20.9	74	246	6.0	31	555				
900----	31	1,081	18.3	71	261	6.4	31	1,027				
850----	31	1,569	15.5	69	266	7.2	31	1,520	22 1	23	78	3.7
800----	31	2,082	12.6	65	256	9.3	31	2,044	20.3	20	282	1.2
750----	31	2,617	9.6	63	252	11.3	31	2,593	16.3	23	277	4.3
700----	31	3,192	6.5	60	254	13.0	31	3,179	11.9	27	246	7.2
650----	31	3,794	3.3	58	252	13.2	31	3,787	6.9	32	239	8.9
600----	31	4,443	- .3	53	250	14.4	31	4,446	1.7	39	238	15.2
550----	31	5,126	- 4.1	51	254	14.6	31	5,132	- 3.6	41	237	18.1
500----	31	5,881	- 8.4	49	251	15.3	31	5,887	- 8.8	38	243	19.6
450----	31	6,688	-13.5	47	246	16.9	31	6,688	-14.3		249	21.4
400----	31	7,579	-19.5	44	247	17.9	31	7,579	-21.0		248	23.7
350----	31	8,557	-26.5	43	246	22.5	31	8,551	-28.3		249	27.6
300----	31	9,652	-34.6	40	248	25.6	31	9,638	-36.5		245	32.8
250----	31	10,900	-44.4		255	25.6	31	10,878	-45.2		250	38.7
200----	31	12,358	-55.7		261	27.6	31	12,337	-54.2		248	45.1
175----	31	13,197	-60.9		265	26.4	30	13,186	-58.0		250	45.1
150----	31	14.148	-63.7		266	18.3	30	14,149	-61.5		251	35.8
125----	31	15,265	-64.3		264	13.2	30	15,270	-64.2		259	24.7
100----	31	16,633	-62.8		274	5.4	30	16,634	-63.8		245	10.7
80-----	30	18,019	-60.0		67	2.9	27	18,005	-60.8		154	2.7
60-----	29	19,832	-55.4		89	12.4	27	19,813	-56.5		86	9.1
50-----	29	21,001	-53.2		91	15.9	26	20,976	-54.4		95	12.2
40-----	28	22,448	-50.5		89	19.8	26	22,412	-52.4		90	14.2
30-----	25	24,338	-47.5		91	23.5	25	24,281	-50.1		91	21.6
25-----	24	25,549	-45.5		89	24.9	25	25,475	-48.4		91	22.0
20-----	22	27,048	-43.1		85	27.2	22	26,951	-46.1		89	24.3
15-----	15	29,013	-40.1		88	35.4	17	28,880	-43.0		92	26.6
10-----												
7------												

Standard pressure surface (mb.)	YAKUTAT, ALASKA (1015 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	12	9.3	95	105	5.2
1,000--	31	136	10.2	90	119	4.9
950----	31	557	8.1	85	159	6.8
900----	31	1,007	5.3	81	179	6.8
850----	31	1,472	2.7	77	180	6.4
800----	31	1,961	.7	71	184	7.2
750----	31	2,476	- 1.5	65	187	8.4
700----	31	3,024	- 4.1	62	193	8.9
650----	31	3,600	- 7.3	55	197	8.5
600----	31	4,225	-11.1	53	205	9.5
550----	31	4,884	-15.0	48	210	8.9
500----	31	5,603	-19.6	45	210	10.5
450----	31	6,370	-24.9	42	215	9.1
400----	31	7,226	-30.9	42	217	8.2
350----	31	8,160	-37.7		236	7.4
300----	31	9,207	-44.8		157	3.1
250----	30	10,406	-50.8		333	7.4
200----	30	11,855	-50.9		304	13.6
175----	30	12,727	-49.3			
150----	30	13,740	-48.5			
125----	30	14,942	-47.9			
100----	30	16,416	-47.3			
80-----	29	17,895	-46.6			
60-----	29	19,809	-46.0			
50-----	29	21,024	-45.6			
40-----	29	22,513	-45.1			
30-----	27	24,441	-43.8			
25-----	27	25,670	-42.5			
20-----	26	27,183	-40.7			
15-----	23	29,146	-38.1			
10-----	21	31,968	-34.5			
7------	8	34,448	-32.7			

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun. JULY 1959

MAUNA LOA OBS., HAWAII

Date	Sun's zenith distance A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
	Air mass 3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
July									
3------	----	----	----	----	----	1.49	1.38	1.29	1.21
4------	1.22	1.30	1.38	1.48	1.64	1.50	1.39	1.30	1.21
5------	1.22	1.31	1.41	1.65	----	----	----	----	----
6------	1.23	1.32	1.41	1.50	----	----	----	----	----
8------	1.24	1.33	1.42	----	----	----	----	----	----
9------	1.18	1.26	1.36	1.45	----	----	----	----	----
11-----	----	----	----	----	1.60	----	----	----	----
12-----	1.22	1.31	1.39	1.50	----	----	----	----	----
13-----	1.19	1.29	1.38	1.49	1.62	1.49	1.38	1.29	1.21
14-----	1.23	1.31	1.40	1.50	1.61	----	----	----	----
17-----	1.15	1.23	1.33	1.45	1.58	1.45	1.33	1.25	1.17
18-----	1.22	1.30	----	----	----	1.46	1.36	1.26	1.17
19-----	1.19	1.30	1.37	1.46	----	----	----	----	----
20-----	1.23	1.31	1.38	1.48	1.60	1.42	1.29	1.19	1.10
21-----	1.21	1.29	1.38	1.47	1.61	1.43	1.32	1.23	1.15
22-----	1.19	1.27	1.36	1.46	----	----	----	----	----
23-----	1.17	1.25	1.34	1.44	----	----	----	----	----
25-----	1.19	1.26	1.35	1.46	1.59	1.42	1.31	1.21	1.13
26-----	1.16	1.23	1.32	1.43	1.59	1.43	1.30	1.22	1.13
27-----	1.17	1.24	1.33	----	1.58	----	----	----	----
28-----	1.17	1.25	1.33	1.44	1.58	----	----	1.13	1.02
29-----	1.18	1.25	1.34	1.45	1.58	1.42	1.31	1.22	1.06
30-----	1.13	1.22	1.32	1.43	1.57	----	----	----	----
31-----	1.14	1.23	1.32	1.44	1.59	----	----	----	----
Averages	1.19	1.28	1.36	1.47	1.60	1.45	1.34	1.24	1.14

ALBUQUERQUE, N. MEX.

Date	Air mass 4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
July #									
1------	0.80	0.89	1.02	1.14	1.33	----	----	----	----
2------	.86	.91	1.01	1.12	1.33	----	----	----	----
3------	----	----	----	----	1.35	----	----	----	----
5------	----	----	1.00	1.14	1.36	1.22	1.04	----	----
6------	----	----	----	1.15	1.33	----	----	----	----
7------	----	----	----	1.09	1.30	----	----	----	----
10-----	----	----	----	----	1.30	1.17	1.00	0.87	0.79
11-----	.78	.87	.99	1.16	1.37	----	----	----	----
13-----	----	----	----	----	1.09	.91	----	----	----
14-----	----	.69	.85	1.02	1.24	----	----	----	----
15-----	.67	.77	.92	1.07	1.31	----	----	----	----
16-----	----	.77	.96	1.11	1.37	----	.99	.88	.78
17-----	.82	.93	1.03	1.18	1.35	----	----	----	----
18-----	.80	.87	.99	1.13	1.32	----	.95	.79	.71
19-----	.85	.94	1.02	1.09	1.29	----	----	----	----
20-----	.78	.85	.95	1.12	1.32	----	----	----	----
21-----	.69	.80	.90	1.07	1.29	1.25	1.23	----	.71
22-----	.64	.76	.91	1.03	1.31	----	----	----	----
24-----	.79	.89	1.01	1.15	1.29	----	----	----	----
25-----	----	----	----	1.13	----	----	----	----	----
27-----	.76	.87	.98	1.13	1.27	----	----	----	----
29-----	.71	.78	.91	1.06	1.28	----	----	----	----
30-----	----	----	----	1.04	1.27	1.15	1.01	.89	----
31-----	.73	.85	.97	1.15	1.28	----	----	----	----
Averages	0.76	0.84	0.96	1.11	1.31	1.21	1.00	0.87	0.79

* Values Corresponding to true solar noon.
H Haze.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.
I Intense haze - indeterminable.
\# Data considered doubtful due to moisture in pyrheliometer throughout month.

OMAHA, NEBR.

Date	Sun's zenith distance A. M. 78.7°	75.7°	70.7°	60.0°	*	P. M. 60.0°	70.7°	75.7°	78.7°
	Air mass 4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
July									
1-----	----	----	----	----	----	----	----	----	M 0.53
2-----	S 0.69	M 0.71	M 0.82	S 1.00	S 1.16	S 0.98	S 0.82	S 0.73	----
4-----	----	----	----	----	----	M .91	M .74	M .55	----
6-----	----	----	M .82	M .99	M 1.12	M .90	M .72	M .55	M .39
7-----	----	----	----	I .82	----	----	----	----	----
8-----	----	----	----	----	----	S .95	S .80	S .71	S .58
9-----	S .65	S .73	S .88	S 1.03	S 1.20	S 1.00	S .82	S .72	S .58
11----	M .55	M .65	M .77	M .94	----	----	----	----	----
13----	----	----	M .69	M .86	----	----	----	----	----
18----	I .47	I .56	M .66	M .85	M 1.09	----	----	----	----
19----	M .54	M .66	M .79	M .96	----	----	----	----	----
20----	----	----	----	----	M 1.07	----	----	----	----
24----	S .70	S .77	S .85	M .93	M 1.13	M .93	M .77	M .66	M .54
25----	----	----	----	M .92	M 1.05	----	----	----	----
26----	----	----	----	----	M 1.06	----	----	----	----
27----	M .58	M .60	M .77	----	----	----	----	----	----
30----	----	----	----	----	----	----	M .62	M .49	----
Averages	0.60	0.67	0.78	0.93	1.11	0.95	0.76	0.63	0.52

TUCSON, ARIZ.

Date	Air mass 4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
July									
2-----	----	----	----	1.10	1.34	----	----	----	----
5-----	----	----	----	----	1.37	H 1.18	H 1.02	0.91	0.80
6-----	----	----	----	----	H 1.30	----	----	----	----
8-----	----	----	----	----	H 1.32	----	----	----	----
10----	----	----	----	----	1.36	----	----	----	----
12----	----	----	----	----	H 1.33	H 1.07	----	H .72	H .66
13----	----	----	----	----	H 1.23	H .97	----	----	----
15----	----	----	----	----	----	----	H .81	H .64	H .52
17----	----	----	----	----	H 1.29	----	----	----	----
18----	----	----	----	----	H 1.27	H .97	----	----	----
19----	----	----	----	----	H 1.23	----	----	----	----
24----	----	----	----	----	H 1.31	----	----	----	----
25----	H 0.66	H 0.77	H 0.90	H 1.08	H 1.30	----	H .81	H .67	H .57
26----	----	----	----	----	H 1.28	----	----	----	----
Averages	0.66	0.77	0.90	1.09	1.30	1.05	0.88	0.74	0.64

MADISON, WIS.

Date	Air mass 4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
July									
3-----	S 0.75	S 0.88	S 1.02	S 1.21	S 1.98	S 0.90	S 0.55	S 0.36	S 0.27
6-----	----	----	S 1.05	S 1.21	----	----	----	----	----
7-----	S .82	S .93	S 1.03	----	S 1.37	S 1.09	S .92	S .77	S .64
9-----	S .89	S .97	S 1.09	S 1.25	----	----	----	----	----
12----	S .80	S .88	S 1.02	----	----	----	----	----	----
13----	M .62	M .72	M .83	M 1.03	----	----	----	----	----
14----	I .46	I .56	I .68	I .90	----	----	----	----	----
15----	I .43	I .54	I .67	----	----	----	----	----	----
20----	Fog	M .75	M .90	S 1.07	----	----	----	----	----
21----	----	----	----	M 1.06	----	----	----	----	----
24----	S .75	S .87	S 1.01	S 1.18	1.43	1.23	1.10	.99	.88
25----	S .93	S 1.04	S 1.14	1.28	----	----	----	----	----
Averages	0.72	0.81	0.95	1.13	1.59	1.07	0.86	0.71	0.60

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N.Mex.	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.
July 2-----	768	679	549	582	310	689	774	703	350	667	---	---	143	428	163	749	516	763
July 3-----	626	688	493	304	271	171	533	780	700	575	555	---	609	334	---	736	718	759
July 4-----	681	496	641	446	341	371	727	763	768	671	579	---	671	352	615	394	761	752
July 5-----	750	706	574	661	253	195	780	705	758	610	553	---	716	567	457	672	625	756
July 6-----	733	695	312	336	624	562	751	746	264	670	323	---	635	694	690	701	322	---
July 7-----	558	638	586	651	347	376	512	671	702	625	---	---	472	619	735	---	487	749
July 8-----	774	576	427	621	360	496	606	769	692	666	584	---	764	245	686	687	668	750
Average-------	699	640	512	514	358	380	669	734	605	641	519	---	573	463	558	657	585	755
July 9-----	769	634	714	653	---	495	569	750	719	654	519	---	694	---	545	768	741	735
July 10-----	750	390	690	622	613	394	668	738	402	609	467	---	648	582	702	744	706	627
July 11-----	803	236	664	282	368	456	790	707	418	621	575	---	242	349	328	728	750	664
July 12-----	635	604	703	423	406	411	732	621	189	582	440	---	560	238	693	736	750	723
July 13-----	733	194	403	441	330	493	678	718	403	652	590	---	692	461	667	707	742	702
July 14-----	678	554	734	431	364	708	612	439	125	665	556	---	653	---	684	271	741	715
July 15-----	647	450	512	466	703	506	684	704	98	646	568	---	552	443	621	259	748	711
Average-------	71[illegible]	437	631	474	464	494	67[illegible]	668	336	633	531	---	577	415	606	602	740	697
July 16-----	735	395	653	476	620	386	616	736	416	---	581	455	649	343	546	392	749	703
July 17-----	789	194	719	329	259	295	710	---	601	585	585	685	607	---	538	472	731	690
July 18-----	683	302	748	378	319	192	663	---	621	543	539	501	659	461	480	555	712	688
July 19-----	672	470	752	256	527	142	732	---	443	567	596	573	239	485	539	681	726	716
July 20-----	715	696	415	483	690	390	665	---	215	487	538	660	719	518	496	708	733	720
July 21-----	749	442	562	412	655	501	609	674	317	632	585	763	670	556	---	650	718	710
July 22-----	733	730	543	557	328	594	698	---	543	---	566	728	638	547	551	378	684	635
Average-------	725	461	627	413	485	357	671	---	451	563	570	623	597	485	525	548	722	695
July 23-----	675	622	223	359	453	194	(732)	536	512	591	551	766	589	626	367	542	563	661
July 24-----	---	707	358	622	---	145	(720)	658	449	532	546	784	425	509	392	705	595	688
July 25-----	562	489	668	531	174	327	(617)	676	494	564	557	773	445	519	598	657	644	691
July 26-----	614	443	755	498	225	334	727	635	625	505	562	467	595	491	537	386	739	724
July 27-----	726	711	453	507	221	229	462	678	689	663	(598)	---	666	507	541	488	710	705
July 28-----	733	514	579	532	194	---	(695)	721	633	618	549	---	641	465	457	656	617	692
July 29-----	721	533	733	449	398	594	(723)	704	596	409	596	678	438	529	208	575	715	690
Average-------	672	574	538	500	278	304	(668)	658	571	555	(566)	694	543	521	443	573	655	693
July 30-----	680	611	579	629	374	643	703	667	---	502	574	580	616	367	469	381	667	674
July 31-----	693	523	499	621	375	204	698	421	---	577	602	694	181	239	608	521	660	700
Aug. 1-----	722	512	225	515	492	545	---	446	---	591	609	(603)	469	283	657	586	715	717
Aug. 2-----	710	390	304	538	294	638	(543)	---	---	626	606	580	406	462	671	522	711	709
Aug. 3-----	726	672	533	554	349	560	(669)	---	---	651	---	800	---	627	492	643	684	665
Aug. 4-----	706	700	355	501	510	608	561	643	---	567	(606)	727	693	458	147	572	423	667
Aug. 5-----	576	675	614	446	244	612	654	690	---	644	586	496	681	---	556	250	707	674
Average-------	683	583	444	543	377	544	(638)	573	---	594	(597)	(640)	508	406	514	496	652	687

1959	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Flaming Gorge, Utah	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.
July 2-----	---	722	610	762	350	(626)	559	637	626	493	380	731	443	730	708	---	356	558
July 3-----	---	732	742	609	429	546	710	653	341	306	695	658	505	247	730	867	815	550
July 4-----	---	670	513	721	472	787	733	652	385	477	754	800	733	499	610	867	786	576
July 5-----	---	570	717	813	182	634	637	656	680	707	---	687	657	703	376	---	729	578
July 6-----	---	682	754	719	212	646	705	669	720	693	---	516	497	397	743	856	206	328
July 7-----	---	717	764	827	415	---	714	676	544	107	---	465	---	683	726	857	813	453
July 8-----	---	716	607	808	257	828	725	652	601	590	---	784	---	618	725	865	800	571
Average-------	---	687	673	751	331	(678)	683	656	557	482	---	[illegible]63	567	554	660	863	644	516
July 9-----	---	627	500	803	---	809	712	546	420	610	---	768	---	739	615	796	758	589
July 10-----	---	668	740	776	134	804	700	531	276	691	---	770	---	622	721	825	678	546
July 11-----	---	615	732	756	130	787	733	528	238	736	---	720	---	429	661	699	682	457
July 12-----	---	670	726	546	376	622	(678)	575	214	698	---	742	---	589	679	816	617	595
July 13-----	---	619	729	557	381	499	640	598	613	676	---	722	---	440	635	803	665	324
July 14-----	---	620	739	682	292	---	603	633	747	---	---	772	---	475	641	820	681	330
July 15-----	---	670	729	686	462	---	466	633	574	587	---	761	---	620	670	808	573	573
Average-------	---	641	699	687	296	704	(647)	578	440	666	---	751	---	559	660	795	665	488
July 16-----	---	627	744	625	---	775	424	620	619	(706)	---	744	---	547	519	792	692	---
July 17-----	---	393	723	383	537	777	388	605	617	(695)	---	695	---	460	453	747	689	579
July 18-----	---	238	732	553	479	646	267	601	647	640	---	732	---	384	256	780	532	528
July 19-----	---	608	702	---	628	677	(150)	616	676	678	---	647	---	375	494	761	279	350
July 20-----	---	608	632	660	293	708	281	609	558	619	---	711	---	566	646	742	215	---
July 21-----	---	670	734	534	370	584	448	606	538	686	---	725	237	473	520	788	586	---
July 22-----	---	543	728	480	264	769	614	521	402	692	---	720	503	614	455	669	585	588
Average-------	---	527	714	522	428	705	(367)	597	580	(674)	---	711	---	488	477	754	511	512
July 23-----	---	229	526	537	333	---	637	571	686	694	---	---	619	469	300	780	490	340
July 24-----	---	566	737	717	---	638	524	599	635	---	---	---	708	709	346	757	463	111
July 25-----	---	445	569	512	210	395	626	589	684	606	---	---	595	---	537	776	419	183
July 26-----	---	678	599	487	141	---	401	595	522	659	---	---	508	642	363	785	760	267
July 27-----	---	595	649	639	370	---	641	615	489	536	---	---	420	604	291	784	739	---
July 28-----	---	552	710	632	583	455	559	606	626	706	---	---	524	555	560	808	737	563
July 29-----	---	476	(491)	706	506	456	657	603	653	701	---	705	567	---	559	811	611	---
Average-------	---	506	(612)	604	357	486	578	597	614	650	---	---	563	596	422	786	603	293
July 30-----	564	431	701	280	195	---	609	580	418	689	---	692	525	658	422	774	605	553
July 31-----	620	671	691	614	202	---	697	585	562	685	---	655	302	638	654	661	597	378
Aug. 1-----	661	720	671	379	449	303	602	586	515	360	---	447	573	629	656	743	664	358
Aug. 2-----	700	727	735	620	364	419	488	622	396	532	---	619	687	---	585	700	771	493
Aug. 3-----	688	216	733	500	269	573	687	621	563	675	---	686	524	---	272	825	724	339
Aug. 4-----	666	435	670	706	443	---	685	627	624	674	---	677	133	586	348	819	420	546
Aug. 5-----	665	643	709	682	402	---	700	605	578	462	---	657	632	455	523	782	178	470
Average-------	[illegible]52	549	701	540	332	---	638	604	522	582	---	633	482	593	494	758	566	448

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

JULY 1959

1959	Lander, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Manhattan, Kans.	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.
July 2-----	553	719	753	---	698	701	726	732	811	706	548	463	675	295	755	374	568
July 3-----	497	773	870	---	776	668	709	595	848	762	490	718	754	693	678	688	---
July 4-----	816	783	743	---	584	683	(734)	534	881	741	500	587	635	739	685	544	584
July 5-----	786	781	452	---	259	715	760	559	889	677	410	429	206	643	400	420	321
July 6-----	690	---	700	---	751	683	668	669	884	731	449	451	674	318	729	509	637
July 7-----	732	782	845	---	653	707	722	665	885	722	510	719	779	728	693	705	676
July 8-----	788	760	827	---	683	727	731	427	678	758	567	716	745	691	---	666	647
Average-------	694	766	741	---	629	698	(721)	597	840	728	496	583	638	587	656	558	572
July 9-----	762	737	762	---	372	614	632	715	796	720	634	462	552	692	746	632	---
July 10-----	797	738	810	---	604	685	656	596	799	712	504	710	583	188	672	336	---
July 11-----	784	739	820	---	489	673	690	619	806	675	716	605	727	554	---	514	768
July 12-----	657	596	710	---	---	695	712	390	763	707	628	544	720	274	646	540	468
July 13-----	299	707	(628)	---	738	680	675	605	873	714	514	693	710	327	562	574	381
July 14-----	690	714	661	---	681	641	671	151	858	677	523	678	480	89	426	573	495
July 15-----	542	725	547	---	627	639	657	223	529	693	345	632	571	111	326	469	325
Average-------	647	708	(705)	---	585	661	670	471	775	700	552	618	620	319	563	520	487
July 16-----	687	708	589	---	547	637	690	531	(422)	677	311	651	467	186	476	580	590
July 17-----	736	670	531	---	550	659	667	291	857	663	490	388	466	592	131	295	596
July 18-----	653	696	641	---	432	571	628	540	853	655	571	390	587	292	679	276	624
July 19-----	637	562	497	---	496	619	658	659	520	578	554	459	379	329	709	399	562
July 20-----	733	655	743	---	331	570	649	671	852	665	535	583	681	444	688	478	582
July 21-----	676	642	663	---	---	614	643	324	863	662	547	640	486	469	470	457	383
July 22-----	750	572	414	---	---	372	393	510	573	639	152	705	519	381	630	319	505
Average-------	696	644	583	---	471	577	618	504	(706)	649	451	545	512	385	540	400	549
July 23-----	752	720	242	---	---	542	670	409	617	637	481	612	329	493	682	549	594
July 24-----	597	651	447	---	390	662	684	674	548	708	506	574	228	454	681	238	692
July 25-----	762	634	355	---	203	674	695	652	856	681	600	659	321	399	662	519	622
July 26-----	576	700	521	---	293	643	678	628	852	681	313	593	571	655	655	571	158
July 27-----	691	701	503	---	456	602	641	315	795	713	439	384	679	678	556	486	374
July 28-----	765	729	314	---	474	518	(609)	305	683	710	567	588	474	653	---	570	601
July 29-----	761	463	630	---	606	629	(646)	591	853	680	683	659	637	534	---	485	661
Average-------	701	657	430	---	404	610	(661)	511	743	687	513	581	463	552	647	488	529
July 30-----	584	287	710	618	618	651	690	623	746	628	632	628	645	421	---	546	657
July 31-----	444	642	524	448	605	632	654	430	779	646	691	651	378	302	335	515	636
Aug. 1-----	429	473	966	284	612	635	655	520	785	622	599	646	518	539	374	505	621
Aug. 2-----	532	588	803	556	674	663	699	583	786	679	464	665	708	513	---	666	650
Aug. 3-----	702	708	410	441	613	636	654	617	867	686	253	686	616	662	---	391	624
Aug. 4-----	477	677	330	320	621	665	672	590	675	666	141	691	506	654	542	387	662
Aug. 5-----	678	682	517	(381)	586	627	679	403	163	665	554	589	344	---	379	420	647
Average-------	549	579	609	(435)	618	644	672	538	686	656	476	651	531	515	407	490	642

1959	Page, Ariz.	Phoenix, Ariz.	Portland, Me.	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Obs & Test Dev Ctr)
July 2-----	596	730	395	708	780	740	749	676	779	805	(652)	632	694	597	614	643	686	587
July 3-----	758	724	767	637	550	756	730	717	---	727	428	658	591	807	327	---	756	673
July 4-----	710	703	756	813	745	758	725	723	753	731	670	660	800	800	352	693	730	681
July 5-----	645	731	767	408	783	772	631	671	708	503	597	641	456	715	529	756	787	569
July 6-----	708	726	526	612	597	765	772	610	767	806	390	438	496	498	700	613	726	405
July 7-----	756	706	733	---	469	767	557	632	810	713	640	679	560	818	346	496	711	735
July 8-----	783	694	753	---	748	758	462	648	800	417	(548)	670	480	802	607	735	694	740
Average-------	708	716	671	636	667	759	661	668	769	672	(561)	625	582	720	497	656	727	627
July 9-----	698	634	750	---	769	700	721	611	646	631	734	473	---	712	542	442	758	626
July 10-----	764	713	441	787	718	654	665	588	643	783	715	609	---	471	485	721	745	89
July 11-----	732	699	408	---	(673)	719	757	412	694	719	720	541	---	705	558	729	783	452
July 12-----	594	692	289	---	696	736	585	469	752	706	(566)	685	---	524	455	707	812	131
July 13-----	---	690	497	---	479	717	679	663	719	742	(563)	633	---	513	---	727	808	512
July 14-----	---	692	410	781	564	723	663	683	656	712	733	581	759	374	520	703	664	174
July 15-----	626	675	372	776	520	---	531	668	696	---	(684)	623	758	464	531	---	320	259
Average-------	683	685	452	---	631	708	657	585	687	716	(673)	592	---	538	515	671	699	320
July 16-----	593	685	654	771	681	730	445	679	---	532	(707)	592	739	683	437	---	(563)	386
July 17-----	661	662	700	759	535	720	474	704	682	390	685	668	739	660	615	---	(810)	462
July 18-----	704	673	697	750	719	695	576	667	614	351	(680)	667	739	533	710	---	(870)	560
July 19-----	699	659	502	732	729	594	718	554	671	785	(679)	605	703	357	556	---	769	548
July 20-----	408	617	578	733	668	664	715	492	695	785	(676)	493	726	303	540	---	741	304
July 21-----	655	597	537	738	640	641	723	453	656	588	695	478	726	558	445	---	720	418
July 22-----	724	601	514	732	727	501	636	650	657	667	668	---	723	493	341	672	722	475
Average-------	635	642	597	745	671	649	612	600	663	585	(684)	584	728	512	521	---	(742)	451
July 23-----	697	626	701	554	673	669	718	627	738	320	201	597	528	506	561	691	738	554
July 24-----	644	668	401	611	703	688	745	487	735	449	372	312	663	434	558	729	771	551
July 25-----	703	---	662	743	589	693	740	629	730	742	689	150	735	498	523	735	703	365
July 26-----	690	643	725	722	667	696	357	542	573	633	707	306	728	746	443	---	656	530
July 27-----	697	691	746	741	515	657	657	528	740	573	327	557	709	547	498	---	680	417
July 28-----	691	630	727	757	656	685	666	568	580	645	602	562	597	463	549	709	483	402
July 29-----	593	558	696	---	635	633	569	555	549	369	683	661	712	330	537	517	711	367
Average-------	674	636	665	688	634	674	636	562	664	533	511	449	667	503	524	676	678	455
July 30-----	---	668	258	719	686	615	664	589	697	678	---	594	719	538	532	654	739	514
July 31-----	---	697	510	685	531	631	681	655	630	713	641	537	688	568	403	722	765	439
Aug. 1-----	---	711	562	648	469	604	648	566	630	744	480	563	657	701	575	517	682	628
Aug. 2-----	---	611	772	726	545	629	144	---	683	719	454	489	706	766	280	573	723	709
Aug. 3-----	---	470	732	731	668	711	519	692	603	180	---	478	707	725	377	584	711	---
Aug. 4-----	---	455	739	711	509	679	661	688	559	425	555	300	683	422	543	596	604	163
Aug. 5-----	---	506	228	714	509	666	538	659	662	594	632	639	687	368	548	609	685	472
Average-------	---	588	543	705	560	648	551	641	638	579	552	514	692	584	465	608	701	488

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

DESCRIPTION of CHARTS

CHART I.A. AVERAGE TEMPERATURE (°F.) AT SURFACE. B. DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL.-The average monthly temperature presented in Chart I-A is computed from the average daily maximum and the average daily minimum which in turn are computed from the daily maximum and minimum temperatures reported by some 225 first-order Weather Bureau stations and 700 cooperative stations. The departures from normal are presented in Chart I-B. They are based on the 30-year normals (1921-50) for the first-order Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for the cooperative stations.

CHART II. TOTAL PRECIPITATION.-

CHART III. A. DEPARTURE OF PRECIPITATION FROM NORMAL (INCHES). B. PERCENTAGE OF NORMAL PRECIPITATION.-Chart II is based on daily precipitation records at about 800 Weather Bureau and cooperative stations. In Chart III the anomaly in the month's precipitation is shown as a departure from the normal total and as a percentage of the normal total. These anomalies show the deviations from the 30-year normals (1921-50) for about 225 first-order Weather Bureau stations in Charts III A and B, supplemented in Chart III-A by the deviation from means of 25 years or more (mostly 1931-55) for about 700 cooperative stations.

CHART IV. TOTAL SNOWFALL.-

CHART V. A. PERCENTAGE OF MEAN MONTHLY SNOWFALL. B. DEPTH OF SNOW ON GROUND.-Chart IV gives the total depth in inches of unmelted snowfall as reported during the month by Weather Bureau and cooperative stations. This is converted in Chart V-A into a percentage of the mean monthly total amount computed for each Weather Bureau station having at least 10 years of record. The depth of snow on ground is that reported by both Weather Bureau and cooperative stations as of 7:00 a.m. Eastern Standard Time on the last Monday of the month. This is reported only for the months December through April. The snowfall charts are presented each month November through April.

CHART VI. A. PERCENTAGE OF SKY COVER BETWEEN SUNRISE AND SUNSET. B. PERCENTAGE OF MEAN MONTHLY SKY COVER BETWEEN SUNRISE AND SUNSET.-These charts are based on visual observations made hourly at Weather Bureau stations and averaged for the month. Sky cover includes, in addition to cloudiness, obscuration of the sky by fog, smoke, etc. Mean amount of sky cover is computed for stations having at least 10 years of record.

CHART VII. A. PERCENTAGE OF POSSIBLE SUNSHINE. B. PERCENTAGE OF MEAN MONTHLY SUNSHINE.-CHART VII-A shows the amount of sunshine received in terms of percentage of the total hours of sunshine possible during the month. In Chart VII-B this is shown as a percentage of the mean number of hours of sunshine received. Means are computed for Weather Bureau stations having at least 10 years of record.

CHART VIII. A. AVERAGE DAILY VALUES OF SOLAR RADIATION, LANGLEYS. B. PERCENTAGE OF MEAN DAILY SOLAR RADIATION.-Shown on Chart VIII-A are the monthly averages of daily total solar radiation, both direct and diffuse, in langleys (gm. cal. $cm.^{-2}$) for all Weather Bureau stations which record this element. Supplementary data for which limits of accuracy are wider than for those data shown are drawn upon in making the analysis. Chart VIII-B shows the percentages of the mean based on the period 1951-55.

CHART IX.-TRACKS OF CENTERS OF ANTICYCLONES AT SEA LEVEL.-

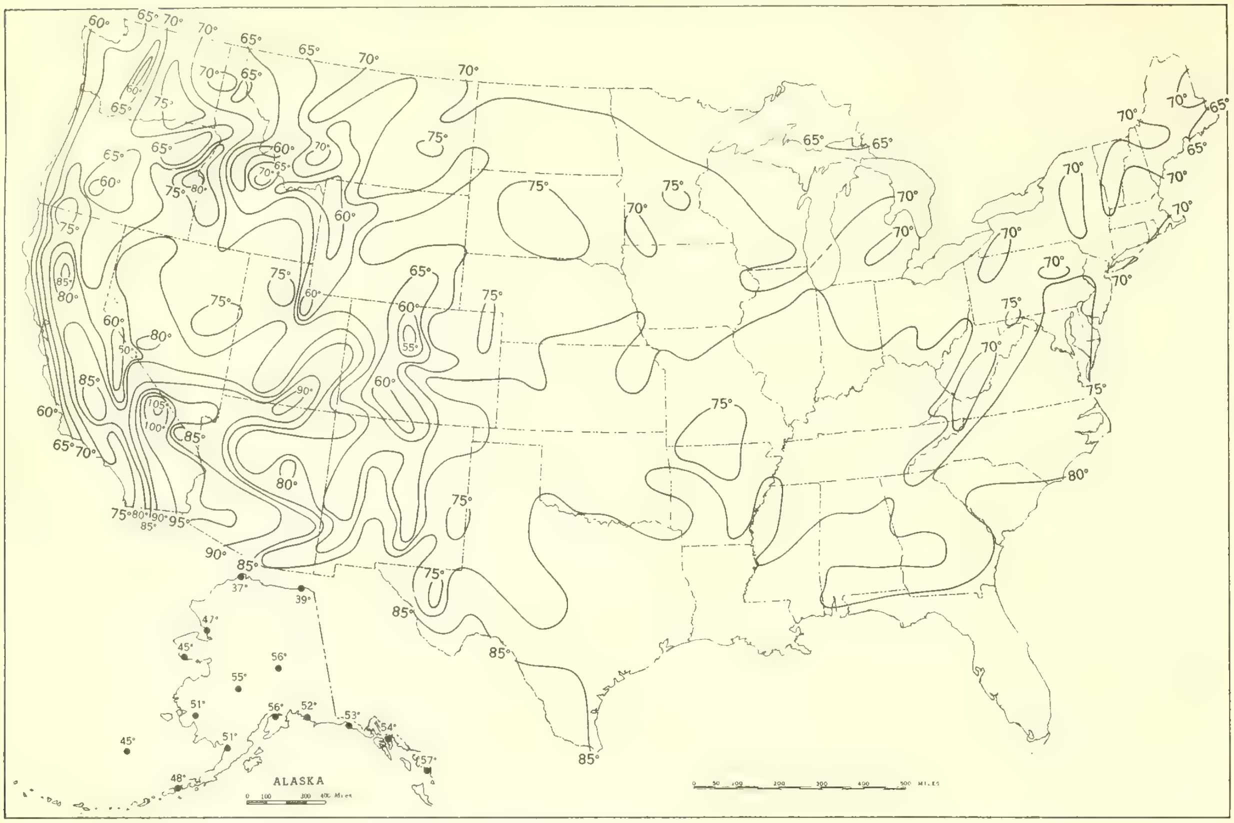
CHART X. TRACKS OF CENTERS OF CYCLONES AT SEA LEVEL.-Centers which can be identified for 24 hours or more are tracked in these charts. Semi-permanent features such as the Great Basin and Pacific Highs and Colorado and Mexico Lows are not shown. The 7:00 a.m. EST positions are shown by open circles, with the intermediate positions at 6-hour intervals shown by solid dots. The date is given above the circle and the central pressure to whole millibars below. A dashed track indicates a regeneration rather than actual movement to the next position. Solid squares indicate position of stationary center for period shown beside it.

CHART XI. AVERAGE SEA LEVEL PRESSURE (mb.) AND SURFACE WINDROSES.-The average monthly sea level pressure is obtained from the averages of the 7:00 a.m. and 7:00 p.m. EST pressures reported at Weather Bureau stations. Windroses are based on the hourly wind directions (to 16 points of the compass) reported by Weather Bureau stations, each circle or arc indicating 5 percent of the time. The inset shows the departure of the average pressure based on 30-year normals for first-order Weather Bureau stations, other stations having at least 10 years of record, and, for each 10° intersection in a diamond grid over the oceans, from interpolated values read from the Historical Weather Maps for the 20 years of best coverage prior to 1940.

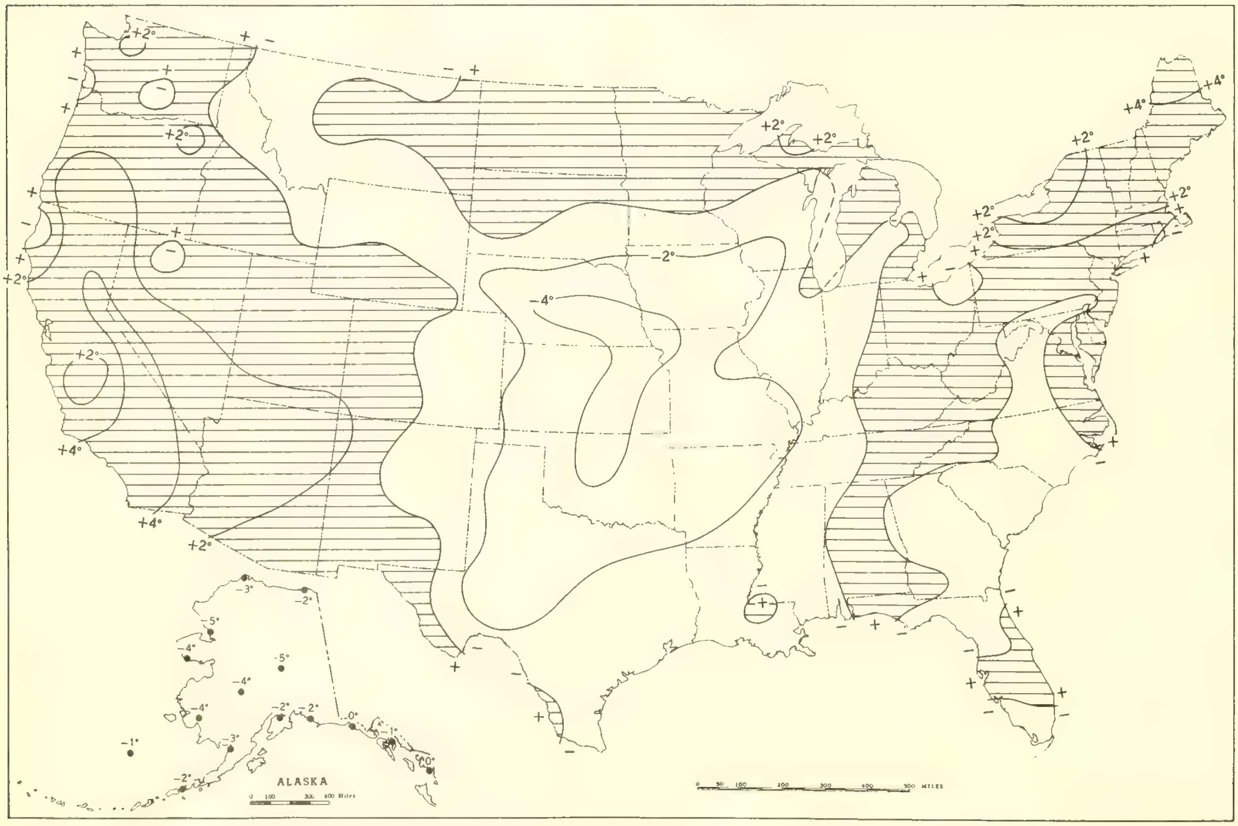
CHARTS XII-XVII. AVERAGE HEIGHT, TEMPERATURE, AND RESULTANT WINDS, 850, 700, 500, 300, 200, and 100 mb.-Height is given in geopotential meters and temperature in degrees Celsius. These are the averages of the 1200 GMT radiosonde reports. Wind speeds are given in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. Directions are shown to 360° of the compass. Winds are based on rawins at the indicated pressure surface and at 1200 GMT.

Exact values of most of these charted elements for Weather Bureau stations are printed each month in tabular form in CLIMATOLOGICAL DATA, NATIONAL SUMMARY. Extreme values of temperature and precipitation for each state are included in the table, Condensed Climatological Summary. Annual averages are presented in the CDNS Annual Issue each year.

Chart I. A. Average Temperature (°F.) at Surface, July 1959.

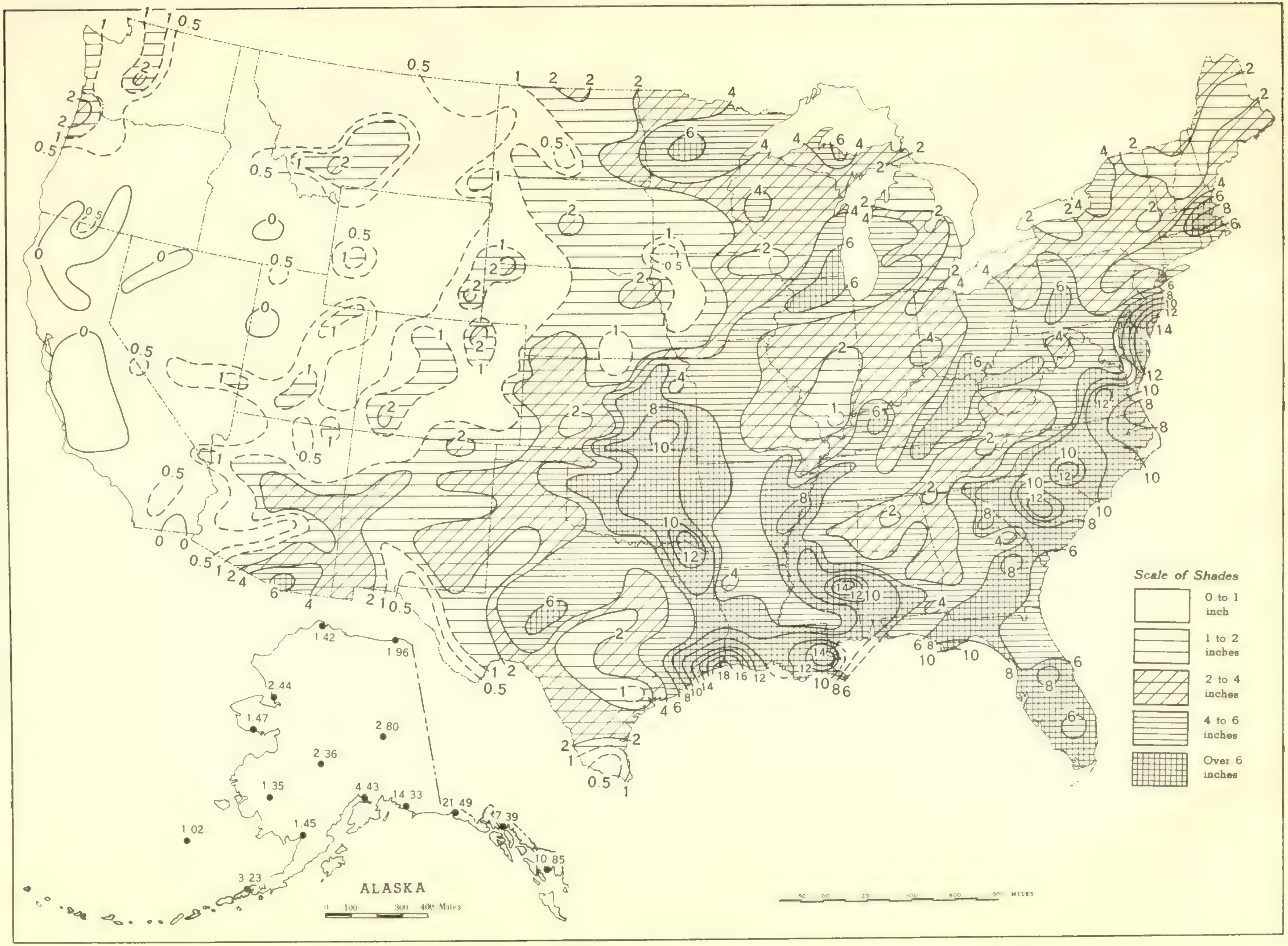


B. Departure of Average Temperature from Normal (°F.), July 1959.



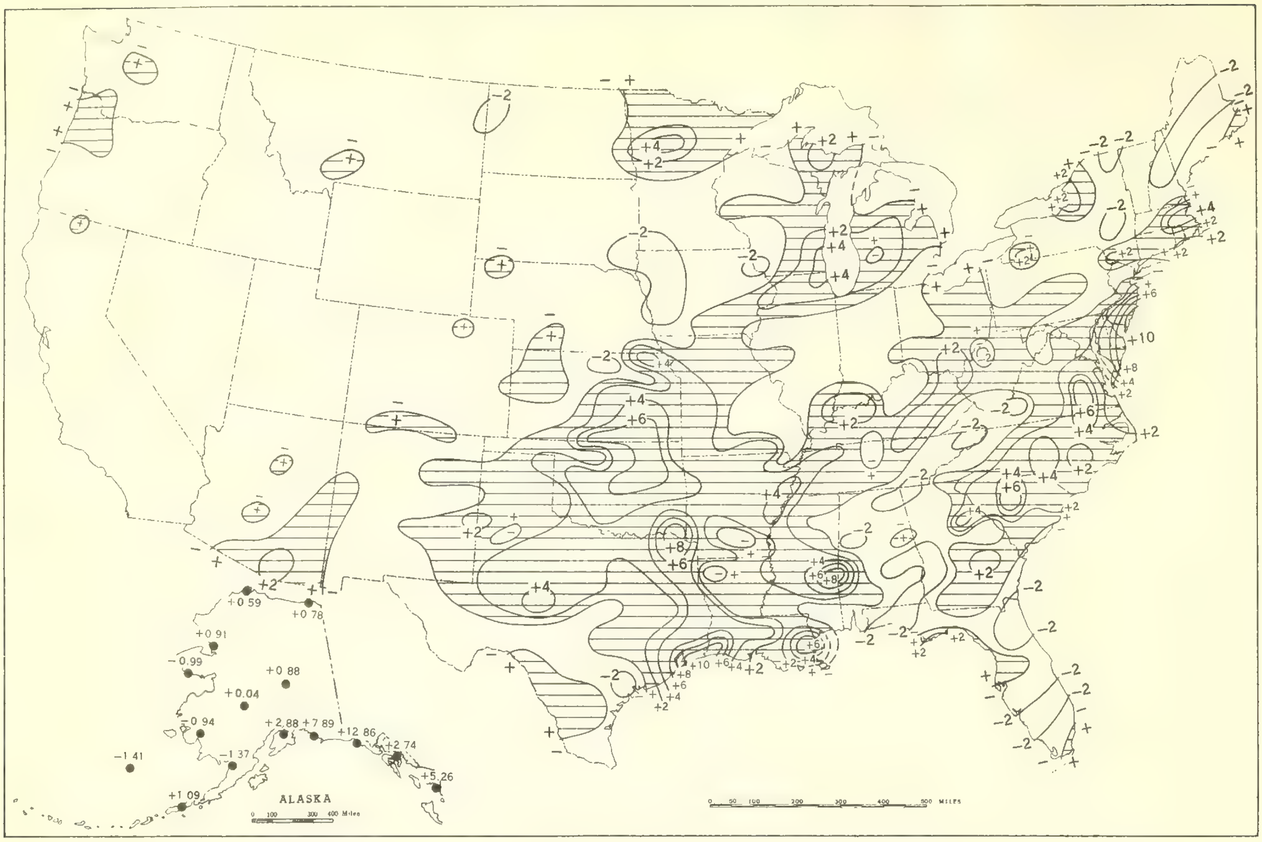
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), July 1959.

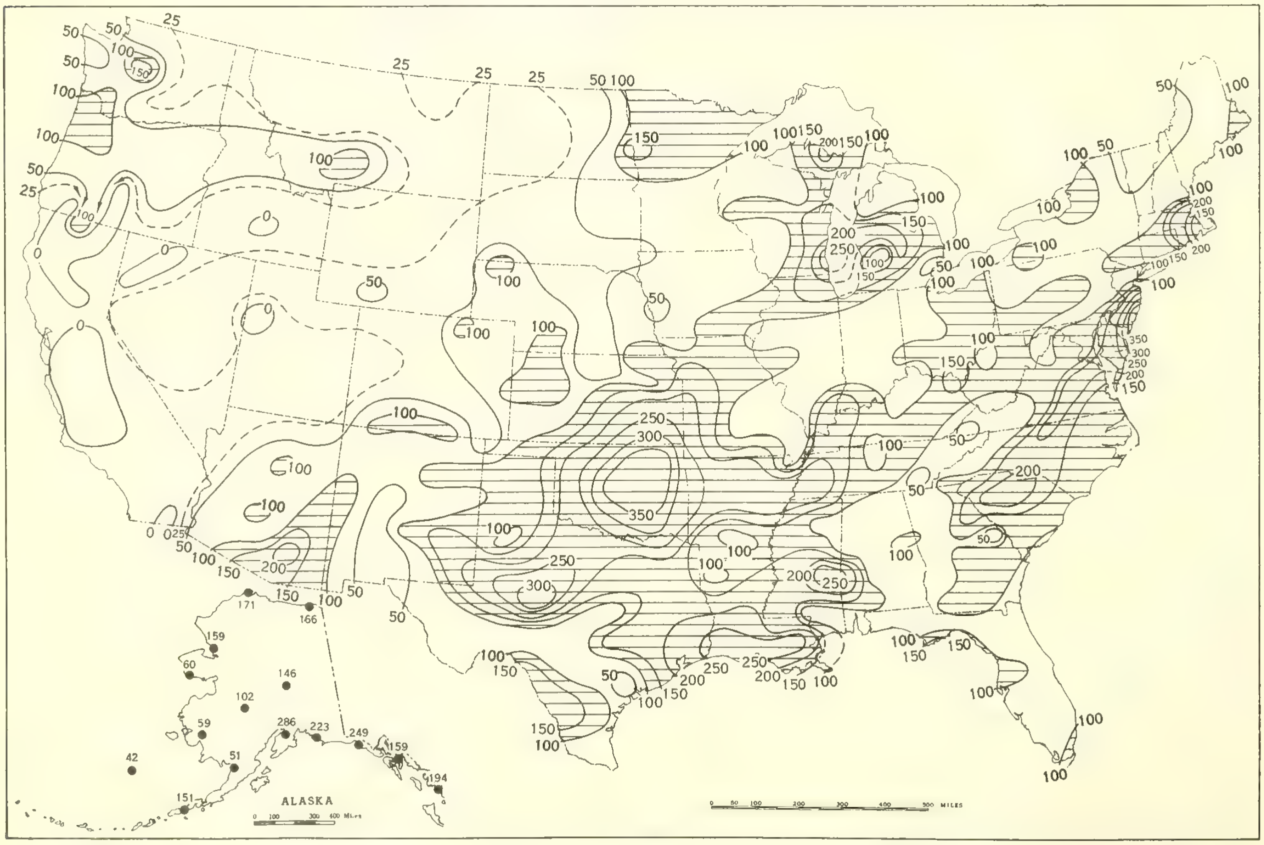


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), July 1959.

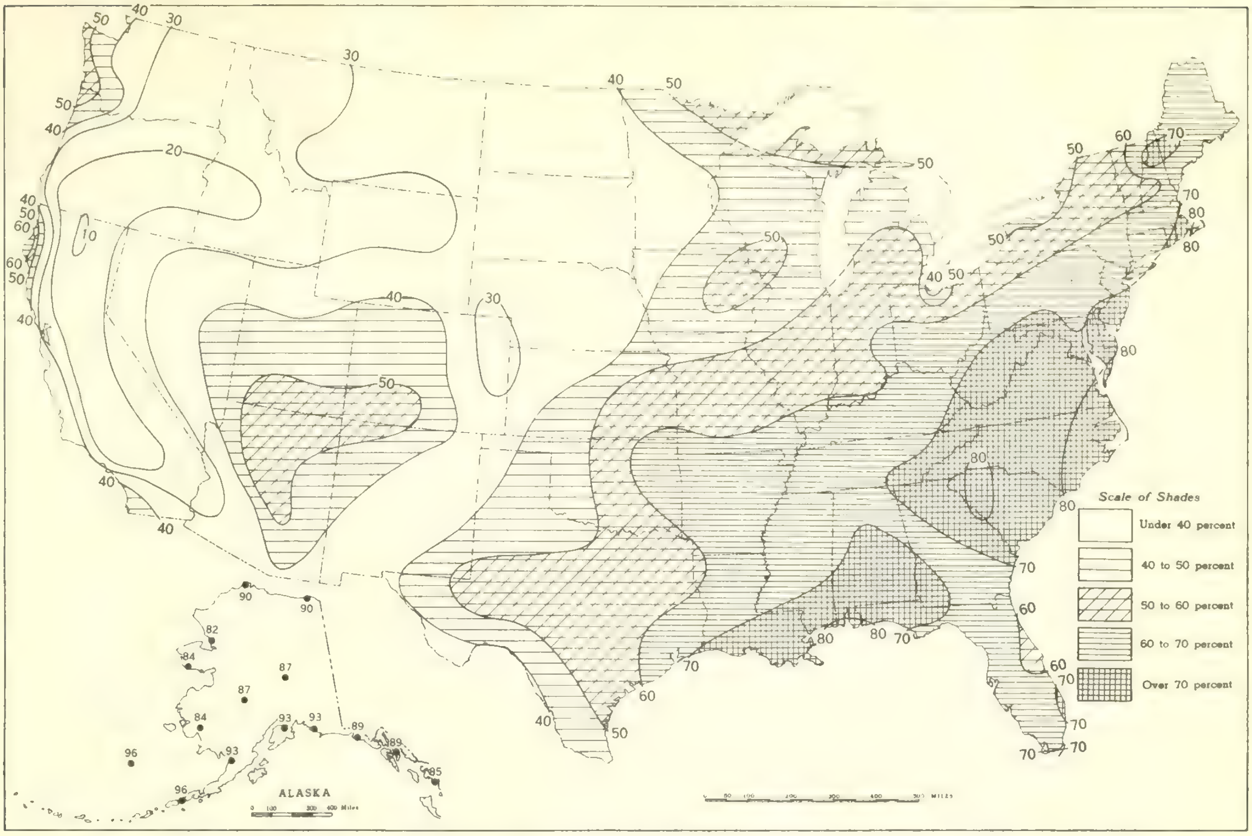


B. Percentage of Normal Precipitation, July 1959.

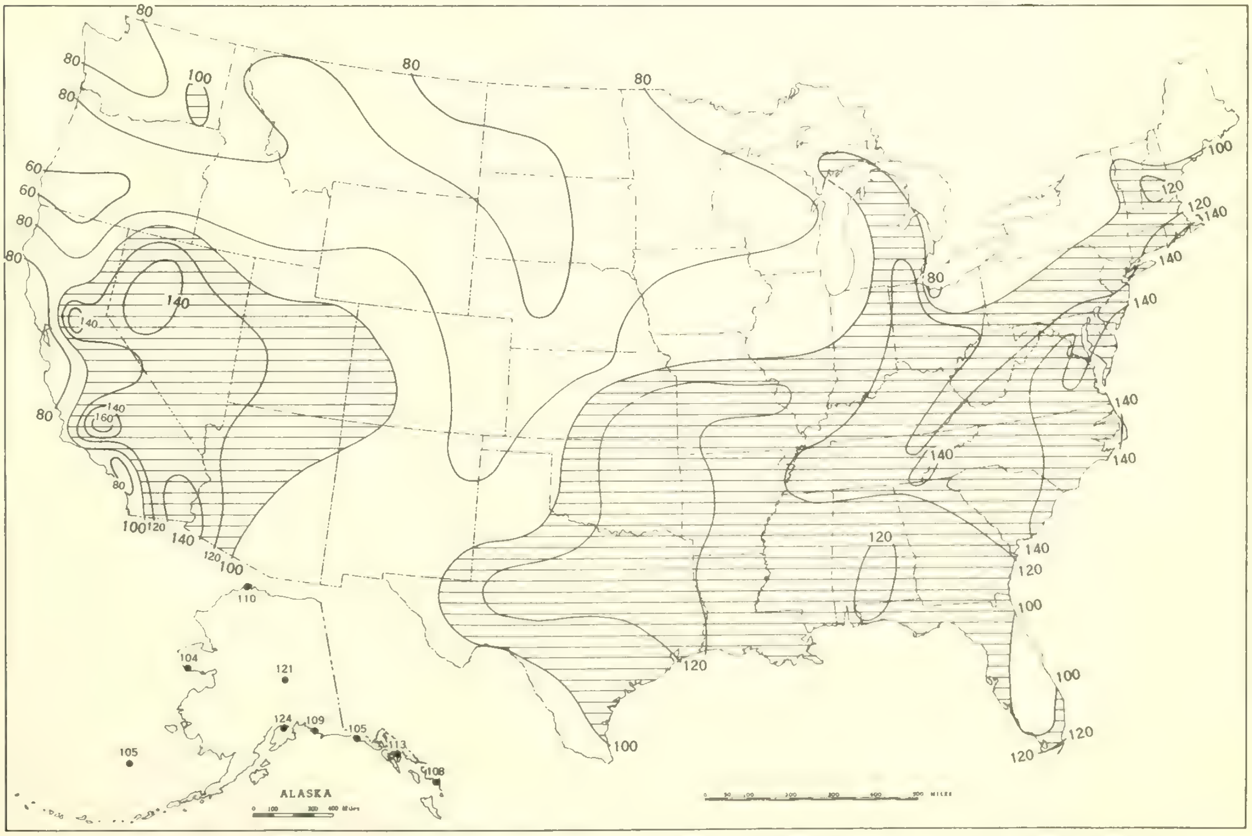


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, July 1959.

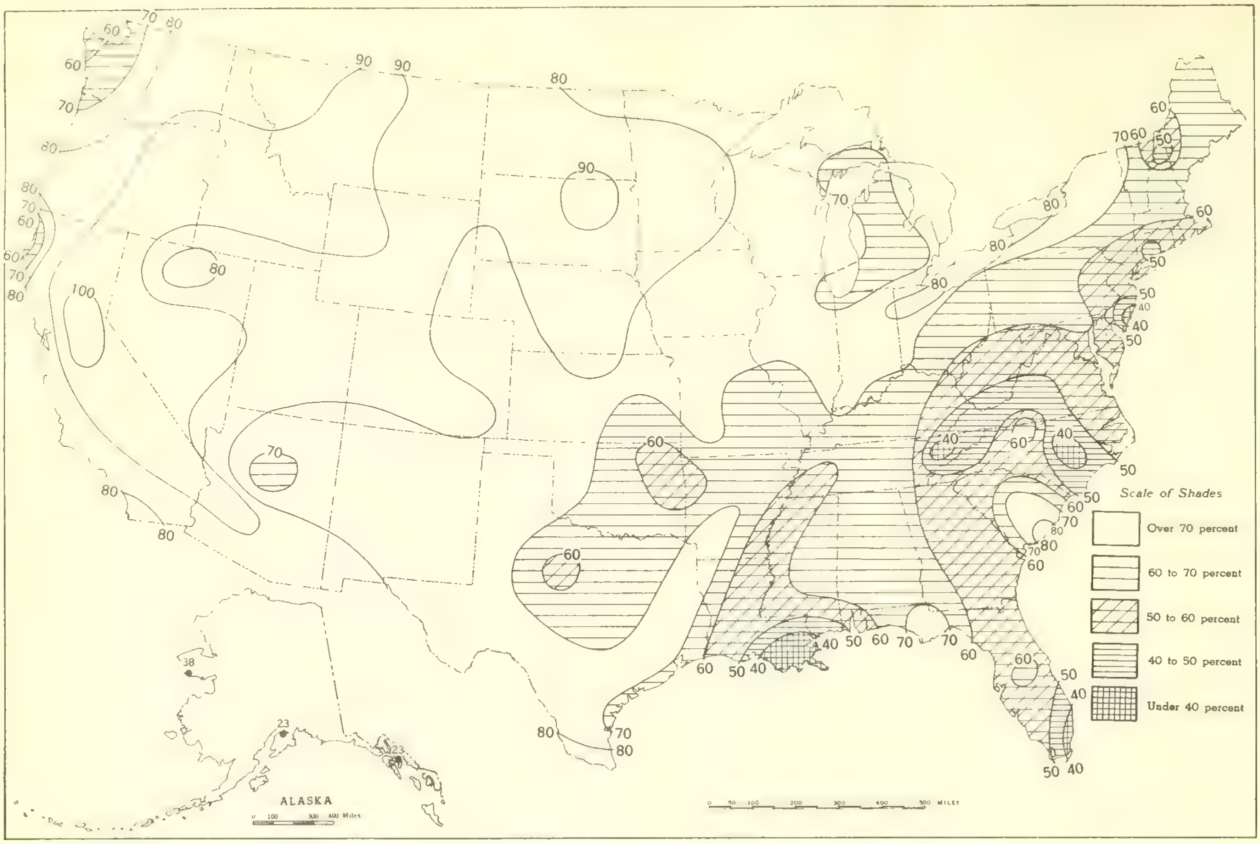


B. Percentage of Mean Monthly Sky Cover Between Sunrise and Sunset, July 1959.

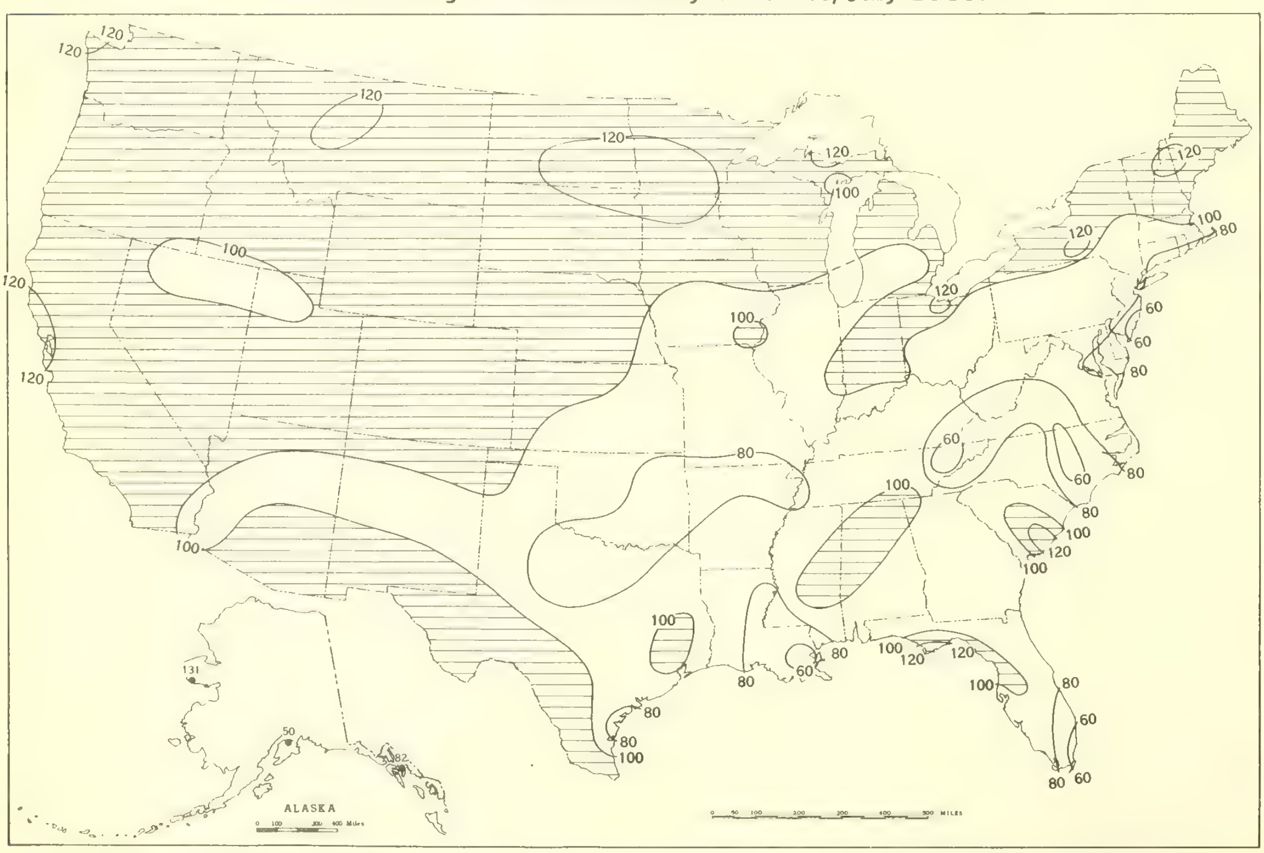


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of mean amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, July 1959.

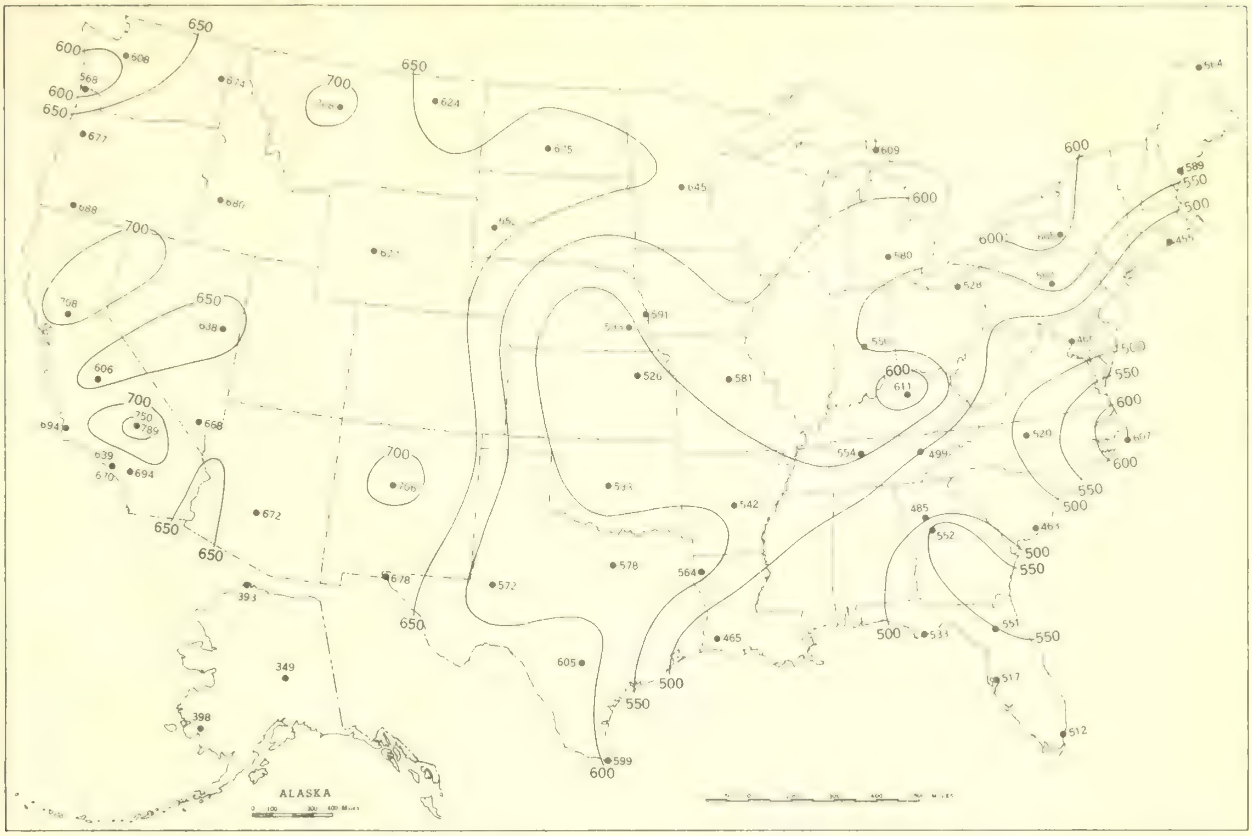


B. Percentage of Mean Monthly Sunshine, July 1959.

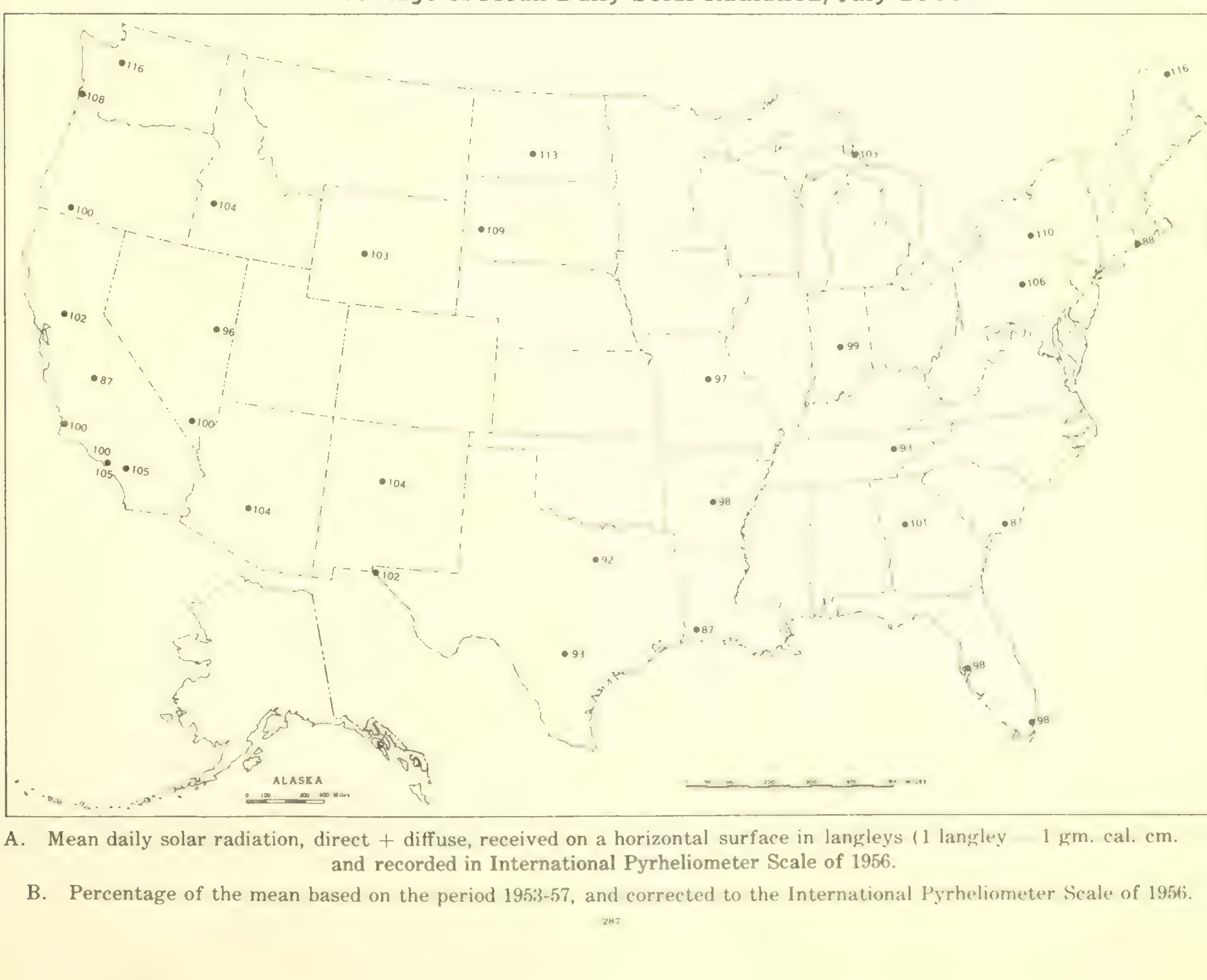


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Means are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, July 1959.



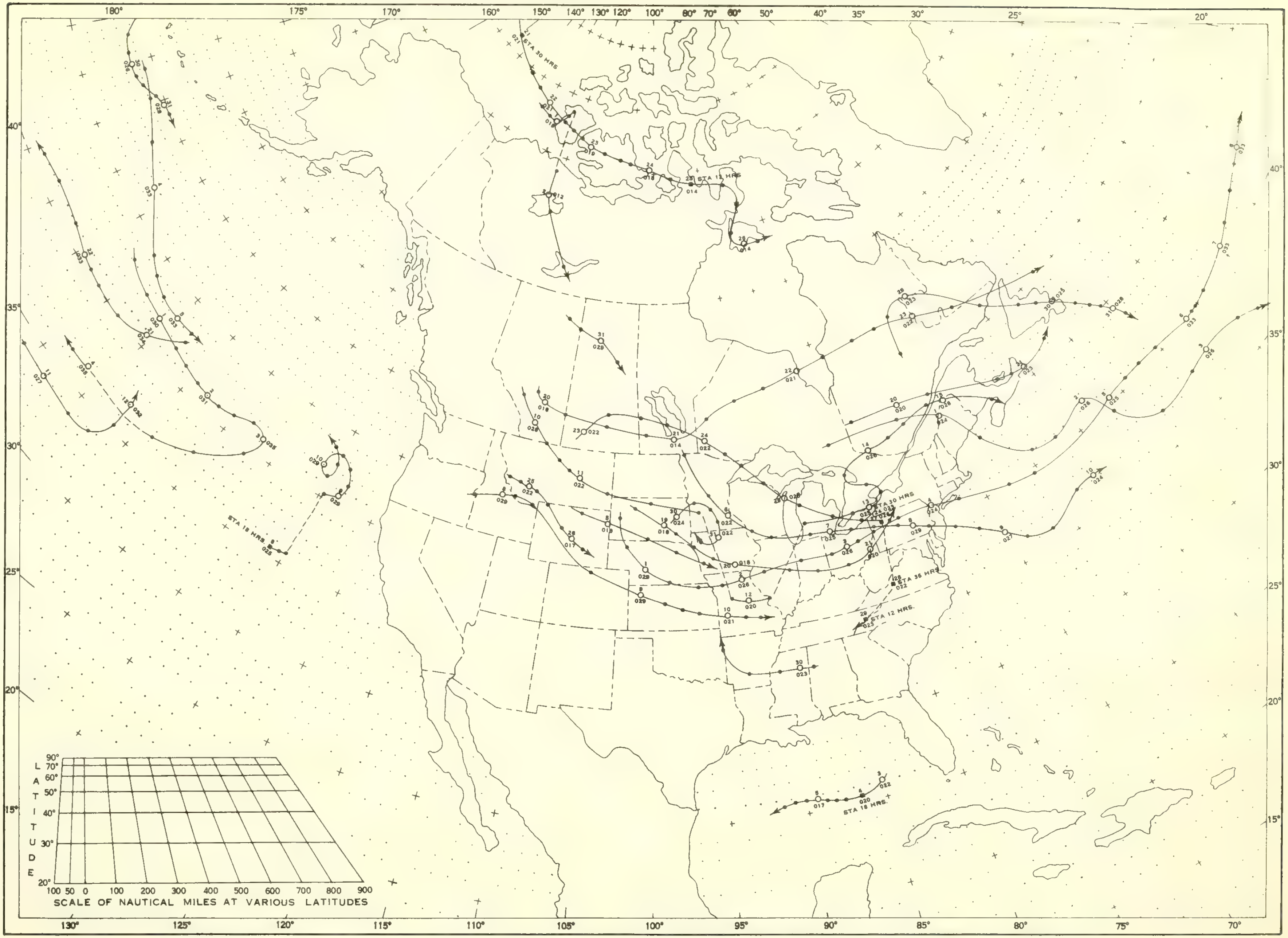
B. Percentage of Mean Daily Solar Radiation, July 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley 1 gm. cal. cm.) and recorded in International Pyrheliometer Scale of 1956.

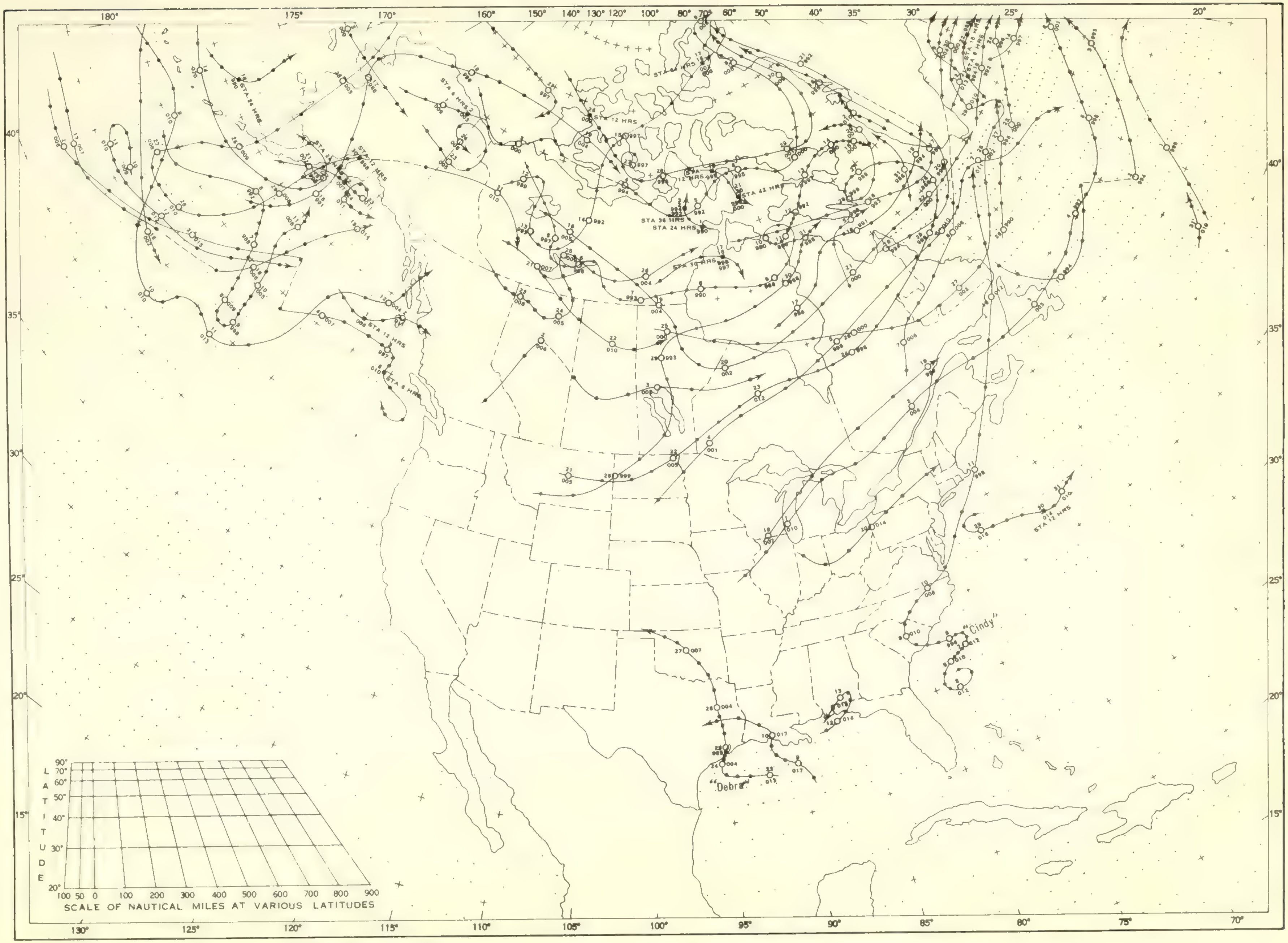
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, July 1959.



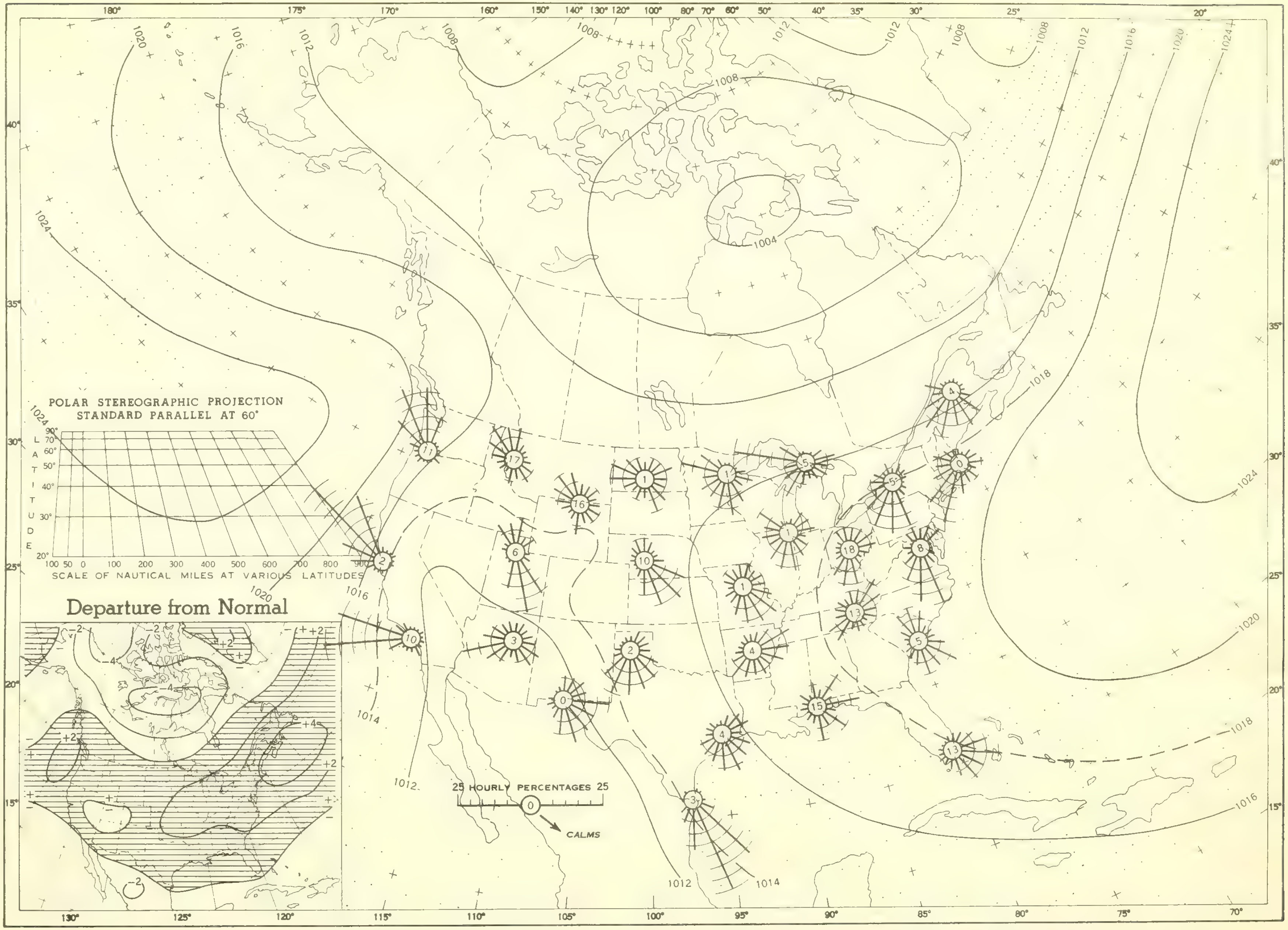
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, July 1959.



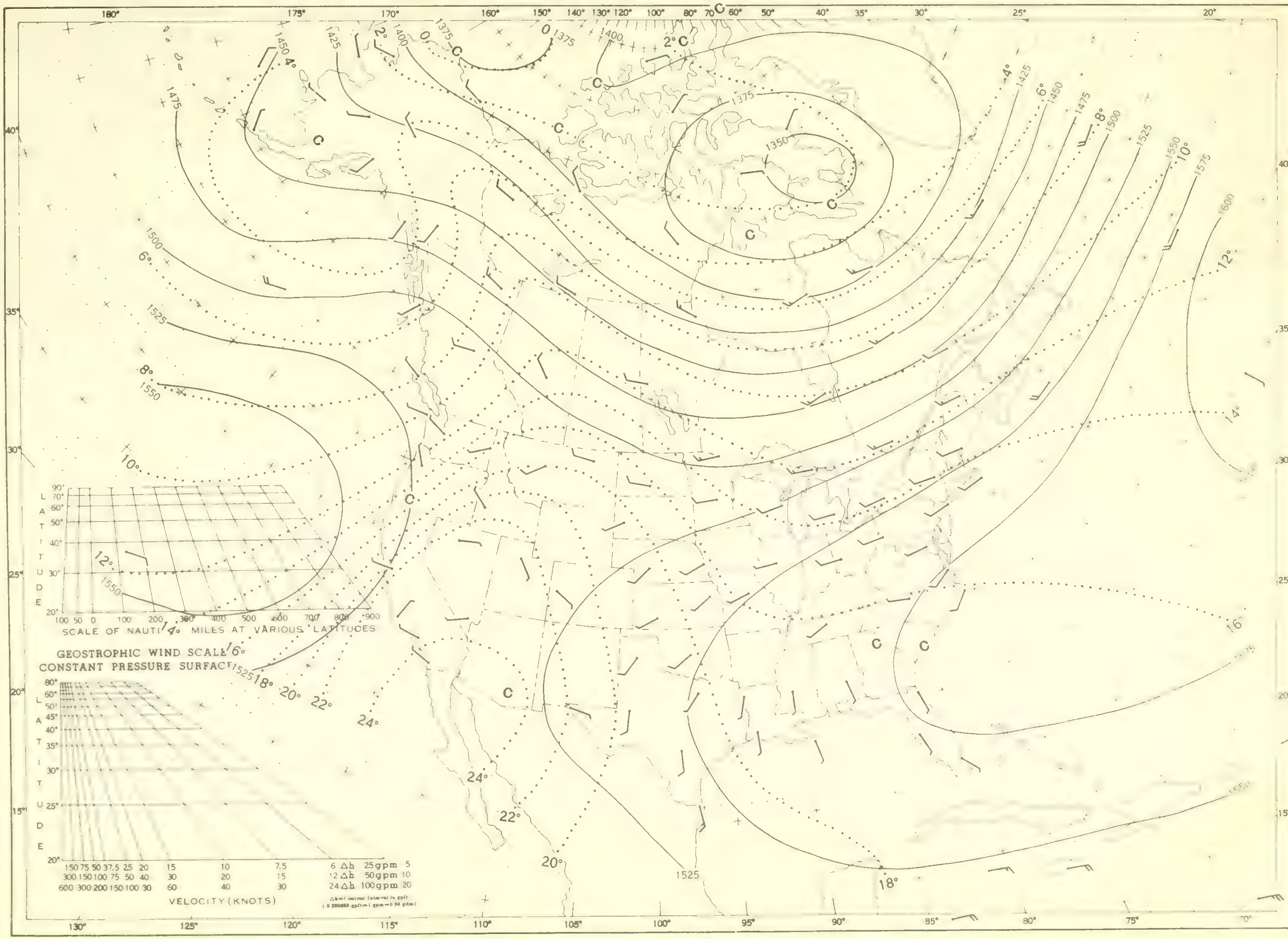
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, July 1959. Inset: Departure of Average Pressure (mb.) from Normal, July 1959.



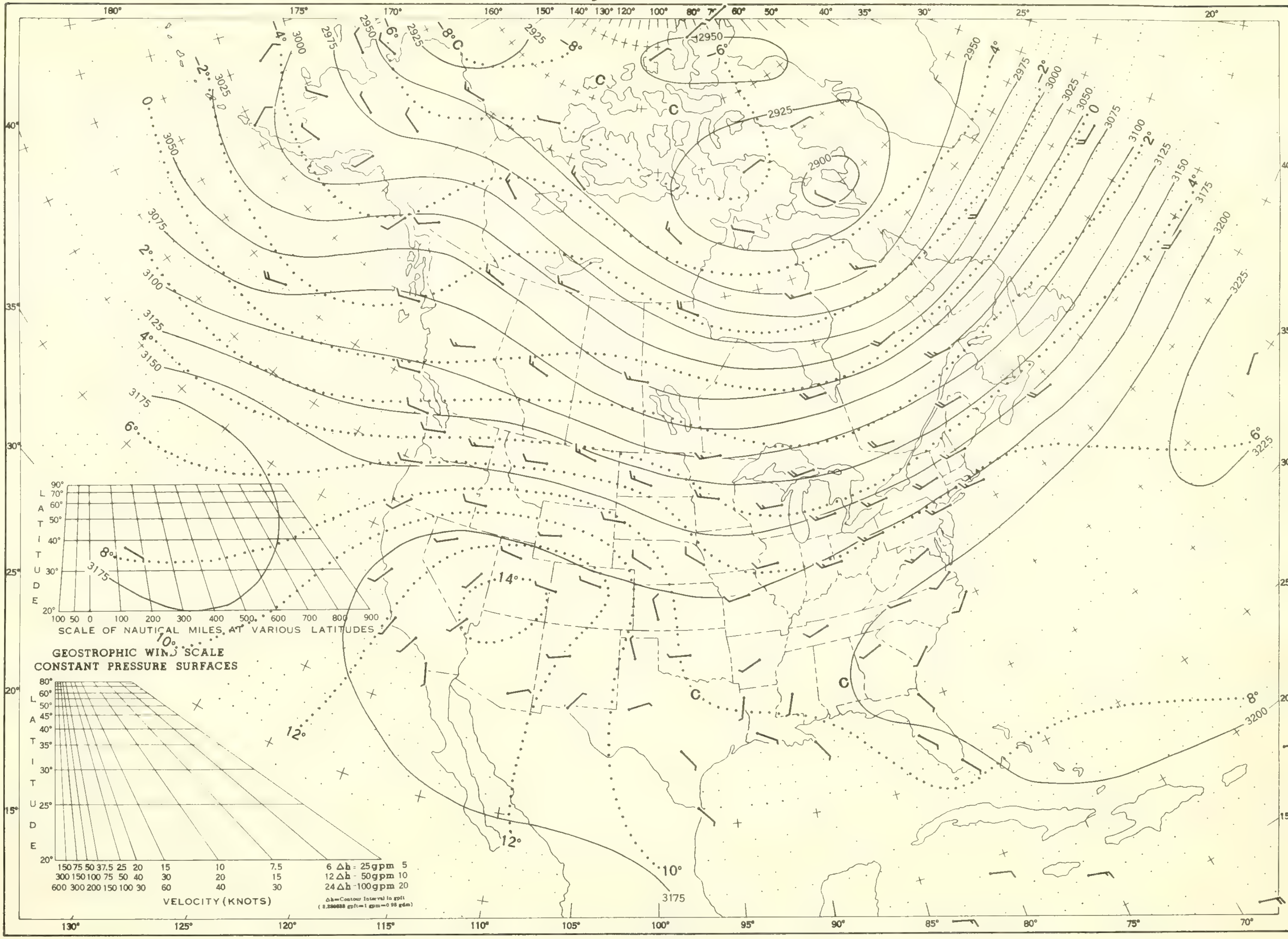
Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E.S.T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, July 1959. Average Height and Temperature, and Resultant Winds.



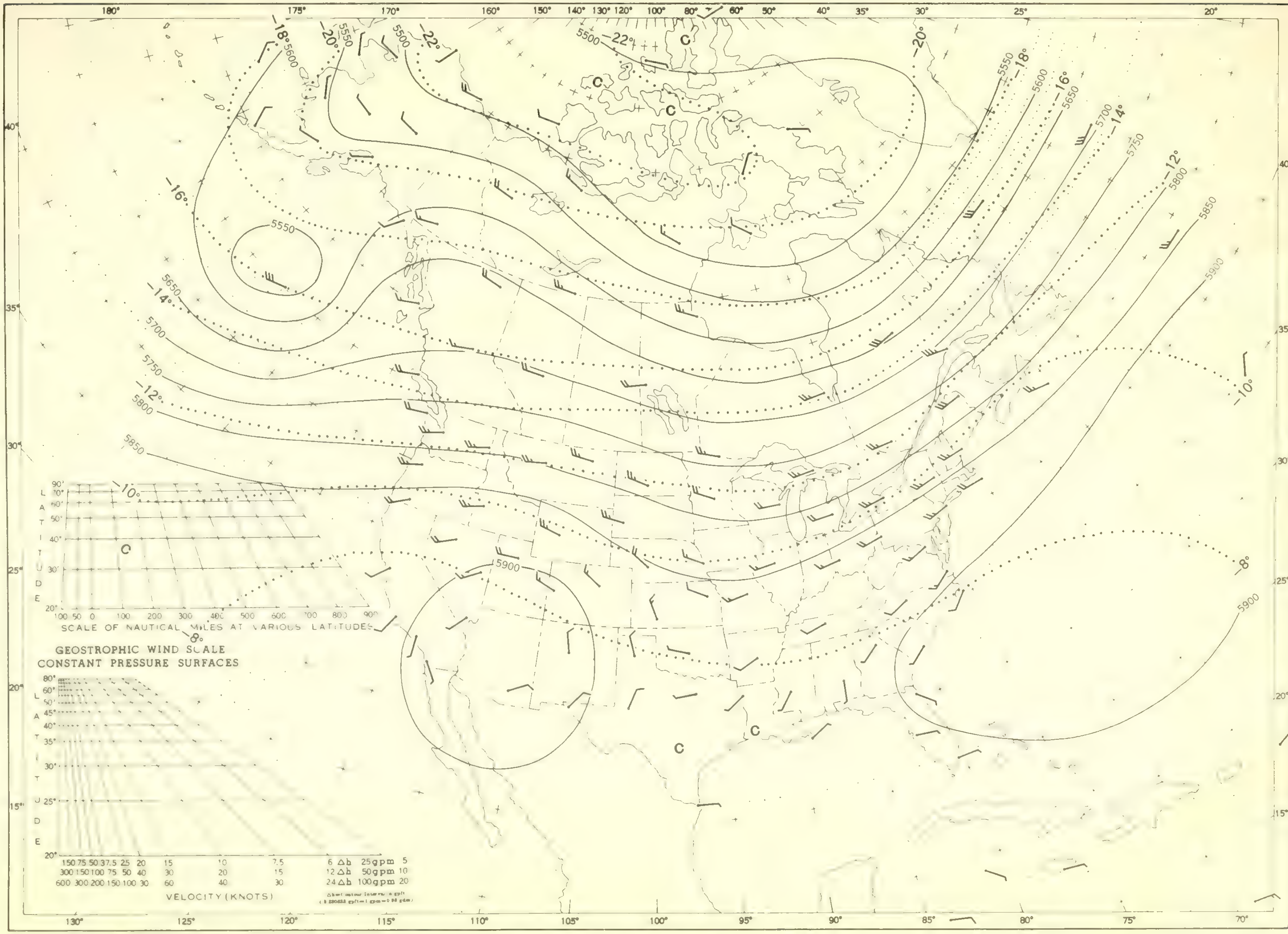
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, July 1959. Average Height and Temperature, and Resultant Winds.



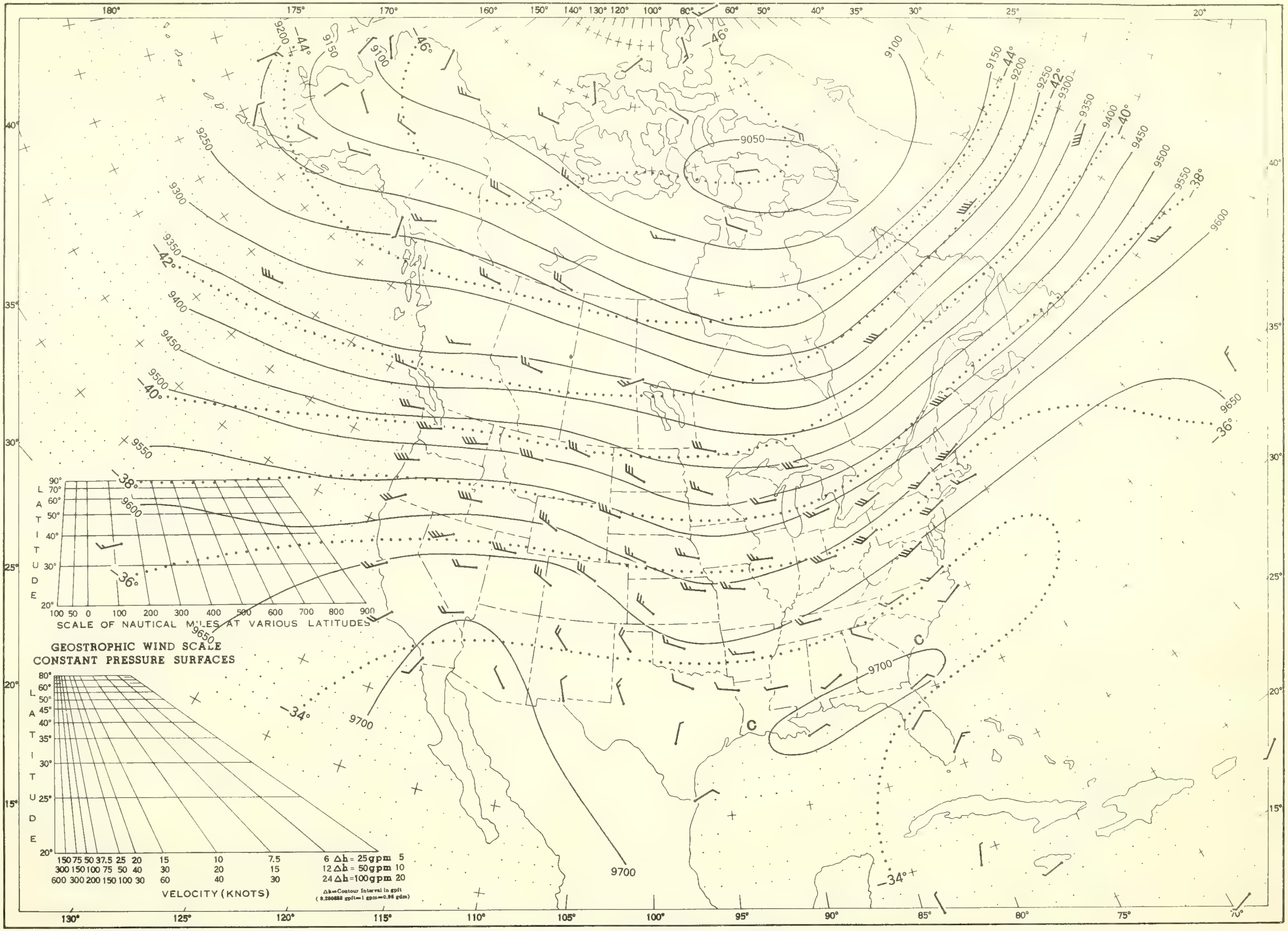
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, July 1959. Average Height and Temperature, and Resultant Winds.



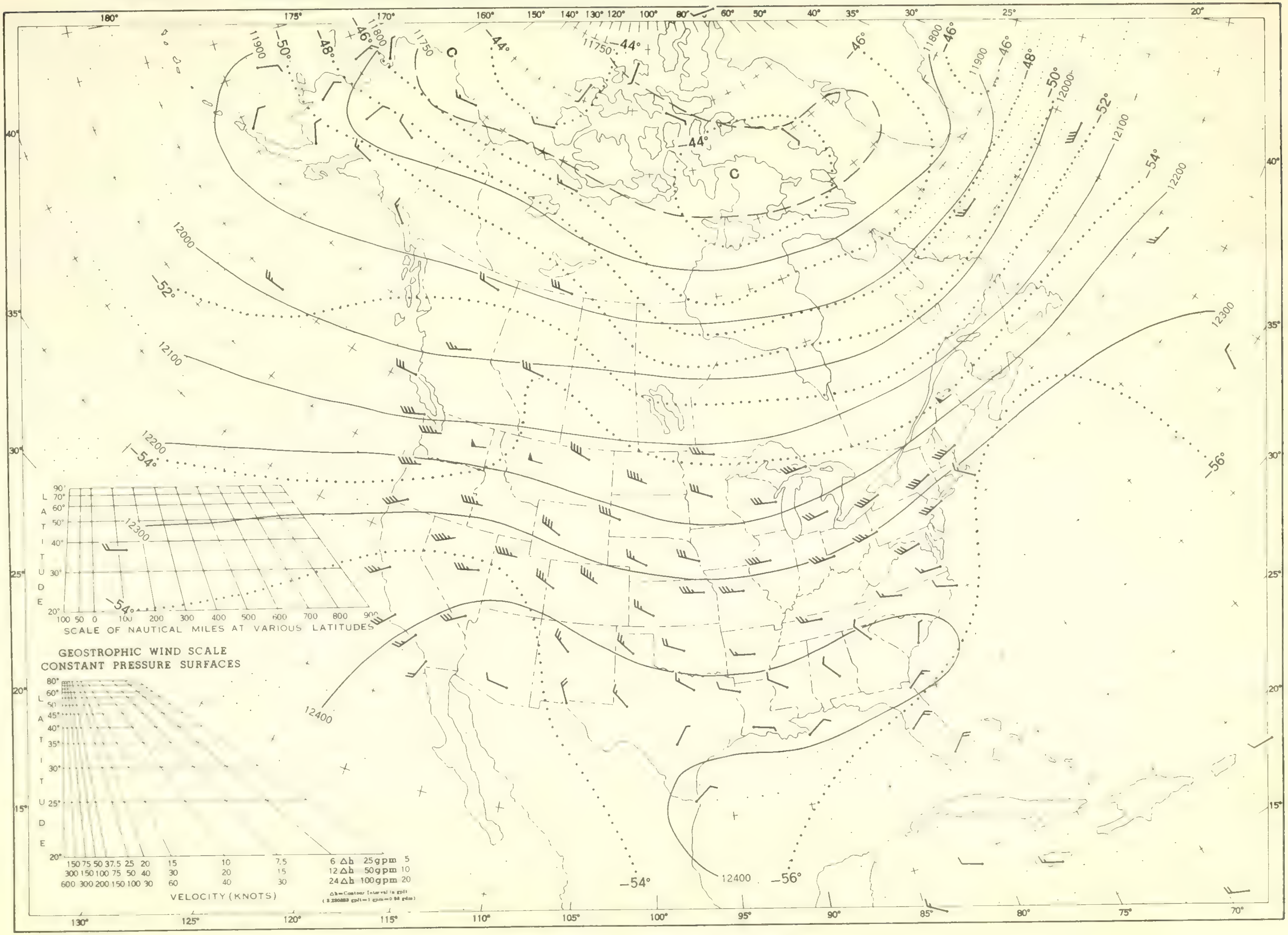
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, July 1959. Average Height and Temperature, and Resultant Winds.



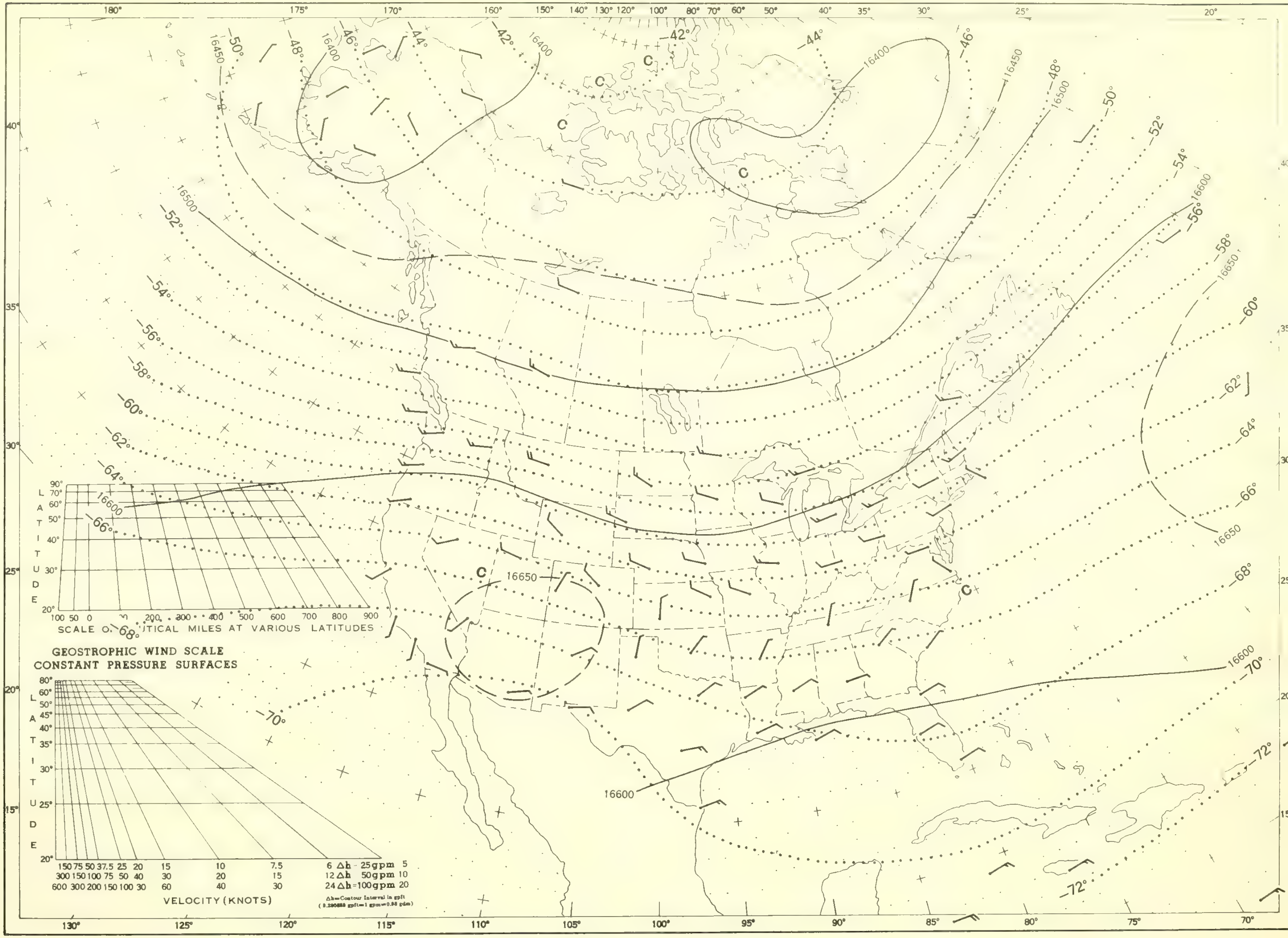
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, July 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, July 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 9/24/59 - 2000

U. S. DEPARTMENT OF COMMERCE
FREDERICK H. MUELLER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

AUGUST 1959
Volume 10 No. 8

ASHEVILLE: 1959

C O N T E N T S

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.
Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 8 AUGUST 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

Highlighted by a prolonged period of hot, humid conditions, August weather east of the Rockies was unusually warm, and frequent scattered thundershowers generally furnished adequate moisture for good crop development in the Corn Belt. The thundershowers occasionally were unusually heavy and caused severe flash floods.

In the Far West the month was unusually cold in the Pacific Northwest, unusually warm along the California coast, and near normal elsewhere. Precipitation was well above normal in parts of the Pacific Northwest and the lower Rockies, but the month was extremely dry in Wyoming, Montana, California, and Nevada. In California the dry weather created a high fire hazard, and several thousand acres of range- and forest land were burned over in the northern portion of the State.

TEMPERATURE.--East of the Rockies temperatures averaged from 2° to over 4° above normal from the upper Great Plains to the Atlantic coast. A Polar air mass brought below normal temperatures to this area early in the month, but temperatures remained above normal from the Ohio Valley and Great Lakes to the Atlantic coast the last 3 weeks of the month and in the upper Great Plains the latter half. In the entire area temperatures for the week ending the 24th averaged from 3° to 9° above normal, and for the last week in the month from 3° to 12° above normal. The circulation responsible for this hot, humid weather was caused by a mound of high pressure anchored over the east coast and low pressure over Hudson Bay, which brought a southerly flow of air from the Gulf of Mexico up through the Midcontinent and northeastern quarter of the Nation. Washington, D. C., had its hottest August on record with an average temperature of 80.3°. Boston, Mass., reported 11 consecutive days with 90° or above, a new record; and Trenton, N. J., reported that this heat wave there which lasted from the 11th to the 30th was the longest on record for August. South Bend, Ind., had its greatest consecutive number of days with 90° or above, 11 from the 19th to the 29th.

In southern areas east of the Rockies temperatures averaged a little below normal in eastern Texas, southeastern Oklahoma, and Louisiana, owing to considerable cloudiness and frequent showers, and slightly above normal elsewhere. In the Pacific Northwest frequent cool air intrusions kept temperatures below normal most of the month. The coolest part of the month relative to normal occurred during the week ending the 24th. Temperatures at many interior stations averaged as much as 9° below normal, with lowest temperatures recorded on the 19th and 20th when daily averages ranged from 10° to 15° below normal. A record low of 38° for Bishop, Calif., was recorded on the 20th, and light frost was reported in the Reno, Nev., area the same date.

Unusually warm weather along the California coast was in sharp contrast to the cool weather elsewhere in the Far West. The International Airport, Los Angeles, Calif., reported that temperatures have averaged above normal for every month since April 1956 and that daily averages have been above normal since February 22, 1959. At San Diego every month since March 1958 has been warmer than normal. This was the second warmest August in 89 years in San Francisco.

PRECIPITATION.--In southeastern Texas monthly totals, ranging up to 19.37 inches at Freeport, exceeded 200 percent of normal over a considerable area. Heaviest rainfall in this area fell during the last week when a weak low pressure area moved in from the Gulf of Mexico. Total falls during this storm exceeded 4 inches at several stations.

Several periods of moderate to heavy showers occurred in the upper Mississippi Valley and Great Lakes regions, with heaviest falls at many stations the last week. On the 26th 5.18 inches of rain fell at Antigo, Wis., in 3 hours, causing local flash flooding in the area. Monthly totals ranged up to 10.92 inches at Forrest City, Iowa; 11.52 at Spaulding, Mich.; 15.24 at Farmington, Minn.; 10.28 at Elsberry, Mo.; 15.69 at Omaha West, Nebr.; and 13.45 inches at Cashton, Wis.

Torrential downpours occurred along the Iowa-Missouri border and in southern portions of Illinois and Indiana on the 5th and 6th. Fort Madison, Iowa, measured 9.42 inches during this storm and there were unofficial reports of even greater amounts in nearby areas of the State. This storm dumped over 4 inches at points in Illinois and over 2 inches in southwestern Indiana. These heavy rains helped boost the monthly total at Wayne City, Ill., to 12.43 inches, and at Mount Vernon, Ind., to 8.71 inches.

Another area of abnormally heavy monthly rainfall included western New York State and central Pennsylvania, where totals at some stations exceeded 200 percent. Binghampton, N. Y., measured its greatest August total on record, 7.96 inches. On the 8th heavy rains fell in coastal areas from Virginia to southeastern New York. In the metropolitan area of Washington, D. C., 3 to 5 inches were reported.

In most of the far western interior the greatest rainfall occurred on the 18th, 19th, and 20th, with rains during this period totaling 1/4 to 1 inch over considerable areas. Considerable snow fell at higher elevations in the Sierra Nevada Mountains. In most of Wyoming and Montana precipitation was less than 50 percent of normal, and in some sections less than 25 percent. At Sheridan, Wyo., both July and August were very dry, with precipitation for the 2 months totaling only 0.21 inch, the driest such period there on record. Billings, Mont., recorded only 0.19 inch for the month, the driest August there in the last 25 years.

DESTRUCTIVE STORMS AND UNUSUAL WEATHER PHENOMENA.--Heavy rains resulting in damaging flash floods were among the most destructive weather elements during August. At points in the Washington, D. C., area a number of homes and businesses were flooded and many automobiles stranded on the 8th. Several flash floods in southern Iowa and northern Missouri resulting from downpours on the 5th and 6th covered

many roads and highways to a depth of several feet, washed out many bridges, and damaged crops, causing damage that according to some sources totaled in the millions. In the western portion of Richmond, Va., flooding caused by heavy rains on the 7th and 8th drove 57 families from their homes and was responsible for heavy property damage; this was described by some sources as one of the worst natural disasters to the city and its environs.

One of the most intense earthquakes in the history of the United States, centered in Madison Valley of southwestern Montana on the 17th, was severe enough to splash water out of the rain gage at Hebgen Dam, Montana.

Tornadoes were reported near Galesburg, N. Dak., on the 22d; east of Port Byron, Ill., on the 26th; and at Plymouth, Ind., on the 17th.

CONDENSED CLIMATOLOGICAL SUMMARY

AUGUST 1959

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	4 Stations	100	30+	Russellville 2	54	9	Moulton 2	9.41	Heflin	0.43
Arizona	Alamo 8SW	116	6	Mormon Lake RS	36	22+	Chiricahua Nat Mon	10.73	Yuma	.03
Arkansas	Batesville Livestock	103	1	Lead Hill	50	9	Damascus	10.81	Siloam Springs	.56
California	Cow Creek	121	8	2 Stations	17	21+	Boulevard	2.29	194 Stations	.00
Colorado	Eversoll Ranch	106	2	Fraser	21	31	Wolf Creek Pass 1E	7.18	Parker 9E	.13
Connecticut	2 Stations	95	28	Coventry	38	3	Round Pond	7.33	Pauchaug Forest	1.16
Delaware	Middletown 2S	96	22	2 Stations	50	3	Wilmington Porter Res	6.70	Georgetown 5SW	3.49
Florida	2 Stations	100	28+	Jasper 3SE	61	20	Sarasota	19.97	Dry Tortugas	2.65
Georgia	do	104	26	Blairsville Exp Sta	54	10	Savannah WB AP	11.39	Hartwell	.28
Idaho	Riggins RS	109	1	2 Stations	21	31+	Irwin 2SE	2.35	Buhl	T
Illinois	McLeansboro	100	3	3 Stations	52	10+	Wayne City	12.43	Danville Sewage Plant	.95
Indiana	5 Stations	98	26+	2 Stations	49	10+	Mount Vernon	8.71	Richmond Airport	.56
Iowa	Sac City	100	28+	do	46	9+	Forest City	10.92	Ankeny 2SW	1.57
Kansas	Lincoln 2ESE	111	3	3 Stations	50	31	Lyndon	8.55	Tescott	.74
Kentucky	Louisville WB AP	100	26	Vanceburg Dam	48	3	Madisonville 1SE	14.09	Louisa 2	.78
Louisiana	5 Stations	99	31+	Many 4NNE	58	10	Houma 1SW	10.36	Grand Ecore	.40
Maine	Portland	96	15	Squa Pan Dam	31	23	Squa Pan Dam	8.39	Rockland	1.83
Maryland	Ocean City	102	22	New Germany	38	3	Blackwater Refuge	10.98	Crisfield Hammock Pt	1.38
Massachusetts	3 Stations	97	28+	2 Stations	37	3	Pelham	8.28	Plymouth	1.06
Michigan	4 Stations	95	25	do	31	2	Spalding	11.52	Three Rivers	.81
Minnesota	Artichoke Lake	105	4	Remer No 2	36	31	Farmington 1W	15.24	Beardsley	1.45
Mississippi	2 Stations	99	29+	6 Stations	59	11+	Merrill	10.79	Baldwin	.23
Missouri	Camdenton	101	29	Berryman 6NW	45	11	Elsberry 1S	10.28	Van Buren	.27
Montana	2 Stations	103	17+	Wisdom	21	14	Sunburst 8E	2.55	Campbell Farms 4	.00
Nebraska	Curtis	108	11	Merriman	41	15	Omaha West	15.69	Scottsbluff WB AP	.21
Nevada	Mesquite	113	7	Mountain City RS	20	14	Sarcobatus	2.40	6 Stations	.00
New Hampshire	Conway 1N	97	15	Fabyan	29	23	Lakeport	7.76	Portsmouth	2.73
New Jersey	2 Stations	97	19+	2 Stations	43	3	Elizabethport	9.23	Toms River	1.98
New Mexico	Potash Mine	107	30	Gavilan	30	31	Pinos Altos	9.05	Artesia	.29
New York	2 Stations	99	16	Paul Smiths	34	2	Ogdensburg Hosp 3NE	11.01	Wellsville	.94
North Carolina	Smithfield	100	25	Celo 2S	46	13	Clingmans Dome	12.16	Cedar Island	.99
North Dakota	2 Stations	107	19	Powers Lake 1N	31	12	2 Stations	6.55	Garrison	.08
Ohio	3 Stations	100	25+	2 Stations	42	3+	Ravenna 2S	6.33	Chilo Dam 34	.53
Oklahoma	Buffalo	109	4+	Kenton	48	31	Leedey	7.24	Hennessey 1N	.08
Oregon	Huntington	107	1	Seneca	22	14	Sprague River	1.80	12 Stations	.00
Pennsylvania	Farrell Sharon	100	25	Kane 1NNE	35	3	Bloserville 1N	11.32	Bradford FAA Airport	.47
Puerto Rico	2 Stations	97	31+	2 Stations	56	28+	Coloso	15.34	Donoe Estate	1.58
Rhode Island	do	93	28+	Kingston	46	4+	Greenville	4.78	Woonsocket	2.87
South Carolina	Saluda	102	24	Landrum 5ENE	56	13	McClellanville	11.96	Antreville	.67
South Dakota	Vivian	112	18	Deerfield 5NW	28	28	Sioux Falls WB Airport	7.47	Hermosa 1ENE	T
Tennessee	2 Stations	99	27+	Mountain City 2	49	12	Crossville FAA AP	9.35	Little Chucky	.40
Texas	Snyder	112	31	Marfa No 2	50	25	Freeport 5NW	19.37	Numerous Stations	.00
Utah	2 Stations	105	11+	Hardware Ranch	23	14	2 Stations	4.20	Hanksville FAA AP	.12
Vermont	do	96	16+	2 Stations	33	3	White River Junction	6.83	Newfane	3.21
Virginia	Fredericksburg	102	23	4 Stations	45	12+	Meadows of Dan 5SW	10.94	Tangier Island	.22
Washington	2 Stations	105	1	Bumping Lake	27	29	Glacier RS	3.91	5 Stations	.00
West Virginia	do	100	26+	Canaan Valley	37	3	Centralia	8.52	Franklin 2N	.73
Wisconsin	Solon Springs	99	5	Superior 7SE	40	[illegible]	Cashton 4SSE	13.45	Fond du Lac	2.37
Wyoming	Redbird	106	18	Bondurant	20	30+	Dillinger	2.27	6 Stations	.00

+ And also on an earlier date or dates.

Note: Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hrs	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover: tenths sunrise to sunset	Possible sunshine
	Ft	Mb.	Mb.	°F.	°F	°F	°F.	°F.		°F.		#		°F.	%	In	In.	In			In.	In.	M. p. h.		M. p. h.			0-3	4-7	8-10	0-10	%
ALABAMA																																
Birmingham	610	991.7	1016.6	92	70	81.3	2.2	96	28	63	9	25	0	70	75	3.64	-0.91	1.46	10	15	0.0		5.1	[illegible]	[illegible]	[illegible]	5	2	21	[illegible]	6.4	74
Huntsville	605	993.8	1016.6	93	70	81.5		99	[illegible]	64	10	25	0	70	76	3.55		1.44	12	10	.0		4.6	[illegible]	[illegible]	W	7	8	13	10	5.9	
Mobile	211	1013.8	1016.1	90	73	[illegible]	[illegible]	95	[illegible]	70	31+	15	[illegible]	72	80	4.51	-1.80	1.52	13	13	.0		8.3				12	1	14	16	7.2	
Montgomery	195	1008.2	1016.2	[illegible]	71	[illegible]	1.8	[illegible]	[illegible]	65	[illegible]	29	[illegible]	70	73	1.38	-3.37	.58	7		.0						6	3	16	12	6.5	67
ALASKA																																
Anchorage	92	1006.8	1011.7	63	[illegible]	55.8	.2	73	16	40	30	[illegible]	0	49	76	3.11	.55	.97	15	1	.0	0	6.6	[illegible]	[illegible]	[illegible]	18	3	4	24	8.2	40
Annette	110	1011.9	1015.9	61	51	55.9	-2.1	72	10	47	28+	2	0	50	81	10.57	5.31	3.63	17	0	.0	0	9.1	SSE	*31	SSE		4	5	22	7.9	
Barrow	22	1014.6	1015.0	41	33	37.1	-1.3	58	28	29	21+	0	18	[illegible]	92	1.16	.36	.63	[illegible]		T	T	12.9	E	[illegible]	[illegible]	23+	0	8	23	8.7	
Barter Island	39	1011.9	1013.7	[illegible]	[illegible]	35.5	-3.7	60	8	24	6	0	21	[illegible]	92	1.65	.47	.62	[illegible]	0	1.9	[illegible]	12.7	E	*[illegible]	[illegible]		2	4	25	8.5	
Bethel	125	1010.5	1011.8	62	46	54.4	-.1	77	11	35	31	8	0	47	79	4.94	.92	1.21	[illegible]		[illegible]	0	14.1	[illegible]	*36	SSW	26+		7	19	7.7	--
Cold Bay	90	1012.5	1016.2	56	48	51.6	-.5	62	18+	42	[illegible]	0	[illegible]	[illegible]	89	2.25	-1.72	.58	16	0	[illegible]	0	19.9	[illegible]	[illegible]	SE	24		4	27	9.4	
Cordova	40	1010.8	1012.2	62	45	53.2	-.2	77	16	38	21	4		48	83	6.36	-3.36	2.47	21	0	.0	0	3.6	ENE	*[illegible]	[illegible]	31	1	6	24	8.5	--
Fairbanks	436	995.3	1012.2	66	44	54.5	-1.1	82	12	33	8	7	0	45	73	1.81	-.45	.54	12		[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	7	20	7.7	
Juneau	24	1013.2	1013.9	60	46	52.6	-1.6	71	11	36	28	2	0	47	84	5.39	.23	.93	[illegible]		.0	0	[illegible]	[illegible]	*38	ESE	6	3	5	23	8.4	[illegible]
King Salmon	44	1011.2	1013.1	61	46	53.8	-.8	[illegible]	26	[illegible]	10	5	0	45	84	2.12	-1.89	[illegible]	[illegible]	[illegible]	.0	0	12.2	SW	*39	ESE	12	[illegible]	[illegible]	20	8.3	
Kotzebue	10	1010.8	[illegible]	[illegible]	[illegible]	53.0	2.3	73	13	38	31+	1		47	[illegible]	[illegible]	-.45	[illegible]	[illegible]		.0	0	[illegible]	[illegible]	*35	ESE	[illegible]			[illegible]	8.2	--
McGrath	334	999.3	[illegible]	[illegible]	[illegible]	54.3	.8	77	14+	34	[illegible]	13	0	44	71	3.20	-.43	[illegible]	[illegible]		.0	0	5.5	SSW	*17	SW	23+	3	6	22	7.9	
Nome	13	1010.5	1011.1	[illegible]	[illegible]	51.1	2.0	71	2	33	30	2	0	[illegible]	79	1.74	-2.02	.82	[illegible]	1	T	[illegible]	10.8	SW	*30	NW	28+	2	7	22	8.2	59
St. Paul Island	22	1012.9	1013.9	52	45	48.6	.6	57	13	38	31	0	0	46	94	5.10	2.11	1.71	19	0	.0	0	---					2	3	26	9.0	
Yakutat	28	1012.2	1013.3	60	46	52.9	.1	72	26	37	27	2	0	50	86	7.68	-2.86	3.40	18	1	.0	0	7.8	E	*29	ESE	31	2	5	24	8.4	
ARIZONA																																
Flagstaff	6993	---	----	75	51	62.9	-.5	83	30+	46	22	0	0			4.96	2.36	1.38	13	16	.0	0						5	15	11	6.1	
Phoenix	1109	971.2	1009.4	99	78	88.1	-.2	105	31+	73	5	31	[illegible]	65	50	1.36	.37	.59	8	11	.0	0	7.3	E	*40	NW	5	10	12	9	5.1	91
Prescott	5014	849.0	1012.5	84	60	71.6	-2.3	93	30	54	22	2	0	56	--	3.66	-.04	1.42	13	16	.0	0	7.8	S	31	N	22	7	12	12	5.7	57
Tucson	2584	924.5	1010.3	92	72	81.8	-2.0	100	31+	68	21	21	0	64	60	2.79	.64	.68	14	15	.0	0	8.2	S	41	SE	24	6	10	15	6.1	72
Winslow	4880	852.7	1010.6	87	63	75.0	.0	98	31	57	25	9	0	54	55	1.08	-.54	.34	9	14	.0	0	8.9	SW	*29	WSW	3	8	11	12	6.0	
Yuma	199	1003.4	1008.5	106	81	93.2	-.5	112	31	69	20	31	0	65	44	.11	-.39	.10	2	3	.0	0	10.1	SSE	34	SE	17	22	5	4	2.7	93
ARKANSAS																																
Fort Smith	458	998.3	1014.6	92	72	81.8	-.3	99	4	62	9	25	0	71	74	1.76	-.86	1.43	4	7	.0		6.9	NE	18	S	20	7	16	8	5.1	57
Little Rock	257	1003.1	1015.9	91	73	81.9	.6	97	3	65	10	24	0	71	74	3.29	.14	2.35	7	7	.0	0	7.5	SSW	36	NW	30	8	15	8	5.3	72
Texarkana	361	-----	1014.0	92	72	81.7	-1.0	98	30	65	10+	26	0	-	-	1.56	-1.32	.74	7	3	.0	0	6.0	SE								
CALIFORNIA																																
Bakersfield	494	993.2	1011.1	95	68	81.1	-.7	105	8+	53	21	25	0	51	37	T	-.01	T	0	0	.0	0	8.1	WNW	*25	NW	19	27	3	1	1.5	-
Bishop	4108	872.7	1010.5	95	53	73.8	.3	102	31	37	20	26	0	-		.01	-.13	.01	1	2	.0	0				--	--	24	6	1	1.9	
Blue Canyon	5280	840.5	1011.2	78	58	67.7	.4	91	7	38	20	1	0	--	--	.22	.17	.17	3	3	.0	0	7.1	SSW	28	SSE	7	23	3	5	2.3	
Burbank	699	986.5	1012.7	86	63	74.4	.8	99	1	54	21	9	0	58	63	T	-.02	T	0	0	.0	0	3.7	S	*13	ESE	1	20	10	1	2.3	-
Eureka (U)	43	1013.5	1015.9	60	52	56.1	-.9	66	7	49	3	0	0	-	-	.01	-.10	.01	1	0	.0	0	5.5	NW	22	NW	31	6	15	10	5.8	55
Fresno	331	999.0	1010.6	94	61	77.8	-1.7	104	8+	51	21	26	0	50	42	.01	.01	.01	1	0	.0	0	[illegible]	NW	19	NW	12	27	2	2	1.2	93
Long Beach	34	1011.5	1013.0	[illegible]	[illegible]	74.6	--	100	1	57	21	4	0	61	68	T	----	T	0	0	.0	0	[illegible]	WNW	*17	NW	7	18	11	2	3.3	--
Los Angeles (U)	312	------	------	85	66	75.5	2.6	99	1	61	21	5	[illegible]	62	69	T	-.02	T	0	0	.0	0	[illegible]	W	17	W	19	20	10	1	2.9	81
Los Angeles	99	1008.8	1012.7	81	67	73.9	5.7	89	1	61	21	0		61	69	T	-.02	T	0	0	.0	0	7.7	WSW	*18	W	26+	17	13	1	3.5	
Mt. Shasta (U)	3544	892.0	1013.5	85	50	67.4	1.6	[illegible]	7	43	30	8	0	-		.24	.11	.24	1	0	.0	0			---		-	22	7	2	2.4	
Oakland	3	1013.2	1013.5	73	[illegible]	66.2	3.3	89	22	52	30	0	0	55	73	.03	.01	.02	2	0	.0	0	10.1	[illegible]	[illegible]	WSW	18	17	10	4	3.8	--
Point Arguello	367	1000.0	1013.3	[illegible]	[illegible]	61.0	[illegible]	81	23+	46	21	0	[illegible]	-		.03	[illegible]	.01	3	1	.0	0	6.6		[illegible]	W	11	6	8	17	6.7	-
Red Bluff	341	998.3	1010.7	96	64	80.1	-.4	112	7	52	21	24	0	45	34	.03	-.02	.03	1	0	.0	0	9.4	S	22	SE	23	24	5	2	2.1	96
Sacramento	17	1010.2	1011.2	90	57	73.9	.7	104	7	51	21	19	0	53	54	T	.00	T	0	0	.0	0	10.6	SW	29	SW	18	24	5	2	1.7	98
Sandberg (R)	4517	863.2	1011.5	83	62	72.3	-1.2	95	1	43	20	4	0	--	--	T	-.10	T	0	0	.0	0	12.9	NNW	*36	N	12+	25	4	2	1.7	--
San Diego	19	1009.1	1012.2	79	68	73.6	3.3	88	1	61	21	0	0	63	73	T	-.05	T	0	0	.0	0	6.7	WNW	16	S	23	19	5	7	4.0	73
San Francisco (U)	52	------	------	68	56	61.9	2.6	85	23	54	31+	0	0	-	-	.02	.01	.02	1	0	.0	0	10.5 ⊛	SW	27	SW	4	-		--	---	76
San Francisco	8	1012.9	1013.7	75	56	65.4	4.8	91	23	52	31	1	0	54	73	T	-.01	T	0	1	.0	0	10.9	NW	31	WSW	4	17	8	6	3.4	
Santa Maria	238	1004.7	1013.7	74	55	64.2	1.8	88	23+	45	21	0	0	55	77	T	-.03	T	0	1	.0	0	6.9	WNW	*23	W	21	16	13	2	3.7	
COLORADO																																
Alamosa	7536	775.8	1016.5	79	49	63.6	1.8	86	29	35	31	0	0	--	--	1.53	.43	.77	15	9	.0	0	—	—		—	—	8	13	10	5.7	—
Colorado Springs	6173	813.4	1013.0	86	56	70.6	.9	94	12+	46	31	10	0	46	50	2.63	-.06	.98	13	11	.0	0	9.3	N	*35	N	12	8	13	10	5.4	--
Denver	5292	839.1	1012.4	86	60	73.0	1.7	97	18	54	31	9	0	44	42	.25	-1.18	.08	6	3	.0	0	9.5	S	31	W	4	6	17	8	5.5	70
Grand Junction	4849	859.5	1011.9	88	63	75.3	-.3	97	11	57	31	14	0	43	37	.98	-.22	.31	8	10	.0	0	9.8	ESE	33	N	15+	9	13	9	5.2	70
Pueblo	4639	857.1	1011.9	90	59	74.9	1.6	99	12+	49	31	19	0	52	53	2.62	.84	.93	10	11	.0	0	7.5	W	37	N	30	9	14	8	5.1	74
CONNECTICUT																																
Bridgeport	7	1015.4	------	84	67	75.1	3.4	93	15	58	6+	7	0	--	--	6.02	1.59	2.93	7	4	.0	0	[illegible]	-	-	--	--	5	13	13	6.3	
Hartford	169	1009.5	1015.6	84	63	73.6	2.2	94	27	50	3	8	0	64	75	4.87	1.33	1.51	11	5	.0	0	5.4	S	22	NE	2	7	12	12	6.1	57
New Haven	6	1016.0	1016.6	82	65	73.5	3.7	90	25	53	4+	1	0	-	--	3.31	-.80	1.84	7	4	.0	0	7.0	---	19	W	29	5	16	10	6.0	69
DELAWARE																																
Wilmington	78	1012.5	1016.0	85	67	76.0	2.2	93	22	55	3	9	0	68	79	5.75	.47	3.23	9	8	.0	0	6.1	S	*25	N	22	10	6	15	5.9	
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	88	71	79.6	3.8	96	26+	58	3	16	0	--	--	3.90	-.59	3.10	5	--	----	--	5.8	---	18	N	5	--	--	--	--	--
Wash. Nat'l. AP	14	1011.3	1015.9	88	72	80.3	4.9	96	22+	61	3	16	0	68	70	2.87	-1.88	1.76	8	4	.0	0	7.2	S	24	ENE	5	14	7	10	5.0	59
FLORIDA																																
Apalachicola (U)	13	1014.6	------	87	75	80.7	-.6	96	29	66	23	4	0	--	--	11.44	3.96	2.14	16	19	.0	0	6.9		39	SE	23	3	14	14	6.8	69
Daytona Beach	31	1017.2	1017.6	89	73	80.6	-.3	92	28	69	12	11	0	73	84	3.60	-2.22	1.76	10	12	.0	0	7.5	E	*24	ENE	15	6	8	17	6.7	
Fort Myers	15	1015.5	------	90	74	81.9	-.6	94	28+	72	31+	20	0	--	--	5.75	-2.06	1.42	18	21	.0	0	6.8	[illegible]	*32	WSW	6	1	11	19	7.7	--
Jacksonville	24	1015.5	1017.0	92	73	82.4	.6	97	28	69	23	26	0	72	79	2.86	-3.57	.72	14	9	.0	0	7.1	SW	32	SE	15	8	9	14	6.4	54
Key West	4	1014.6	------	89	79	83.6	-.3	92	10	72	24	9	0	-	-	2.81	-1.86	1.04	18	9	.0	0	8.9	-	29	SE	24	2	10	19	7.4	61
Lakeland (U)	214	------	------	89	73	80.9	-.8	93	27	69	23	[illegible]	0	--	--	6.42	-.71	1.15	23	20	[illegible]	[illegible]	6.1	-		-		1	14	16	7.3	55
Miami	7	1014.9	1016.3	87	75	81.0	-1.9	91	9	70	5	5	0	73	80	8.18	1.57	2.46	20	19	.0	0	6.0	ESE	*23	SW	31	1	21	9	6.8	--
Miami Beach	9	------	------	87	77	81.9	-1.1	90	28	69	22	1	0	--	--	3.78	-.61	.89	19	--	.0	0	- -	-	‡¢24	E	18+	7	20	4	---	¢49
Orlando	106	1012.5	1017.0	90	73	81.7	-.8	95	28	71	16+	17	0	73	81	6.77	-.10	3.53	16	10	.0	0	7.9	E	*23	S	1	1	11	19	7.3	--
Pensacola (U)	13	------	------	88	76	81.9	.7	96	29	71	13	8	0	--	--	4.32	-3.11	1.46	10	12	.0	0	†7.4	---	26	SE	13	--	--	--	--	61
Tallahassee	64	1013.4	1016.2	90	73	81.3	.4	97	28	68	23	20	0	72	79	9.40	2.48	2.25	13	18	.0	0	4.8	E	--	---	--	1	18	12	6.8	--
Tampa	19	1015.2	1016.8	90	74	82.1	.1	94	28+	70	12	21	0	73	82	10.44	2.38	2.27	23	19	.0	0	7.4	ENE	*27	ENE	19	1	15	15	7.4	41
West Palm Beach	15	1015.4	1016.6	90	75	82.7	.5	92	29+	71	16+	24	0	74	80	5.03	-2.37	1.23	18	13	.0	0	7.6	ESE	*29	SE	16	0	14	17	7.2	-
GEORGIA																																
Athens	798	986.9	1017.1	92	69	80.6	.9	98	24	64	9	28	0	69	75	1.24	-2.74	.80	6	10	.0	0	7.0	SW	*40	SSE	15	5	16	10	6.0	
Atlanta	975	975.7	1016.4	91	71	80.6	2.0	96	28	65	9	21	0	68	73	1.42	-2.39	1.12	7	6	.0	0	5.7	WNW	*23	W	29+	6	13	12	6.1	66
Augusta	143	1009.2	1015.9	93	70	81.6	1.8	100	26	65	17+	29	0	71	76	5.49	1.39	3.50	10	10	.0	0	4.8	SE	*23	NE	29	7	11	13	6.0	--
Columbus	385	1002.6	------	93	70	81.4	1.2	98	28	65	10	25	0	--	--	4.17	-.76	1.28	12	16	.0	0	5.5	[illegible]	*47	S	1	9	9	13	5.9	--
Macon	356	1002.7	1016.2	94	72	82.7	1.0	100	26	68	17+	28	0	70	73	6.29	1.65	2.96	13	15	.0	0	6.2	SE	38	N	1	8	11	12	6.2	77
Rome	637	993.7	------	92	68	79.6	.8	97	24	62	[illegible]	24	0	68	75	2.80	-1.09	1.25	12	11	.0	0	2.7	--	--	---	--	4	15	12	6.4	--
Savannah	48	1014.1	1016.9	90	71	80.5	.1	96	25	67	4	19	0	72	80	11.39	5.14	3.20	14	15	.0	0	5.7	SW	31	SW	26	9	10	12	5.7	55
Thomasville	283	------	------	93	72	82.8	2.2	100	27	69	23+	28	0	--	--	4.65	-1.26	1.40	17	10	.0	0	---	---	-	--	--	-	--	--	---	--
HAWAII																																
Hilo	31	1012.9	1014.2	84	69	76.6	1.2	88	6	65	8	0	0	69	79	7.48	-4.44	1.37	29	0	.0	0	9.4	WSW	*33	SE	5	1	12	18	7.5	48
Honolulu	7	1013.5	1014.1	86	74	80.1	.7	92	21	70	6	2	0	68	68	3.08	2.28	2.35	8	0	.0	0	15.8	NE	52	SE	6	9	17	5	5.2	70
Lihue	115	1009.1	1014.6	87	74	80.0	1.9	89	24+	67	21	0	0	70	73	8.13	5.86	5.43	19	0	.0	0	13.5	NE	73	NE	6	8	15	8	5.9	69

See footnotes at end of table.

CLIMATOLOGICAL DATA

AUGUST 1959

Station	Elevation	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Date	Temperature: Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb	°F	F	°F	°F	°F		°F				°F	%	In.	In.	In			In	In.	M p h		M. p. h.			0–3	4–7	8–10	0–10	%
IDAHO																																
Boise	2842	918.1	1012.2	85	55	70.0	-2.5	97	1	47	21	10	0	43	40	0.64	0.43	0.63	2	1	0.0	0	7.2	NW	29	SW	20	15	13	3	3.5	86
Idaho Falls 46W (R)	4933	848.3	1012.5	84	47	65.7	1.2	95	8	38	14	9	0	--	--	1.52	.88	1.44	3	2	.0	0	8.9	WSW	a32	NNW	1	--	--	--	---	--
Idaho Falls 12NW (R)	4790	-----	------	85	44	64.4	.9	95	10	37	14	9	0	--	--	.96	.16	.89	4	--	- -	--	8.5	SW	a35	WSW	12	--	--	--	---	--
Lewiston	1413	962.4	1013.2	83	53	68.2	-4.9	100	1	46	30+	7	0	--	--	1.26	.88	1.00	5	2	.0	0	---	---	--	---	--	15	9	7	4.0	--
Pocatello	4444	862.5	1011.9	86	53	69.4	-.7	96	10+	42	14	12	0	38	35	.42	-.30	.35	3	3	.0	0	13.0	SW	52	W	31	16	12	3	3.6	83
ILLINOIS																																
Cairo (U)	314	1002.7	------	90	72	80.8	1.3	95	24+	65	8	19	0	--	--	2.44	-.77	1.27	10	9	.0	0	6.3	S	22	NE	30+	8	13	10	5.9	74
Chicago (O'Hare)	656	990.2	1014.7	86	68	77.3	---	94	25+	57	2	12	0	68	76	2.03	----	1.30	7	4	.0	0	9.7	SSW	*29	SW	26+	6	8	17	6.5	--
Chicago (Midway)	610	992.2	1014.8	87	70	78.7	6.0	96	22+	61	2	14	0	67	72	1.63	-1.56	1.14	7	4	.0	0	9.7	SW	38	SW	26	10	7	14	6.0	58
Moline	589	992.2	1014.3	87	68	77.2	4.2	96	24	59	2	12	0	68	75	3.90	.33	1.94	6	5	.0	0	6.4	SSW	38	SW	26	8	11	12	6.0	69
Peoria	654	993.2	1015.1	88	68	77.8	4.1	95	24	60	9	16	0	68	75	2.25	-.74	1.32	7	8	.0	0	8.7	S	34	W	4	9	10	12	5.8	63
Rockford	728	987.8	1014.9	85	67	75.8	3.3	94	21	57	9+	10	0	68	79	4.74	1.01	2.11	9	5	.0	0	6.9	SSW	*32	SW	26	6	12	13	6.3	--
Springfield	589	991.9	1014.7	87	69	78.3	4.3	95	24	61	10	12	0	68	76	5.39	2.36	3.50	10	10	.0	0	8.8	SSW	39	NW	17	10	9	12	5.5	67
INDIANA																																
Evansville	383	1001.0	1016.6	88	70	78.7	2.4	94	24+	61	10	13	0	70	78	7.18	4.14	2.38	8	5	.0	0	5.5	SW	31	NW	4	10	11	10	5.5	74
Fort Wayne	801	985.1	1015.7	87	66	76.6	5.2	93	23	55	2	13	0	66	74	2.55	-.25	.91	7	6	.0	0	10.0	SW	36	SW	15	4	20	7	5.9	78
Indianapolis	793	986.5	1016.0	87	68	77.3	3.3	94	24	59	10	11	0	68	75	2.56	-.96	1.10	9	7	.0	0	7.6	SW	32	NW	4	8	12	11	6.0	66
South Bend	768	987.	1014.9	87	57	76.8	5.4	96	25	54	10	15	0	66	75	.97	-2.28	.48	5	5	.0	0	8.8	SSW	*23	SW	12	6	16	9	5.9	--
IOWA																																
Burlington	694	989.2	1014.9	87	68	77.4	3.0	95	25	59	9	12	0	69	78	3.15	-.16	2.13	7	6	.0	0	8.9	SSW	37	NW	4	10	9	12	5.6	77
Des Moines	948	983.4	1014.0	88	68	77.8	4.1	97	28	54	9	15	0	67	75	2.44	-1.32	1.21	14	9	.0	0	9.5	S	39	N	24	12	6	13	5.5	65
Dubuque	1065	989.5	1015.0	83	65	74.1	3.4	93	24	57	2	3	0	67	76	6.50	2.90	2.71	12	8	.0	0	---	---	--	---	--	6	12	13	6.5	--
Sioux City	1094	971.6	1011.8	88	67	77.6	4.0	97	4	56	9+	15	0	67	74	2.31	-.41	.91	12	10	.0	0	10.5	SSE	*32	SE	28	11	11	9	4.9	72
Waterloo	870	------	------	86	66	75.9	4.2	94	28	56	9	10	0	-	80	3.41	-.25	1.18	11	9	.0	0	8.8	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	963.1	------	94	72	82.8	4.3	104	3	60	8	27	0	--	59	1.46	-1.74	.78	6	6	.0	0	8.7	S	26	S	30+	14	11	6	4.1	84
Dodge City	2594	926.2	1011.7	94	69	81.3	2.7	105	3	61	8	25	0	59	52	.91	-1.77	.78	5	7	.0	0	14.8	S	42	S	18	18	5	8	3.8	77
Goodland	3645	887.2	1010.9	92	61	76.4	2.5	101	11+	56	26	23	0	57	58	2.45	-.10	.97	8	13	.0	0	11.4	SSE	*44	SSW	2	15	11	5	4.2	--
Topeka	877	978.7	1013.7	91	70	80.2	2.6	99	3	56	9	22	0	68	69	2.65	-2.01	.82	6	6	.0	0	12.4	S	57	N	28	14	9	8	4.5	80
Wichita	1321	965.1	1012.8	92	71	81.4	1.5	104	3	61	8	24	0	66	64	4.20	1.24	3.75	7	7	.0	0	14.1	SSE	38	NE	30	20	9	2	3.3	84
KENTUCKY																																
Lexington	979	981.5	1016.9	88	69	78.1	3.1	95	22	61	11	12	0	68	76	2.19	-1.18	1.47	8	4	.0	0	6.5	S	--	---	--	11	11	9	5.3	--
Louisville	474	996.9	1016.0	91	70	80.6	4.5	100	26	61	12	21	0	69	74	5.20	2.14	2.67	8	8	.0	0	7.3	S	37	S	16	10	10	11	5.7	57
LOUISIANA																																
Baton Rouge	64	1012.9	1015.8	91	73	82.1	1.4	95	12	70	21	23	0	73	82	5.38	-.49	2.62	8	15	.0	0	6.8	SE	--	---	--	2	17	12	6.6	--
Lake Charles	12	1013.5	1015.1	89	74	81.4	-.9	93	7	71	25+	15	0	72	78	4.72	.06	1.45	12	9	.0	0	7.6	ENE	*29	E	23	4	13	14	6.6	--
New Orleans (U)	9	------	------	90	77	83.7	.3	95	7	74	10+	18	0	--	78	5.20	-1.21	.86	16	14	.0	0	5.5	---	20	NW	24	6	14	11	6.2	64
New Orleans	3	1013.5	1015.5	90	76	82.7	.5	94	8+	73	22+	18	0	75	81	4.53	-1.11	1.20	14	14	.0	0	7.2	ENE	*29	N	1	4	17	10	6.1	--
Shreveport	252	1006.1	1015.2	92	72	81.9	-2.3	98	30	66	10+	25	0	70	73	2.13	-.24	.73	8	11	.0	0	8.3	SE	--	---	--	9	19	3	4.9	74
MAINE																																
Caribou	624	991.7	1014.8	73	54	63.7	1.9	86	15	39	23	0	0	57	81	6.52	2.99	2.60	17	1	.0	0	8.5	NW	*32	W	1	3	11	17	7.6	--
Portland	61	1011.1	1015.2	79	58	68.5	2.1	95	16	42	23	4	0	61	81	2.13	-.46	.75	12	4	.0	0	7.6	WSW	24	SW	1	10	7	14	6.4	59
MARYLAND																																
Baltimore (U)	14	------	------	88	73	80.6	4.2	98	21	61	3	16	0	--	--	4.19	-.19	1.47	12	--	---	--	---	---	--	---	--	--	--	--	---	--
Baltimore	146	1011.2	1016.0	86	69	77.4	3.0	94	22+	55	3	12	0	68	75	4.39	.01	1.72	12	7	.0	0	9.8	S	34	N	5	12	6	13	5.3	68
Frederick	294	------	------	86	66	76.4	1.8	95	14	48	3	12	0	--	--	5.32	1.29	1.62	13	-	.0	0	---	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs. (R)	629	992.5	1015.5	81	62	71.5	----	93	16+	53	25+	7	0	--	72	1.65	----	.41	11	--	.0	0	11.7	SW	33	WNW	21	--	--	--	---	61
Boston	15	1010.2	1014.9	82	66	74.1	2.6	96	16+	55	24	11	0	63	72	2.93	-.30	1.36	12	5	.0	0	9.5	WSW	26	NW	21+	8	8	15	6.2	66
Nantucket	43	1015.1	1015.8	74	62	67.9	.8	82	19	50	23	0	0	63	87	1.86	-1.57	.49	8	5	.0	0	9.8	WSW	26	SE	9	4	6	21	7.5	50
Pittsfield	1153	------	------	80	58	69.1	3.3	90	15	42	3	1	0	--	--	4.03	-.28	1.32	11	8	.0	0	----	---	--	---	--	--	--	--	---	--
Worcester	986	979.4	------	79	62	70.7	2.6	90	16	49	23	1	0	--	--	4.32	.91	2.04	12	3	.0	0	8.5	---	23	NW	17	6	12	13	6.3	--
MICHIGAN																																
Alpena (U)	----	991.9	------	79	63	70.8	5.0	94	12	47	2	5	0	--	75	3.22	.63	.84	11	6	.0	0	8.1	SE	28	SE	2	6	11	14	6.5	53
Detroit	619	989.2	1015.5	86	67	76.3	5.0	93	20+	54	2	10	0	65	72	7.07	4.45	2.24	12	10	.0	0	8.8	SW	38	S	26	6	14	11	6.1	64
Detroit (Willow Run)	722	986.8	1015.3	86	67	76.5	5.4	95	25	54	2	10	0	65	74	4.47	1.76	1.20	9	7	.0	0	9.3	SW	*31	W	17	5	17	9	6.1	--
Escanaba (U)	594	991.5	------	76	62	68.7	3.8	85	23+	50	1	0	0	--	84	6.82	3.93	1.27	16	9	.0	0	8.7	---	29	NW	26	7	8	16	6.7	46
Flint	761	987.8	1015.4	83	64	73.3	4.5	91	26	48	2	2	0	65	78	5.26	2.49	1.38	9	9	.0	0	7.6	SW	*21	WNW	23	4	13	14	6.8	--
Grand Rapids	681	990.2	1014.8	86	66	75.5	5.8	94	25	50	2	11	0	65	75	3.48	.90	.97	8	7	.0	0	8.8	SW	33	NE	29+	7	15	9	5.7	63
Inkster (Wayne Co.)	630	991.5	1015.3	86	66	75.6	----	93	22	50	2	9	0	66	75	4.57	----	1.10	12	8	.0	0	9.0	SW	--	---	--	4	15	12	6.3	--
Lansing	852	983.4	1015.1	84	63	73.2	4.2	91	26	45	2	4	0	66	82	3.86	1.18	1.39	13	10	.0	0	10.3	SSW	47	W	15	5	15	11	6.1	62
Marquette (U)	677	987.1	------	75	61	68.2	2.9	92	19	52	16+	2	0	--	79	5.24	2.53	1.94	15	7	.0	0	6.9	NW	29	SW	18	5	6	20	7.3	53
Muskegon	627	991.9	1014.9	82	65	73.9	5.5	91	6	51	2	1	0	66	75	3.94	1.28	1.69	10	6	.0	0	----	---	--	---	--	8	11	12	6.2	--
Sault Ste. Marie	721	992.6	1015.1	77	59	67.6	4.7	87	20	41	2	0	0	61	83	5.29	2.67	1.70	12	8	.0	0	7.9	WNW	*27	WNW	14	4	9	18	7.2	43
MINNESOTA																																
Duluth	1409	972.9	1014.1	75	56	65.4	.6	89	19+	44	9	0	0	58	82	4.48	1.05	2.07	16	8	.0	0	10.7	E	39	NE	30	4	12	15	7.0	51
Intern'l Falls	1179	971.6	1012.4	78	53	65.5	2.7	94	19	38	1	3	0	57	76	5.12	1.80	1.40	15	16	.0	0	8.2	SE	*36	NW	29	7	11	13	6.4	--
Minneapolis	830	979.7	1012.9	85	66	75.2	3.7	96	5	57	17	9	0	65	74	6.60	3.81	1.40	16	12	.0	0	9.3	S	37	S	11	6	13	12	6.2	55
Rochester	1017	977.0	1013.6	83	63	73.1	3.7	92	20	54	17+	3	0	65	81	6.95	3.47	2.12	12	13	.0	0	9.5	S	--	---	--	8	5	18	6.4	--
St. Cloud	1034	974.9	1012.5	83	61	71.5	3.4	96	19+	50	17	7	0	62	77	4.36	1.48	1.01	14	12	.0	0	----	---	--	---	--	6	11	14	6.5	--
MISSISSIPPI																																
Jackson	305	1003.9	1015.8	92	71	81.4	.0	94	30+	66	10	26	0	71	77	2.76	-.52	.85	12	14	.0	0	4.1	SE	36	NW	30	11	13	7	5.3	65
Meridian	292	1002.6	------	92	70	80.7	.2	96	24	64	11	24	0	--	--	3.60	-.12	.85	13	9	.0	0	----	---	--	---	--	11	17	3	4.6	--
Vicksburg (U)	234	1006.5	------	90	72	81.1	-.4	94	3	67	9	21	0	--	--	3.47	.76	1.35	10	9	.0	0	6.1	---	35	NW	30	6	21	4	5.0	58
MISSOURI																																
Columbia	778	987.1	1015.1	91	69	79.8	3.6	97	19	57	9	19	0	68	72	1.10	-2.79	.49	7	12	.0	0	8.7	S	30	SE	21	10	12	9	5.2	66
Kansas City	741	979.3	1013.5	91	73	82.2	3.2	100	4	62	9	23	0	67	61	5.95	2.06	1.84	6	5	.0	0	10.5	S	45	NW	29	15	7	9	4.7	82
St. Joseph	809	979.3	------	90	70	80.0	1.9	97	3	59	9	20	0	--	--	6.06	2.33	3.17	9	10	.0	0	11.3	S	*29	WNW	30+	17	6	8	4.0	--
St. Louis (U)	465	------	------	89	72	80.3	1.7	95	23+	64	9	18	0	--	--	3.84	.07	2.29	8	--	.0	0	----	---	--	---	--	--	--	--	---	--
St. Louis	552	994.9	1015.2	90	72	80.8	3.1	98	3	62	10+	21	0	69	71	2.13	-1.42	.92	10	10	.0	0	7.3	S	29	SE	14	5	17	9	6.0	60
Springfield	1265	968.8	1015.4	89	67	78.2	1.7	96	5	57	9	18	0	66	72	.58	-3.43	.26	7	11	.0	0	10.8	SSE	32	NW	30	8	16	7	5.2	77
MONTANA																																
Billings	3567	889.3	1010.3	86	57	71.5	.5	99	17	49	14	12	0	46	43	.19	-.69	.10	7	6	.0	0	9.8	SW	44	W	2	14	15	2	3.5	83
Butte	5530	830.0	1014.7	76	39	57.3	-2.7	87	17	29	14	0	3	35	--	1.44	.32	.70	6	5	.0	0	8.6	S	*26	SE	20+	13	10	8	4.7	--
Glasgow	2277	937.4	1010.7	83	55	69.1	.2	97	1	41	30	7	0	--	40	.59	-.76	.56	4	2	.0	0	----	---	--	---	--	12	11	8	4.8	--
Great Falls	3664	886.9	1011.7	78	53	65.8	-1.3	93	1	42	30	2	0	34	36	.37	-.83	.29	5	4	.0	0	10.4	SW	42	W	1	16	6	9	4.4	75
Havre (U)	2488	923.5	1011.2	81	51	66.1	-1.9	98	1	38	30	6	0	--	--	.58	-.48	.48	4	0	.0	0	8.4 ⊛	W	28	NW	31	14	10	7	4.3	75
Helena	3893	872.7	1012.2	80	48	64.2	-1.6	90	10+	37	14	3	0	37	41	.36	-.57	.27	5	4	.0	0	8.5	NW	34	W	1	14	8	9	4.5	75

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground) Ft.	Pressure: Station Mb	Pressure: Sea level Mb.	Average maximum °F	Average minimum °F	Average °F	Departure from normal °F	Highest °F	Date	Lowest °F	Date	No. of days: Max 90° F or above	No. of days: Min 32° F or below	Average dew point °F	Average relative humidity %	Precipitation: Total In	Departure from normal In	Greatest in 24 hours In	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total In	Max depth on ground In	Wind: Average hourly speed M.p.h.	Prevailing direction	Fastest mile: Speed M.p.h.	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear 0-3	Partly cloudy 4-7	Cloudy 8-10	Sky cover tenths sunrise to sunset 0-10	Possible sunshine %
MONTANA (Cont'd.)																																
Kalispell	2965	------	-----	7[illegible]	45	59.9	-4.1	90	1	31	3[illegible]	[illegible]	1			[illegible]	[illegible]	-.27	[illegible]									11	[illegible]	11	5.1	
Miles City	2629	927.9	1010.8	[illegible]	59	74.2	1.9	100	17+	[illegible]	[illegible]	[illegible]						.19	[illegible]				10.3			NW	29+	14	[illegible]	[illegible]	4.0	
Missoula	3200	901.1	1014.[illegible]	[illegible]	[illegible]	6[illegible]	-3.7	[illegible]															6.6				26	13	7	[illegible]	5.1	67
NEBRASKA																																
Grand Island	1841	946.8	1011.[illegible]	91	67	78.8	[illegible]	[illegible]	[illegible]	[illegible]	15+	19	0	[illegible]	[illegible]	3.11	.72	[illegible]					12.2				--	16	[illegible]	[illegible]	[illegible]	
Lincoln (U)	1166	-----		91	7[illegible]	81.0	[illegible]	99	[illegible]	61	8	23	0			1.80	-1.28	[illegible]	[illegible]				12.4				26+	11	[illegible]	[illegible]	[illegible]	79
Norfolk	1544	957.0	1011.5	88	6[illegible]	77.1	[illegible]	96	27	[illegible]	17	15	0			2.24	-.63	1.34									--	13	[illegible]	[illegible]	[illegible]	
North Platte	2779	914.0	1010.2	90	[illegible]	75.3	[illegible]	104	11	[illegible]	31	20	0			[illegible]	.32	.78			.0	0	7.7			N	13+	13	[illegible]	[illegible]	4.5	7[illegible]
Omaha	978	973.2	1012.4	89	69	78.9	3.2	96	21	57	8	18		[illegible]		[illegible]	6.00	[illegible]	[illegible]	[illegible]	.0	0	11.4	SSE	[illegible]	[illegible]			11	9	4.7	72
Omaha N.Omaha AP	1323	965.5	------	86	68	77.0	3.2	93	21	55	8	8	0			[illegible]	4.67	[illegible]	[illegible]	[illegible]	.0	0					--	10	11	1[illegible]	5.0	
Scottsbluff	3950	878.1	1010.4	89	58	73.3	.9	101	11	47	15	17	0	51	[illegible]	.21	[illegible]	[illegible]	[illegible]	[illegible]	.0	0	9.9	[illegible]	[illegible]	WNW	31	4	12	8	5.1	
Valentine	2587	921.4	------	90	61	74.8	2.6	106	11	44	15	17	[illegible]		[illegible]	3.62	[illegible]	[illegible]	[illegible]	[illegible]	.0		10.8		[illegible]	N	19+	12	[illegible]	[illegible]	4.6	78
NEVADA																																
Elko	5075	844.6	1012.3	87	45	66.2	-1.4	97	8	32	2[illegible]	13	1	[illegible]	[illegible]	[illegible]	-.20	[illegible]	2	2	.0	0	6.7	[illegible]	*23	SW	19+	19	[illegible]	[illegible]	3.3	
Ely	6257	810.7	1011.6	84	47	65.5	-.8	91	10+	32	22	4	1	[illegible]		.44	-.45	[illegible]	5	10	.0		12.0		[illegible]				[illegible]	[illegible]	4.2	9[illegible]
Las Vegas	2162	944.5	1008.2	102	73	87.1	-1.3	107	31	65	20	31	0	[illegible]	[illegible]	.33	-.20	[illegible]	[illegible]	[illegible]	.0		9.7	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	2.7	89
Reno	4397	862.2	1013.5	89	45	66.8	-.6	98	9+	35	29	16	0	[illegible]		.09	-.14	[illegible]	3	2	.0	[illegible]	5.6	WNW	37	SE	7	[illegible]	[illegible]	[illegible]	2.1	98
Winnemucca	4299	867.6	1012.5	89	47	68.0	-1.7	102	7	33	30	14	0	27	25	.38	.20	[illegible]	2	3	.0	0	7.7	[illegible]	[illegible]	W	[illegible]	[illegible]	[illegible]	[illegible]	3.2	72
NEW HAMPSHIRE																																
Concord	339	1004.8	1015.5	85	58	70.2	3.7	95	15	40	3	6	0	61	77	[illegible]	2.80	2.49	14	6	.0	[illegible]	5.4	[illegible]	30	W	17	[illegible]	10	12	6.1	58
Mt. Washington	6262	810.9	------	55	45	50.1	2.4	63	15	26	2	0	4		9[illegible]	[illegible]	1.43	2.57	18	4	.0	[illegible]	26.5	W	[illegible]	WNW	16	3	[illegible]	24	8.2	26
NEW JERSEY																																
Atlantic City (U)	10	------	------	81	71	75.9	2.8	93	22	58	3	1	0		--	5.08	[illegible]	1.60	11	-	-		[illegible]		26	N	2					1[illegible]
Atlantic City	58	1012.9	1016.0	84	68	76.1	3.2	92	22+	55	3	8	0	68	81	3.57	1.01	1.23	9	2	.0	0	[illegible]	S				8	[illegible]	[illegible]	6.1	
Newark	11	1014.4	1015.9	87	69	77.6	4.5	96	21+	59	3	15	0	65	68	6.94	[illegible]	4.17	11	6	.0		[illegible]	SSW	*25	SSW	29	10	[illegible]	12	6.1	
Trenton (U)	56	1008.5	------	85	68	76.4	3.2	94	28+	58	4+	13	0			7.16	[illegible]	3.09	12	8	.0	0	[illegible]		26	[illegible]	29	12	[illegible]	[illegible]	5.3	6[illegible]
NEW MEXICO																																
Albuquerque	5310	849.6	1011.2	88	64	76.2	.7	94	29+	58	15	13	0	54	52	2.79	1.41	1.13	12	6	.0	0	[illegible]	SE	38	SE	[illegible]	12	12	7	4.6	7[illegible]
Clayton	4969	846.9	1011.9	86	60	73.1	.2	98	3	50	31	7	0		--	3.88	1.87	1.65	11	8	.0	0	-			-		14	8	9	4.5	
Raton	6379	808.3	1012.9	83	53	68.0	.6	92	2	43	31	2	0	--	-	[illegible].38	.59	1.22	17	16	.0	0	-	---	--	--		10	7	14	5.7	
Roswell	3612	892.7	1010.2	95	67	80.8	2.8	104	4+	60	31	27	0	59	53	[illegible].87	.42	1.20	5	9	.0	0	9.7	--	40	N	8	12	14	5	4.6	
NEW YORK																																
Albany	277	1011.4	1015.4	84	63	73.5	3.9	96	15	47	3	8	0	62	7[illegible]	2.10	-.79	.64	13	5	.0	0	7.8	SSE	[illegible]	W	17	5	16	10	6.1	6[illegible]
Binghamton	1590	957.8	1016.2	81	63	71.7	5.1	92	15	48	3	2	0	60	72	7.48	3.82	3.19	14	9	.0	0	7.3	WSW	45	S	26	3	11	1[illegible]	7.0	61
Buffalo	693	988.0	1015.8	84	65	74.8	5.9	92	15+	50	2	7	0	64	72	4.78	2.24	1.79	10	7	.0	0	[illegible]	SW	40	SW	17	7	12	12	5.9	70
New York (U)	10	1014.1	------	83	70	76.1	2.9	91	28	60	6	3	0	--	--	1.80	.46	2.18	10	3	.0	0	1[illegible]	S	42	NW	17	7	10	14	6.3	57
New York	19	1013.8	1016.0	85	71	78.0	3.6	94	27+	61	6+	12	0	64	67	4.17	-.10	1.55	7	3	.0	0	11.[illegible]	SW	[illegible]	NE	5	8	10	13	6.2	--
Rochester	543	996.1	1015.3	85	64	74.5	5.6	96	15	46	3	6	0	63	71	2.30	-.18	.86	9	8	.0	0	[illegible]	SW	25	NW	26	7	13	11	6.2	76
Schenectady	217	------	------	85	64	74.6	4.2	96	16+	50	3+	8	[illegible]		-	2.22	-1.05	.64	11	5	.0	0	---	---	--	---	--	19	7	5	3.6	-
Syracuse	424	994.1	1015.3	85	64	74.1	3.8	96	15	49	2	6	0	62	70	[illegible]	1.39	2.29	12	10	.0	0	8.[illegible]	[illegible]	[illegible]	W	16	7	12	12	6.2	63
NORTH CAROLINA																																
Asheville (U)	2203	939.4	------	86	65	75.4	2.7	91	26+	58	10	4	0	--	-	3.41	-.17	.97	15	14	.0	0	[illegible].2		[illegible]	E	24	5	17	9	6.0	59
Cape Hatteras	9	1015.6	1016.4	86	72	79.0	.7	90	22+	57	4	2	0	73	81	3.21	-2.62	2.02	7	5	.0	0	9.4	SW	30	N	2	6	15	10	6.2	
Charlotte	725	988.8	1016.6	90	69	79.8	2.5	97	25	66	13+	21	0	70	78	7.92	3.56	2.39	13	11	.0	0	8.0	S	35	NE	1	8	11	12	6.1	74
Greensboro	891	985.6	1017.3	88	68	78.0	2.2	95	23	63	14	12	0	70	80	3.69	-1.02	1.69	14	8	.0	0	6.1	SW	21	NNW	26	10	9	12	5.5	77
Raleigh	433	1002.9	1016.6	89	68	78.6	1.4	95	26+	63	14+	15	0	70	80	5.92	.96	4.28	7	4	.0	0	6.5	SSW	*21	SSE	29	7	15	9	5.8	60
Wilmington	30	1015.0	------	89	71	80.2	.9	96	23	64	4	14	0	--	--	7.58	1.18	2.72	14	9	.0	0	9.1	---	27	SE	30	5	11	15	6.9	40
Winston-Salem	967	982.1	1017.0	88	69	78.7	2.5	95	23+	64	12	13	0	68	74	7.42	3.32	2.11	12	11	.0	0	6.8	SSW	*46	NE	1	11	12	8	5.2	--
NORTH DAKOTA																																
Bismarck	1650	951.9	1010.8	88	57	72.8	3.5	103	19	46	13	15	0	51	52	1.15	.33	.56	8	8	.0	0	12.9	SSE	50	SE	24	11	11	9	5.0	78
Devils Lake (U)	1471	958.7	------	83	55	69.4	2.6	100	3	44	30	7	0	--	59	1.70	-.47	.89	9	10	.0	0	8.1	SE	25	NE	26	12	12	7	4.8	64
Fargo	895	976.0	1011.7	85	60	72.5	3.4	100	19+	50	17	8	0	59	67	3.02	.29	1.19	9	8	.0	0	14.8	SSE	64	NW	5	10	13	8	5.4	72
Williston (U)	1877	944.5	1010.9	83	56	69.7	1.6	99	4	46	30+	8	0	48	50	1.08	-.33	.48	7	4	.0	0	7.4	S	32	NW	22	11	11	9	5.0	71
OHIO																																
Akron	1210	978.7	1016.6	84	64	74.2	3.6	93	14	51	2	5	0	65	77	3.79	.53	1.65	11	9	.0	0	8.3	S	-	---	--	9	11	11	5.5	--
Cincinnati Obs.	761	------	------	91	69	80.0	5.2	98	25+	59	3+	22	0	--	--	2.12	-1.26	1.58	7	8	0	0	4.2	---	18	SW	16	---	---	---	---	63
Cincinnati	869	984.9	1016.5	89	68	78.5	5.0	97	25	57	3	17	0	66	72	1.80	-1.54	1.30	6	7	.0	0	6.6	SW	*35	SW	16	6	10	15	6.4	--
Cleveland	787	988.1	1015.7	85	67	76.1	4.2	94	25	54	2	11	0	66	75	1.85	-.79	.61	11	4	.0	0	7.7	S	20	S	26	6	14	11	5.9	63
Columbus (U)	724	------	------	88	69	78.4	4.6	97	25	55	2	13	0	--	--	1.44	-1.57	.72	6	4	.0	0	--	---	--	--	--	-	--		-	
Columbus	815	986.7	1016.7	89	66	77.3	4.9	99	25	51	2	15	0	65	71	1.55	-1.66	.86	7	4	.0	0	6.1	SSW	29	SW	16	5	16	10	6.0	65
Dayton	1002	980.2	1016.2	87	68	77.1	4.2	94	23	56	2	8	0	66	73	3.59	.73	2.86	10	8	.0	0	7.7	SSW	29	SW	26	7	12	12	6.5	65
Sandusky (U)	603	994.0	------	87	68	77.7	4.9	95	27+	58	3	14	0	--	--	4.44	1.63	1.70	8	7	.0	0	6.0	--	36	W	16	9	18	4	4.7	74
Toledo	676	990.4	1015.7	87	65	76.1	5.1	94	25+	52	2	15	0	67	77	3.12	.43	1.77	9	12	.0	0	6.5	SW	25	SW	15	6	16	9	5.7	72
Youngstown	1178	974.1	1016.2	84	63	73.3	2.9	92	14	47	2	6	0	65	78	2.34	-1.12	.64	12	6	.0	0	7.8	SW	35	N	31	7	14	10	5.8	--
OKLAHOMA																																
Oklahoma City	1280	971.2	1013.9	91	69	80.1	-1.9	99	3	63	12+	23	0	68	73	4.10	1.60	2.15	6	5	0	0	12.5	SSE	*35	NW	16	16	11	4	3.5	82
Tulsa	672	990.2	1014.2	92	72	81.7	-.2	99	6	62	9	21	0	69	70	2.13	-1.10	1.40	6	5	.0	0	7.6	SSE	35	N	20	16	8	7	4.0	71
OREGON																																
Astoria	8	1017.6	1018.2	67	50	58.8	-3.0	74	7+	44	23+	0	0	54	83	.92	-.53	.43	11	0	.0	[illegible]	9.1	NW	*28	NW	6	6	9	16	6.8	--
Burns (U)	4140	873.0	1013.5	83	49	66.0	-1.2	94	8+	40	22	7	0	34	35	.84	.57	.84	2	1	0	0	-					21	[illegible]	[illegible]	3.0	--
Eugene	361	1003.4	1016.9	81	50	65.5	-.5	95	7	45	30+	3	0	--	--	.06	-.32	.04	2	0	.0	0	8.2	-	*26	W	16	17	[illegible]	9	4.1	--
Meacham	4050	------	------	71	49	60.0	-2.6	84	7+	41	13	0	0	--	--	.96	.45	.73	6	0	.0	0	---					18	6	7	3.8	--
Medford	1312	967.5	1014.8	89	52	70.3	-.8	104	7	47	31+	17	0	45	47	.28	.09	.28	1	0	.0	0	4.5	NNW	*21	NW	27+	22	7	2	2.5	--
Pendleton	1492	961.4	1014.2	83	57	69.7	-3.0	97	1	50	25+	7	0	44	43	.42	.09	.34	4	0	.0	0	11.9	W	*37	W	31+	17	10	4	3.2	--
Portland	21	1011.2	1016.7	77	54	65.5	-1.8	88	7	46	20	0	0	51	62	.09	-.52	.09	1	0	.0	0	6.9	NW	18	SW	27+	11	7	13	5.7	62
Roseburg	505	997.6	1015.9	85	50	67.4	.6	97	7	44	30	8	0	--	--	T	-.32	T	0	0	.0	0	6.2	---	22	N	5	20	9	2	3.0	83
Salem	195	1009.8	1017.3	82	49	65.5	-1.5	95	7	44	13	4	0	49	61	.02	-.47	.02	1	0	.0	0	6.4	N	*21	NW	16	12	8	11	5.1	--
Sexton Summit (R)	3836	884.9	1013.9	73	50	61.9	-1.8	87	9	40	19	0	0	[illegible]	[illegible]	.07	-.22	.07	1	0	.0	0	12.7 ⊛	N	--	---	--	22	8	1	2.4	--
PACIFIC AREA																																
Canton Island	8	1009.5	1009.8	89	78	83.5	-.7	92	4	73	17	7	0	71	70	.89	-1.51	.89	2	0	.0	0	13.0	E	*22	E	27+	8	9	14	6.5	--
Guam (R)	361	------	------	86	72	79.0	-.2	89	9	69	28+	0	0	--	--	11.56	-2.94	4.33	24	7	.0	0	3.8	E	19	E	22				-	61
Koror (R)	94	1005.8	1009.5	87	75	80.9	.2	89	30+	73	27+	0	0	76	86	14.88	.03	3.50	26	2	.0	0	[illegible]			---		0	2	29	9.7	
Majuro	10	1009.1	1009.5	87	77	82.2	----	90	7	73	22+	1	0	76	81	5.33	----	1.53	20	2	.0	0	5.9	E	24	NE	22	0	9	22	8.3	66
Ponape (R)	120	1004.4	1009.8	88	73	80.5	.5	93	31	71	6+	5	0	75	86	12.73	2.64	2.54	24	2	.0	0	4.3	----	18	SW	23	1	7	23	8.6	52
Truk, Moen Island	5	1009.5	1009.8	87	74	80.9	.6	92	24	72	31	4	0	76	84	11.47	-1.13	3.35	22	3	.0	0	----	--	24	NE	14	0	3	28	9.3	
Wake Island	11	1011.2	1011.5	89	78	83.5	1.0	90	31+	75	15+	5	0	75	77	3.00	-5.90	.79	14	2	.0	0	11.7	ENE	*21	ENE	20+	2	14	15	7.2	
Yap (R)	55	1007.1	1009.1	86	75	80.4	-1.2	91	18	72	5	2	0	76	86	11.61	4.32	1.97	28	2	0	0	6.0	WSW	*26	WSW	27	[illegible]	1	30	9.7	
PENNSYLVANIA																																
Allentown	376	1002.2	1016.4	83	64	73.6	1.8	91	16+	51	3	6	0	66	80	5.68	1.19	1.33	17	11	.0	0	6.6	SW	*37	WSW	27	9	10	12	5.5	--
Erie	732	------	------	85	66	75.5	6.5	92	15	56	3+	4	0	--	--	.58	-1.90	.22	10	6	0	0	6.9	[illegible]	*23	SSW	30	8	13	10	5.8	

See footnotes at end of table.

CLIMATOLOGICAL DATA

AUGUST 1959

State and station	Elevation Ft	Pressure Station Mb	Pressure Sea level Mb.	Average maximum °F	Average minimum °F	Average °F.	Departure from normal °F.	Highest °F	Date	Lowest °F.	Date	No. of days Max. 90° F or above	No. of days Min. 32° F or below	Average dew point °F	Average relative humidity %	Precipitation Total In	Departure from normal In	Greatest in 24 hours In.	No. of days .01 inch or more	No. of days With thunderstorms	Snow, Sleet Total In.	Snow, Sleet Max depth on ground In.	Wind Average hourly speed M.p.h.	Prevailing direction	Fastest mile Speed M.p.h.	Fastest mile Direction	Fastest mile Date	No. of days (sunrise to sunset) Clear 0–3	Partly cloudy 4–7	Cloudy 8–10	Sky cover, tenths (sunrise to sunset) 0–10	Possible sunshine %
PENNSYLVANIA (Cont'd.)																																
Harrisburg	[illegible]	1002.1	1015.9	86	66	76.0	3.0	94	15	51	3	12	0	65	74	5.54	2.20	1.57	16	10	0.0	0	4.7	WSW	32	SW	17	7	11	13	5.9	68
Philadelphia [illegible]	35	----	----	86	71	78.4	3.2	96	26	61	6	15	0	--	--	----	----	----	--	-	---	--	---	---	--	---	--	--	--	--	---	--
Philadelphia	7	1011.2	1015.7	85	68	76.5	2.5	94	26	56	3	11	0	67	77	3.73	-.85	1.36	11	4	.0	0	6.3	SW	33	NE	2	8	11	12	6.0	60
Pittsburgh [illegible]	749	-- ---	-	87	68	77.6	4.5	95	26+	55	3	10	0	--	--	3.02	-.06	1.21	11	--	.0	--	--	---	--	---	--	--	--	--	---	61
Pittsburgh	[illegible]	986.3	1016.9	86	64	74.9	[illegible]	92	21+	51	2	7	0	64	75	4.04	.91	1.39	11	8	.0	0	6.3	SW	*21	NNW	22	8	15	8	5.7	79
R[illegible]	266	1003.7	1015.2	86	68	76.7	3.3	94	21+	56	3	12	0	--	--	5.94	2.06	1.35	13	9	.0	0	7.6	---	31	W	17	7	11	13	6.2	51
Scranton	940	982.5	1016.7	84	[illegible]	73.4	3.4	94	15	47	3	10	0	63	75	3.00	-1.08	.84	12	8	.0	0	7.3	SW	25	SW	9	8	8	15	6.4	45
Williamsport	527	997.4	----	[illegible]	63	74.3	3.4	96	21	48	3	12	0	--	--	2.73	-.88	.49	14	--	.0	0	- -	---	--	---	4	16	11	14	6.5	--
RHODE ISLAND																																
Block Island	110	1011.2	1015.3	76	64	69.8	.8	85	28	54	3+	0	0	--	-	3.55	.09	1.56	7	3	.0	0	-	---	-	-	-	9	9	13	6.2	--
Providence	[illegible]	1009.4	1015.5	83	65	73.7	4.3	93	21	52	4	6	0	63	74	3.53	-.10	1.88	11	1	.0	0	10.0	SW	*25	S	31+	9	10	12	5.5	67
SOUTH CAROLINA																																
Charleston (U)	9		---	88	76	81.8	[illegible]	92	25	73	13	11	0	--	--	2.79	-3.75	.87	13	--	.0	0	7.6	---	24	SE	13	--	--	--	---	--
Charleston	[illegible]	1015.4	1017.1	87	70	78.3	-1.3	91	26+	65	4	6	0	73	89	5.45	-1.16	1.73	10	10	.0	0	7.0	S	‡37	SW	8	8	7	16	6.6	72
Columbia	217	1003.5	1016.2	92	71	81.7	1.7	98	25+	67	17+	26	0	71	76	4.52	-1.01	2.28	13	15	.0	0	5.9	SW	*23	N	1	10	12	9	5.5	77
Florence	146	1010.1	1016.0	91	71	81.0	1.7	96	25+	67	11+	21	0	72	80	3.93	-.85	2.09	9	11	.0	0	6.2	S	*21	S	29	9	12	10	5.8	--
Greenville	1018	979.9	1016.6	90	69	79.9	2.7	96	25+	66	16+	17	0	68	74	3.55	-1.25	1.10	11	12	.0	0	5.6	E	25	SE	2	7	10	14	6.1	74
Spartanburg	801	- - -	- ----	89	68	78.8	1.1	95	26+	65	13	16	0	--	--	4.66	-.03	1.39	12	10	.0	0	4.8	---	*32	W	4	--	--	--	---	--
SOUTH DAKOTA																																
Huron	1282	964.4	1010.7	90	63	76.4	3.5	102	18	50	26	17	0	60	63	4.01	2.03	2.17	12	14	.0	0	12.4	SSE	46	W	2	9	14	8	5.2	78
Rapid City	3165	899.4	1010.5	91	60	75.7	4.8	104	18	50	15	22	0	43	37	.36	-1.20	.30	4	6	.0	0	11.8	SE	38	NW	25	11	15	5	4.4	78
Sioux Falls	[illegible]	961.4	1011.7	88	64	76.0	3.6	98	21	54	1	15	0	63	68	7.47	4.19	3.94	9	11	.0	0	9.6	S	*44	ENE	2	9	14	8	5.2	--
TENNESSEE																																
Bristol	1519	963.8	------	89	66	77.3	3.7	95	26	59	12	14	0	--	-	4.10	.21	1.35	10	9	.0	0	----	---	--	---	--	6	16	9	6.0	--
Chattanooga	670	989.1	1016.3	90	68	79.1	1.8	96	26+	62	9	16	0	69	78	3.58	-.12	2.53	10	12	.0	0	4.5	S	37	W	25	5	14	12	6.5	57
Knoxville	950	982.0	1017.0	90	69	79.3	2.3	95	24	63	12	16	0	68	75	4.91	1.48	3.25	11	9	.0	0	5.3	SW	40	NW	24	7	11	13	6.2	49
Memphis (U)	271	----	------	88	73	80.8	.5	93	24+	67	10+	10	0	--	--	3.27	.74	.99	10	--	.0	0	----	---	--	---	--	--	--	--	---	--
Memphis	263	1001.6	1016.1	90	72	81.1	.8	95	24+	64	10	19	0	71	76	4.56	1.62	1.01	13	10	.0	0	6.0	S	33	SE	24	7	13	11	6.0	68
Nashville	577	996.6	1016.3	90	70	79.8	1.1	96	25	64	10+	19	0	70	78	2.54	-.77	.70	11	14	.0	0	5.0	S	29	NW	4	5	14	12	6.2	64
Oak Ridge	905	984.9	---- -	88	69	78.2	2.9	94	26	63	14+	9	0	--	--	5.63	1.57	2.77	14	12	.0	0	3.9	---	‡37	---	23	12	6	13	5.5	--
TEXAS																																
Abilene	1759	952.9	1012.5	94	71	82.1	-.7	105	30	62	10+	26	0	67	63	.72	-.37	.41	2	3	.0	0	9.9	SSE	43	NE	30	17	12	2	3.5	81
Amarillo	3590	889.3	1011.4	91	66	78.4	1.8	100	29	59	31	20	0	58	54	2.24	-.75	.98	7	9	.0	0	10.9	S	36	NE	30	15	10	6	4.2	81
Austin	615	992.2	1013.8	94	73	83.5	-1.0	100	7+	65	31	26	0	71	72	4.80	3.13	1.37	9	7	.0	0	7.7	SSE	47	N	31	7	17	7	5.6	62
Brownsville	16	1010.5	1013.1	93	76	84.9	.8	97	8	73	1	28	0	74	74	1.07	-1.38	.60	2	2	.0	0	9.0	SSE	27	S	17	8	16	7	5.2	83
Corpus Christi	41	1012.5	1013.9	91	75	83.2	-.8	95	11+	73	2	24	0	74	78	5.58	3.50	2.89	8	5	.0	0	9.6	SSE	24	SE	17	7	13	11	5.8	70
Dallas	487	995.9	1014.5	95	75	84.9	-.9	103	30	68	10+	28	0	70	63	1.77	-.06	1.67	5	2	.0	0	10.9	SSE	47	N	30	14	14	3	4.0	76
Del Rio (U)	957	---	- - -	96	74	84.7	-.4	103	30	70	26+	29	0	--	--	.45	-.99	.19	5	3	.0	0	----	---	--	---	--	--	--	--	---	--
El Paso	3920	885.5	1010.8	94	69	81.0	1.2	101	3	63	23	24	0	58	50	2.39	1.07	.97	9	10	.0	0	10.1	SSE	43	SW	5	9	15	7	5.3	73
Fort Worth	544	993.2	1013.8	95	74	84.5	-.9	104	30	67	10	28	0	68	62	.93	-.95	.62	5	2	.0	0	11.2	SE	*73	N	30	15	13	3	3.7	--
Galveston (U)	7	----	------	87	78	82.3	-1.3	93	8	70	24	2	0	--	--	5.76	2.21	1.86	9	--	.0	0	10.6	---	35	SE	26	--	--	--	---	66
Galveston	5	1012.5	1014.9	88	78	82.8	-.9	94	8	71	25+	12	0	74	76	8.50	4.88	2.19	11	7	.0	0	10.1	SE	--	---	--	3	17	11	6.9	--
Houston (U)	41	1009.5	------	90	76	82.7	-1.5	95	1	71	24	19	0	--	--	6.99	3.90	2.14	12	10	.0	0	7.9	SE	34	N	[illegible]	3	18	10	6.4	66
Houston	50	1011.9	1014.4	90	75	82.3	-.6	96	4	70	23	18	0	74	80	8.45	4.33	3.59	10	11	.0	0	8.8	SSE	--	---	--	2	15	14	7.1	--
Laredo	500	996.6	1011.7	100	76	87.9	.1	104	30	71	13	29	0	69	59	4.06	2.76	2.18	5	4	.0	0	14.1	SE	*29	ESE	20	11	15	5	4.9	--
Lubbock	3243	903.5	1012.1	92	66	79.2	.8	100	30	59	31	24	0	61	59	.72	-1.07	.53	3	4	.0	0	10.4	S	*32	NE	30	19	8	4	3.4	--
Midland	2854	915.0	1011.8	94	69	81.2	-.2	105	30	63	25+	26	0	62	55	.90	-.75	.60	5	8	.0	0	9.0	ESE	*29	NNE	31+	13	12	[illegible]	4.2	--
Port Arthur	16	1013.2	1014.6	89	74	81.6	-.2	96	7	69	1	17	0	75	82	5.91	.77	1.94	12	9	.0	0	9.3	ESE	40	NE	1	0	17	14	7.2	59
San Angelo	1903	946.5	1012.3	93	71	81.8	-1.4	106	30	63	25+	26	0	63	56	T	-1.59	T	0	2	.0	0	10.0	S	*26	SE	31	15	13	3	3.8	--
San Antonio	792	988.8	1013.3	95	74	84.4	.0	101	3	69	31	27	0	69	67	3.05	1.07	1.70	7	5	.0	0	9.1	SE	30	SE	14	11	13	7	5.1	72
Victoria	110	1008.8	1013.6	92	74	83.0	-2.3	99	8	71	25	21	0	73	76	5.31	2.68	2.55	12	9	.0	0	7.2	SE	‡37	E	10	5	17	9	6.0	--
Waco	500	993.2	1013.8	94	74	83.9	-1.6	100	30+	67	10	28	0	69	66	2.14	.76	1.27	5	3	.0	0	11.7	SSE	*27	NNE	31	11	15	5	5.0	--
Wichita Falls	1020	976.6	1012.5	96	73	84.2	.0	105	30	58	9	29	0	65	57	2.03	-.04	1.11	5	2	.0	0	9.8	SE	*35	N	30	24	5	2	2.8	--
UTAH																																
Milford	5028	844.9	1012.2	90	56	72.7	1.0	97	9	47	22	18	0	--	--	.51	-.30	.22	8	13	.0	0	----	---	—	---	—	10	14	7	4.7	--
Salt Lake City	4220	867.3	1011.6	89	59	74.1	-.3	98	10+	46	23	14	0	44	38	1.76	.79	.84	7	9	.0	0	8.8	SSE	38	SW	11	11	13	7	4.5	82
VERMONT																																
Burlington	331	1000.2	1014.8	82	61	71.3	3.2	95	15	46	23+	1	0	61	72	4.38	1.37	1.05	17	10	.0	0	6.5	SSW	26	SW	24	2	14	15	7.0	56
VIRGINIA																																
Lynchburg	947	983.1	------	88	68	77.7	3.5	97	22	62	3	15	0	--	--	4.76	.41	1.95	7	5	.0	0	6.0	---	27	N	23	9	15	7	5.3	61
Norfolk	26	1015.3	1016.7	89	70	79.4	3.0	97	22	56	3	16	0	70	78	2.81	-2.27	1.15	7	3	.0	0	7.5	SW	30	S	30	12	7	12	5.5	73
Richmond	162	1010.5	1016.7	89	69	79.0	3.1	96	22+	56	3	18	0	70	80	5.75	.70	1.60	9	6	.0	0	6.2	S	31	NE	24	11	11	9	5.5	71
Roanoke	1174	975.5	1017.1	91	68	79.1	4.8	99	21	61	13+	20	0	66	72	4.49	-.05	1.17	9	10	.0	0	6.2	SE	--	---	--	13	11	7	5.0	--
WASHINGTON																																
Olympia	190	1009.8	1017.4	74	47	60.8	-2.1	86	14+	39	9	0	0	48	67	.70	.04	.44	4	0	.0	0	7.8	SW	*20	WNW	27	5	15	11	6.5	--
Seattle (U)	14	-- ---	- ----	73	56	64.5	-.7	82	7	51	30	0	0	--	--	.39	-.48	.27	3	--	.0	0	----	---	29	SW	27	--	--	--	---	45
Seattle	14	1015.9	1016.8	--	--	----	---	--	--	--	--	--	--	49	62	----	----	----	--	--	---	--	7.7	SSW	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	1003.1	1017.2	72	53	62.3	-1.3	82	7	46	30+	0	0	50	70	.60	-.28	.44	4	0	.0	0	10.1	SSW	*28	SSW	27+	4	16	11	6.5	--
Spokane	2357	945.1	1013.4	77	52	64.4	-3.5	95	1	41	29	2	0	41	49	1.24	.75	1.09	5	0	.0	0	9.6	SW	31	NW	12	12	9	10	5.0	79
Stampede Pass (R)	3958	880.8	1018.4	61	44	52.3	-4.3	75	7	39	29+	0	0	--	--	3.79	1.71	1.25	12	1	.0	0	----	---	--	---	--	7	9	15	6.4	--
Tatoosh (R)	101	1014.9	1017.8	59	51	54.8	-.9	65	24	48	25+	0	0	53	94	1.61	-.40	.41	17	0	.0	0	10.1	SSW	25	SW	21+	2	14	15	7.5	39
Walla Walla (U)	949	977.7	1012.9	83	59	70.9	-3.3	97	1	52	25	5	0	--	--	.99	.65	.87	6	0	.0	0	6.2	⊛ S	22	W	26	16	9	6	3.6	86
Yakima	1061	975.3	1013.8	83	48	65.8	-3.7	97	1	40	30	6	0	43	46	.04	-.18	.04	1	0	.0	0	7.2	WNW	*29	WNW	31	14	11	6	4.0	--
WEST INDIES																																
San Juan, P.R.(U)	47	----	- ----	90	76	80.9	.4	90	30+	74	28+	2	0	--	--	6.26	.00	1.95	18	6	.0	0	----	---	--	---	--	--	--	--	---	--
San Juan, P.R.	15	1013.1	1016.1	89	74	81.3	.9	92	31+	71	28+	5	0	73	78	4.67	-2.84	2.31	18	5	.0	0	8.1	ENE	29	NE	1	7	19	5	5.4	75
Swan Island	31	1011.4	-----	88	77	82.5	.1	90	12+	70	23	6	0	--	--	5.02	.92	1.95	6	9	.0	0	----	---	--	---	--	[illegible]	12	10	5.6	--
WEST VIRGINIA																																
Charleston	950	981.5	1016.7	89	66	77.4	3.8	96	25+	54	3	13	0	69	80	2.02	-2.53	1.35	6	6	.0	0	4.2	SSW	21	WSW	26	4	14	13	6.5	--
Elkins	1970	- ---	-----	82	60	71.0	2.8	89	14	48	3	0	0	63	--	3.31	-.52	.88	9	8	.0	0	3.3	NW	*18	NNE	24	1	19	11	6.5	--
Huntington (U)	565	----	------	90	68	79.2	3.8	97	26+	58	3	16	0	--	--	2.68	-.69	.76	7	--	.0	0	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	-----	90	67	78.1	4.1	98	23+	53	3	14	0	--	--	1.36	-2.79	.81	7	9	.0	0	4.7	---	29	W	17	7	15	9	5.6	61
WISCONSIN																																
Green Bay	689	991.5	1014.2	82	62	71.8	4.0	91	25+	45	2	5	0	66	83	2.71	-.32	1.15	12	10	.0	0	9.9	SW	45	NW	26	5	9	17	6.9	52
La Crosse	652	988.8	1013.1	83	66	74.2	2.8	92	25+	57	16	7	0	67	76	7.85	4.56	2.23	14	12	.0	0	8.8	S	*45	NNW	10	6	9	16	6.6	--
Madison	857	979.7	1014.6	85	64	74.5	3.8	96	21	54	18	11	0	66	77	5.68	2.79	2.82	13	10	.0	0	7.8	SW	34	SW	26	5	12	14	6.6	57
Milwaukee	672	990.2	1015.1	83	65	73.8	3.9	95	21	53	2	6	0	67	81	3.47	.85	1.32	11	5	.0	0	9.2	SW	30	NE	28+	8	11	12	6.1	67
WYOMING																																
Casper	5319	837.5	1009.9	86	55	70.3	1.4	94	17+	44	15	9	0	35	32	.23	-.63	.23	1	2	.0	0	12.2	WSW	*46	NNW	31+	11	13	7	4.5	--
Cheyenne	6131	814.1	1012.6	83	55	69.1	2.3	95	11	48	14	3	0	42	45	.77	-.84	.54	10	11	.0	0	11.8	WNW	40	S	11	5	19	7	5.6	63
Lander	5563	835.4	1010.8	86	56	70.9	2.5	94	11	46	14	11	0	38	34	.07	-.53	.05	3	4	.0	0	8.2	⊛ SW	52	SW	11	13	14	4	4.3	78
Sheridan	3942	882.8	1011.0	87	54	70.5	1.9	97	17+	44	14	12	0	40	37	.13	-.69	.05	4	4	.0	0	8.5	NW	47	NW	31	19	9	3	3.2	78

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
\+ And also on an earlier date or dates.
ⓜ Maximum hourly average.
Ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
\# Number of days maximum 70° or above for Alaskan Stations.

¢ City Office Data
† Airport Data
‡ Peak Gust
⊛ Wind direction to 8 compass points only.

HEATING DEGREE DAYS

(Base 65°F.)

AUGUST 1959

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ALABAMA			
Birmingham	0	0	0
Mobile	0	0	0
Montgomery	0	0	0
ALASKA			
Anchorage	278	562	530
Annette	278	531	479
Barrow	856	1733	1609
Barter Island	907	1710	
Bethel	321	763	707
Cold Bay	409	942	
Cordova	355	764	723
Fairbanks	320	605	445
Juneau	378	706	654
King Salmon	345	767	
Kotzebue	366	911	827
McGrath	324	639	563
Nome	425	1028	970
St. Paul	504	1127	1119
Yakutat	366	745	759
ARIZONA			
Flagstaff	66	72	127
Phoenix (U)	0	0	0
Phoenix	0	0	0
Prescott	0	0	0
Tucson	0	0	0
Winslow	0	0	0
Yuma	0	0	0
ARKANSAS			
Ft. Smith	0	0	0
Little Rock	0	0	0
Texarkana	0	0	0
CALIFORNIA			
Bakersfield	0	0	0
Bishop	9	9	0
Blue Canyon	59	72	77
Burbank	0	0	0
Eureka (U)	267	543	515
Fresno	0	0	0
Los Angeles (U)	0	0	0
Los Angeles	0	0	53
Mt. Shasta (R)	42	60	83
Oakland	30	59	161
Red Bluff	3	3	0
Sacramento (U)	2	2	0
Sacramento	3	3	0
Sandberg (R)	31	31	[illegible]
San Diego	0	[illegible]	18
San Francisco (U)	119	284	366
San Francisco	38	87	280
San Jose (U)	5	6	18
Santa Maria	43	94	192
COLORADO			
Alamosa	51	80	185
Colorado Springs	8	10	29
Denver	6	[illegible]	16
Grand Junction	0	0	0
Pueblo	[illegible]	0	0
CONNECTICUT			
Bridgeport	3	3	0
Hartford	8	[illegible]	14
New Haven	3	3	18
DELAWARE			
Wilmington	0	0	0
DIST. OF COLUMBIA			
Washington (U)	0	0	0
Washington	0	0	0
FLORIDA			
Apalachicola (U)	0	0	0
Daytona Beach	0	0	0
Fort Myers	0	0	0
Jacksonville	0	0	0
Key West	0	0	0
Miami	0	0	0
Miami Beach	0	0	0
Orlando	0	0	0
Pensacola (U)	0	0	0
Tallahassee	0	0	0
Tampa	0	0	0
West Palm Beach	0	0	0
GEORGIA			
Athens	0	0	0
Atlanta	0	0	0
Augusta	0	0	0
Columbus	0	[illegible]	0
Macon	0	0	0
Rome	0	0	0
Savannah	0	0	0
IDAHO			
Boise	15	27	0
Lewiston	22	38	0
Pocatello	16	33	0
ILLINOIS			
Cairo (U)	0	[illegible]	0
Chicago	0	0	0
Chicago University	0	0	
Moline	1	5	8

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ILLINOIS (Cont'd.)			
Peoria	0	1	11
Springfield	0	0	[illegible]
INDIANA			
Evansville	0	0	0
Ft. Wayne	0	0	17
Indianapolis	0	0	0
South Bend	0	1	18
IOWA			
Burlington	0	3	0
Des Moines	2	8	17
Dubuque	1	14	36
Sioux City	0	4	[illegible]
KANSAS			
Concordia (U)	0	2	0
Dodge City	0	0	0
Goodland	3	5	[illegible]
Topeka	0	0	8
Wichita	0	0	0
KENTUCKY			
Lexington	0	0	0
Louisville	0	0	0
LOUISIANA			
Baton Rouge	0	0	0
Lake Charles	0	0	0
New Orleans (U)	0	0	0
New Orleans	0	0	0
Shreveport	0	0	0
MAINE			
Caribou	87	113	218
Greenville (U)	81	110	
Portland	38	40	71
MARYLAND			
Baltimore (U)	0	0	0
Baltimore	0	0	0
Frederick	0	0	0
MASSACHUSETTS			
Blue Hill Obs.(R)	16	21	
Boston	7	8	7
Nantucket	22	34	56
Pittsfield	35	41	88
MICHIGAN			
Alpena (U)	8	30	135
Detroit	0	0	8
Detroit (Willow Run)	0	0	10
Escanaba (U)	20	63	157
Grand Rapids	0	4	43
Lansing	6	13	
Marquette (U)	37	80	156
Muskegon	0	12	74
S. Ste. Marie	27	103	235
MINNESOTA			
Duluth (U)	72	123	157
Duluth	63	109	147
Internat. Falls	65	114	188
Minneapolis	4	9	25
Rochester	5	16	62
St. Cloud	5	17	85
MISSISSIPPI			
Jackson	0	0	0
Meridian	0	0	0
Vicksburg (U)	[illegible]	0	0
MISSOURI			
Columbia	0	0	[illegible]
Kansas City	0	0	0
St. Joseph	0	2	5
St. Louis (U)	0	[illegible]	0
St. Louis	0	0	0
Springfield	0	0	8
MONTANA			
Billings	3	26	28
Glasgow	19	39	44
Great Falls	67	93	74
Havre (U)	48	57	58
Helena	69	110	102
Kalispell	169	263	130
Miles City	3	5	17
Missoula	101	168	79
NEBRASKA			
Grand Island	0	4	6
Lincoln (U)	0	2	7
Norfolk	0	3	17
North Platte	1	7	18
Omaha	0	3	5
Scottsbluff	8	13	0
Valentine	9	14	21
NEVADA			
Elko	64	71	34
Ely	51	62	66
Las Vegas	0	0	0
Reno	44	50	88
Tonopah	15	15	5
Winnemucca	44	50	17

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
NEW HAMPSHIRE			
Concord	28	[illegible]	68
Mt. Washington Obs.	455	837	
NEW JERSEY			
Atlantic City (U)	[illegible]	0	0
Newark	[illegible]	0	[illegible]
Trenton (U)	0	0	0
**			
NEW YORK			
Albany	8	[illegible]	[illegible]
Binghamton	11	17	79
Buffalo	1	2	46
New York (U)	0	0	
New York	[illegible]	[illegible]	0
Rochester	[illegible]	3	43
Schenectady	1	1	19
Syracuse	[illegible]	[illegible]	[illegible]
NORTH CAROLINA			
Asheville (U)	[illegible]	0	0
Cape Hatteras (R)	0	0	0
Charlotte	0	0	0
Greensboro	0	0	0
Raleigh	0	0	0
Wilmington	0	0	0
Winston-Salem	0	0	0
NORTH DAKOTA			
Bismarck	13	17	66
Devils Lake (U)	25	45	108
Fargo	8	16	66
Grand Forks	14	35	
Pembina	7	26	
Williston (U)	18	28	71
OHIO			
Akron	0	0	17
Cincinnati (U)	0	0	0
Cincinnati	0	0	6
Cleveland	0	0	10
Columbus	0	0	8
Dayton	0	0	5
Sandusky (U)	0	0	6
Toledo	0	0	12
Youngstown	4	7	19
OKLAHOMA			
Oklahoma City	0	0	0
Tulsa	0	0	0
OREGON			
Astoria	188	337	249
Burns (U)	53	93	47
Eugene	25	63	67
Meacham	174	290	190
Medford	18	21	0
Pendleton	13	24	0
Portland (U)	10	34	27
Portland	32	58	47
Roseburg	18	38	
Salem	31	64	44
Sexton Summit (R)	134	248	157
PENNSYLVANIA			
Allentown	0	0	9
Harrisburg	0	0	0
Philadelphia (U)	0	0	0
Philadelphia	0	0	0
Pittsburgh (U)	0	0	0
Pittsburgh	0	1	20
Reading (U)	0	0	5
Scranton	4	4	18
Williamsport	1	1	16
RHODE ISLAND			
Block Island	10	12	27
Providence	6	6	26
SOUTH CAROLINA			
Charleston (U)	0	0	0
Charleston	0	0	0
Columbia	0	0	0
Florence	0	0	0
Greenville	0	0	0
Spartanburg	0	0	0
SOUTH DAKOTA			
Huron	0	3	26
Pierre	0	2	
Rapid City	1	9	56
Sioux Falls	0	3	37
TENNESSEE			
Bristol	0	0	0
Chattanooga	0	0	0
Knoxville	0	0	0
Memphis	0	0	0
Nashville	0	0	0
TEXAS			
Abilene	0	0	0
Amarillo	0	0	0
Austin	0	0	0
Brownsville	0	0	0
Corpus Christi	0	0	0
Dallas	0	0	0
Del Rio (U)	0	0	
El Paso	0	0	0

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
[illegible]			
[illegible]	0	[illegible]	[illegible]
Galveston (U)	0	0	[illegible]
Galveston	0	[illegible]	0
Houston (U)	0	0	0
Houston	0	[illegible]	0
[illegible]	0	0	0
Lubbock	0	0	0
Midland	[illegible]	0	
[illegible]	[illegible]	0	0
[illegible]	0	0	0
San Antonio	[illegible]	[illegible]	0
[illegible]	0	0	[illegible]
Waco	0	[illegible]	[illegible]
[illegible]	[illegible]	0	0
[illegible]			
[illegible]	[illegible]	0	[illegible]
Salt Lake City		[illegible]	0
VERMONT			
Burlington	16	21	66
VIRGINIA			
Lynchburg	0	0	0
Norfolk	[illegible]	0	0
Richmond	0	0	0
Roanoke	0	0	0
WASHINGTON			
Olympia	133	208	174
Seattle (U)	36	65	94
Seattle-Tacoma	87	146	145
Spokane	84	139	15
Stampede Pass (R)	388	648	511
Tatoosh Island (R)	307	[illegible]	583
Walla Walla (U)	11	17	[illegible]
Yakima	40	74	7
WEST VIRGINIA			
Charleston	[illegible]	0	[illegible]
Elkins	0	1	40
Huntington (U)	0	0	0
Parkersburg (U)	0	0	0
WISCONSIN			
Green Bay	10	30	90
La Crosse	0	5	31
Madison	0	6	44
Milwaukee	0	13	52
WYOMING			
Casper	12	35	37
Cheyenne	15	30	72
Lander	8	23	30
Sheridan	7	37	68
**NEW MEXICO			
Albuquerque	0	0	0
Clayton	0	0	0
Roswell	0	0	0

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

AUGUST 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ø ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	† DAMAGE	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS
Alabama														3	6	4	0												
Alaska																										0	0	5	2
Arizona										0	0	5	0													0	0	5	5
Arkansas										0	0	°3	C																
California										0	0	5	0	0	0	3	0									0	0	4	4
Colorado														0	1	3	0									0	0	3	0
Connecticut						0	0	0	3					1	B8	4	0									0	0	4	0
Delaware														0	0	4	0									0	0	4	0
Florida										0	0	5	0	1	3	4	0												
Georgia										0	0	4	0																
Hawaii																										0	0	6	7
Idaho						0	0	0	4	0	4	4	0													0	0	5	4
Illinois	3	3	0	0	4	0	0	*	*	0	0	*	*	2	0	*	0												
Indiana	1	1	0	0	4									0	0	4	0												
Iowa						0		3	3	1	4	5	4													0	1	6	6
Kansas														0	0	5	3									1	1	2	0
Kentucky										0	0	3	0	2	3	0	0									0	0	5	4
Louisiana	1	1	0	0	M					0	0	°4	C																
Maine	4	3	0	0	4					0	1	5	3	1	6	5	0									0	0	5	5
Maryland										0	0	4	0	0	0	4	0									0	0	4	0
Massachusetts						0	0	0	4	0	0	5	3	2	18	6	0									0	1	5	3
Michigan						0	0	0	3	0	0	4	0	3	23	4	0									0	0	3	0
Minnesota	F6	6	0	0	0	0	0	0	6	0	17	5	4	1	0	5	0												
Missouri										0	0	5	0													0	0	6	6
Montana	1	1	0	0	2	0	0	0	5	0	0	0	4																
Nebraska	4	4	0	0	5	0	0	4	6	0	0	5	0	1	0	5	4									0	0	6	6
Nevada										0	5	4	0																
New Hampshire	1	1	0	0	4					2	0	4	0	0	0	4	0									0	0	4	4
New Jersey														2	3	0	0									0	0	3	0
New Mexico	4	4	0	0	0	0	0	4	4					1	0	0	0									0	0	5	0
New York						0	0	5	C	1	4	4	0	5	14	5	0									0	0	5	0
North Carolina	W1	1	0	0	0	0	0	3	5	0	0	4	1	3	7	5	0									0	0	4	4
Ohio	1	1	0	0	3	0	0	0	4	0	45	3	0	0	0	4	0												
Oklahoma	4	3	0	1	5	0	0	5	6	0	0	5	0	0	2	4	0												
Oregon										0	0	1	1	0	1	5	4												
Pennsylvania										0	2	5	0	4	3	5	0									0	0	3	0
Puerto Rico										0	0	3	0	1	0	0	0												
Rhode Island														0	1	4	0												
South Carolina										0	0	2	0	1	0	5	0									0	0	5	0
South Dakota						0	0	5	5	0	0	5	0																
Tennessee														2	5	0	0									0	0	4	0
Texas	3	2	0	0	2					0	0	5	C	1	2	0	0												
Utah						0	0	2	4	0	0	4	0	0	0	5	0									0	0	4	0
Vermont										0	4	4	0	0	0	4	0												
Virginia	1	1	0	0	4	0	0	0	3					0	0	3	0												
Washington														0	0	0	4												
West Virginia														0	1	0	0												
Wisconsin	1	1	0	0	0	0	0	4	0	0	0	4	0	2	0	5	0									1	0	5	5
Wyoming						0	0	1	1																				

C Crop damage.
B Includes one injured in highway accident during heavy shower.
° Includes crop damage.
* Damage occurred; estimates not available.
M Minor.
F Funnels aloft.
W Waterspout.
‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA°

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

AUGUST 1959

The most important flooding during the month was the record flooding on the Weldon River at Mercer, Mo. Flash floods occurred in Arizona, Wisconsin, Iowa, Illinois, Nebraska, Pennsylvania, and Virginia. Flooding reported elsewhere was minor.

ST. LAWRENCE DRAINAGE

Lake Ontario.--A new record low stage of 0.13 foot was reached on the Genesee River at Scio, N. Y., on the 22d. The previous low stage at this point was 0.18 foot in August 1950.

ATLANTIC SLOPE DRAINAGE

Brooks and streams in the Island Falls, Maine, area, including both branches of the Mattawamkeag River, exceeded flood stage on the 28th and 29th due to excessive rains during a 4-hour period the evening of the 28th. The rainfall was heaviest in the Mt. Chase-Island Falls area. Stretches of roads and driveways were washed out and cellars flooded. Press reports indicate that 6.31 inches of rain was measured during the 4-hour period at Island Falls, Maine, by a Maine Forest Service employee. If this rainfall measurement can be confirmed it will establish a new record for the state of Maine.

Heavy rain during the night of the 7th and 8th caused bankfull stage in Rock Creek Basin in the Washington, D. C., area on the 8th. The rainfall averaged about 2.5 inches in the basin above Sherrill Drive gage in Maryland. More than 3 inches of rainfall was measured in some sections of the Nation's Capital. Several persons were pulled to safety from stalled cars hood-deep in turbulent waters in Rock Creek Park. Hardest hit by the flooding in the District was the area around Minnesota and Deane Avenues and Kenilworth and Eastern Avenues, N. E., drained by tributaries of the Anacostia River. Six automobiles were caught under Kenilworth Avenue overpass and covered to their rooftops. There were no significant rises along the main stem of the Potomac and Rappahannock Rivers.

Thunderstorms over the west end of Richmond, Va., during the night of the 7th and 8th sent floodwaters roaring through every brook, creek, and drainway in the Tuckahoe and Lakeside areas. At least 57 families were forced to flee their homes as water rose 4 to 6 feet into dwellings. Preliminary damage estimates exceeded several hundred thousands of dollars and was about twice as severe as that caused by hurricane Diane in 1955. Rainfall amounts ranged from 4 to 8 inches in the flooded areas, with the greatest overnight amount of 8.43 inches measured on Everview Road near Three Chopt and Patterson Avenue.

Minor flooding occurred along the Rocky River at Norwood, N. C., on the 8th due to heavy rains (1.5 to 2 inches) on the 7th and 8th. The rise was rapid and took place during the late night of the 7th and early morning of the 8th. No damage was reported.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--Heavy rains during the late evening of the 26th and early morning of the 27th caused flash floods in the West Branch of the Kickapoo River at Avalanche, Wis., on the night of the 26th and 27th. The flood resulted from a cloudburst with the heaviest official amount of 5.90 inches reported at Westby 4 NE, Wis. Of this amount, 4.81 inches fell in less than 3 hours. A 2-year old girl was drowned when she was swept from the arms of her uncle. Several lives were saved through the heroic efforts of a woman who lived near the river and sensed the danger as she saw the water beginning to rise over the road. She got into her automobile and drove up and down the road, sounding the horn to awaken her neighbors. Some made their way to higher ground without help. Several families were rescued by conservation wardens and deputy sheriffs. This same storm caused light flooding on the Root River at Hokah, Minn., on the 12th.

Minor flooding occurred along the South River lowlands in Warren County, Iowa, on the 6th and 7th. No damages were reported.

A flash flood occurred along small creeks in Ft. Madison, Iowa, during the night of the 4th and 5th due to a 9.52-inch rain. The Fox River at Wayland, Mo., rose rapidly to a crest of 18.55 feet (flood stage 15 feet) on the 8th, but it fell rapidly again with only minor damage reported to field crops.

The flooding on the Sangamon River at Riverton, Ill., on the 7th and 8th was due to locally heavy rains on the 6th and 7th. The rainfall was spotty and no significant rise occurred along the larger streams. Some crop damage was reported in central Illinois. The flooding on the Big River at Murphysboro, Ill., from the 17th to the 27th was due to heavy rain on the 16th and 17th. More than 6 inches of rainfall was measured at several points in the Big Muddy Basin. Very little damage resulted even though the crest was some 6 feet above flood stage. However, extensive minor damages were caused by flash-floods on streets, roads, and fields.

Missouri Basin.--Locally heavy rains during the night of the 1st and the morning of the 2d caused flash flooding along the lower reaches of the Papillion Creeks and the Sand, Wahoo, and Cottonwood Creeks near Wahoo, Nebr. Rainfall amounts during the night ranged from 3 to 6 inches in western part of Omaha and in portions of the middle reaches of the Papillion Creeks. The drainage area above Wahoo and Ithica, Nebr., received from 4 to 8 inches with some points reporting around 10 inches of rain. The damage in the immediate Omaha area was estimated around $800,000. In the Wahoo area, the damage was mostly to farmland.

Heavy rains on the 4th and 5th in northern Missouri caused flooding in the Grand and Chariton River Basins in Missouri between the 6th and 12th. The rainfall was the heaviest in the eastern and upper reaches of these basins. Flooding on the Weldon River in Missouri was very extensive, generally exceeding all previously known floods. Several bridges were destroyed or badly damaged. Approximately 130,000 acres of land was inundated.

Ohio Basin.--A severe rainstorm occurred in the Export, Pa., area during the afternoon and evening of the 28th which resulted in the worst flash flood in the Westmoreland County community's history. As much as 11 feet of water surged through the town, flooding basements and first floors and washing away autos. Forty families fled their homes. All business places and homes along Old William Penn Highway were flooded for the first time in the memory of occupants. Scattered rainstorms hit parts of Westmoreland and Allegheny Counties, but residents only a few miles from Export knew nothing about the flood. The flood waters were gone within an hour and a half after the second downpour hit

Export. A bucket survey by the Corps of Engineers indicated rainfall amounts exceeding 8 inches in the Export area.

Minor flooding occurred on the Skillet Fork at Wayne City, Ill., from the 17th to the 19th due to heavy rains on the 17th. Little, if any, damage resulted.

Arkansas Basin.--A flash flood occurred on West Boomer Creek at Stillwater, Okla., during the evening of the 6th due to 3.3 inches of rain. More than an inch of rain occurred in less than 1 hour. The flooding lasted only a few hours.

The Deep Fork River which crested at Dewar, Okla., on July 31 remained above flood stage until August 4.

Red Basin.--The slight flooding on the Sulphur River at Naples, Tex., from the 1st to the 7th was due to moderate to heavy rains accompanying tropical storm "Debra", which moved northward across east Texas during the latter part of July. Local flooding was reported along many of the tributaries of the Red River in Oklahoma. Little or no damage resulted in the Sulphur Basin as the area flooded is used mostly for grazing and timber. Considerable damage was reported along the tributaries of the Red River.

WEST GULF OF MEXICO DRAINAGE

The flooding which occurred on the Sabine River at Mineola, Tex., on the 4th was due to moderate to heavy rains associated with tropical storm "Debra" as it moved northward across east Texas during the latter part of July. Rains were quite heavy at many points in the Sabine Basin on July 26 and 27. The amounts ranged from 2 to 3 inches. Runoff was high as this storm was preceded by 3-inch rains from the 17th to the 21st. Little or no damage was reported.

The flooding on the Rio Grande at Presidio, Tex., on the 28th and 29th and again on September 2 was due to heavy flow from the Conchos River in Mexico. The flood waters were contained within the levees, except for 10 to 15 acres not protected.

GULF OF CALIFORNIA DRAINAGE

On August 11, a 500-foot earthern retention dam, 10 miles south of Casa Grande, Ariz., (at Chuichu Village), broke under pressure of recent heavy thunderstorms in the area. Six families suffered loss of food and clothing, but most families were able to return to their dwellings within 24 hours.

Flash floods from severe mountain thundershowers caused some local damage in the Queen Creek, Ariz., area on the 17th. Three homes were flooded when a local dike gave way. A bridge was weakened due to flood waters causing some traffic delays. Flash floods on the 19th caused some local damage to Upper Gila River.

PACIFIC SLOPE DRAINAGE

Columbia Basin.--A heavy thundershower of 1 to 2 inches caused Cottonwood Creek to overflow at Boise, Idaho, covering 60 acres of residential area. Damages totaled $500,000.

FLOOD STAGE DATA

(All dates in August unless otherwise specified)

AUGUST 1959

River and station	Flood stage	Above flood stages -dates		Crest *	
		From–	To–	Stage	Date
ATLANTIC SLOPE DRAINAGE	Ft.			Ft.	
Rocky: Norwood, N. C.	16	8	8	18.3	8
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Root: Hokah, Minn.	45	27	27	46.6	27
Fox: Wayland, Mo.	15	8	8	18.55	8
Sangamon: Riverton, Ill.	13	7	8	14.8	8
Big Muddy: Murphysboro, Ill.	16	17	27	E22.5	21
Missouri Basin					
Thompson: Trenton, Mo.	20	8	9	22.25	8
Weldon: Mercer, Mo.	22	6	6	28.3	6
Mill Grove, Mo.				26.0	7
Grand: Chillicothe, Mo.	24	6	10	27.8	9
Sumner, Mo.	26	6	12	31.3	10
Chariton: Novinger, Mo.	20	7	10	22.0	[illegible]
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Ohio Basin					
Skillet Fork: Wayne City, Ill.	15	17	19	18.1	18
Arkansas Basin					
Deep Fork: Dewar, Okla.	18	July 24	4	21.2	July 31
Red Basin					
Sulphur: Naples, Tex.	22	1	7	24.8	3
WEST GULF OF MEXICO DRAINAGE					
Sabine: Mineola, Tex.	14	[illegible]	4	14.4	4
Rio Grande: Presidio, Tex.	10	28 Sept. 2	29 Sept. 3	13.5 13.5	28 Sept. 2

* Provisional
E Estimated

AUGUST 1959

ALBANY, N. Y. (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	86	18.5	90	168	2.1
1,000	31	134	18.7	86	183	2.5
950	31	577	18.8	74	263	6.2
900	31	1,040	16.7	71	292	10.3
850	31	1,527	14.7	67	295	12.8
800	31	2,038	12.2	63	290	13.8
750	31	2,573	9.6	60	286	15.7
700	31	3,148	6.7	55	284	17.9
650	31	3,751	3.5	50	283	21.2
600	31	4,400	- .3	48	283	22.9
550	31	5,083	- 4.4	45	284	22.9
500	31	5,836	- 8.8	40	284	23.5
450	31	6,639	-13.7	34	284	26.4
400	31	7,531	-19.8	35	282	25.5
350	31	8,509	-26.7	36	[illegible]	26.0
300	31	9,603	-35.0		284	25.6
250	31	10,849	-44.5		285	29.3
200	31	12,315	-52.4		289	33.4
175	31	13,171	-56.1		292	32.8
150	31	14,143	-59.6		291	31.1
125	31	15,275	-62.2		289	23.1
100	31	16,659	-60.6		296	14.4
80	31	18,054	-58.4		321	6.0
60	[illegible]	19,881	-54.0		[illegible]	6.0
50	29	21,060	-51.7		82	9.1
40	29	22,515	-49.6		92	10.3
30	27	24,411	-46.4		81	14.0
25	25	25,624	-45.2		87	16.1
20	23	27,122	-43.0		85	16.7
15	18	29,076	-40.3		91	[illegible]
10						

ALBUQUERQUE, N. MEX. (840 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,619	18.9	71	95	1.4
1,000	31	95				
950	31	544				
900	31	1,019				
850	31	[illegible]				
800	31	2,044	18.0	62	192	2.1
750	31	2,593	15.2	59	252	2.5
700	31	3,176	11.2	62	273	4.9
650	31	3,787	6.9	65	[illegible]	6.2
600	31	[illegible]	2.3	66	234	5.2
550	[illegible]	[illegible]	[illegible]	62	229	6.0
500	31	[illegible]	- 6.8	58	245	7.2
450	31	6,708	-11.6	50	249	7.6
400	31	[illegible]	-17.6	[illegible]	242	9.1
350	31	8,592	-24.6	[illegible]	246	11.7
300	31	9,695	-33.0	37	248	13.0
250	31	10,951	-43.0		245	14.6
200	29	12,414	-54.8		250	17.9
175	[illegible]	13,256	-60.7		256	18.3
150	29	14,202	-66.6		243	11.5
125	29	15,295	-69.9		238	6.2
100	[illegible]	16,622	-69.1		175	5.6
80	20	17,971	-64.7		[illegible]	8.4
60	26	19,754	-59.0		[illegible]	16.1
50	26	20,907	-56.0		90	19.8
40	25	22,338	-52.9		90	23.3
30	24	24,209	-49.9		84	26.0
25	24	25,408	-47.4		85	26.8
20	22	26,901	-44.2		82	[illegible]
15	20	28,838	-42.2		[illegible]	32.3
10	6	31,585	-38.8			

[illegible] (893 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,095	19.7	77	204	5.8
1,000	31	102				
950	31	547				
900	31	1,022				
850	31	1,520	21.3	58	219	18.5
800	31	2,043	18.3	58	228	14.2
750	31	2,587	14.7	59	235	8.9
700	31	3,173	10.8	[illegible]	233	5.2
650	31	[illegible]	6.5	56	215	4.9
600	31	4,439	2.3		207	4.1
550	31	5,124	- 1.7	43	216	3.5
500	31	5,889	- 6.1		258	4.7
450	31	[illegible]	-11.0	33	266	6.6
400	31	7,601	-17.1	30	272	7.2
350	31	8,589	-23.7		280	7.0
300	31	9,697	-31.9		296	10.1
250	31	10,959	-41.8		307	11.1
200	31	12,431	-53.6		291	12.8
175	31	13,278	-59.5		288	10.9
150	29	14,225	-65.5		276	7.8
125	27	15,319	-69.4		281	4.7
100	22	16,656	-68.5		116	1.7
80		18,003	-65.5		97	9.3
60	21	19,782	-58.9		[illegible]	15.7
50		20,935	-55.9		91	19.2
40	[illegible]	22,365	-53.2		95	23.5
30	[illegible]	24,229	-49.7		90	27.4
25	15	25,420	-47.9		84	30.1
20	14	26,904	-44.8		84	32.4
15		28,859	-42.5			

ANCHORAGE, ALASKA (1009 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	[illegible]	11.7	84	180	3.5
1,000	31	101	12.2	81	181	4.9
950	31	526	10.5	75	195	6.6
900	31	980	8.1	72	210	4.9
850	31	1,450	5.4	72	199	2.7
800	31	1,944	2.4	73	237	1.4
750	31	2,457	- 1.0	74	265	2.1
700	31	3,011	- 4.0		302	3.9
650	31	3,586	- 7.0	64	282	5.6
600	31	4,214	-10.4	56	273	8.9
550	31	4,871	-14.6		[illegible]	10.5
500	31	5,595	-19.2	44	280	13.0
450	31	[illegible]	-24.5	41	286	19.2
400	31	7,219	-30.6	40	290	17.3
350	31	8,154	-37.6		[illegible]	19.4
300	30	9,197	-45.6		294	23.1
250	29	10,392	-51.7		299	22.9
200	29	11,840	-50.3		298	27.2
175	29	12,714	-49.5		293	22.5
150	29	13,723	-49.8		[illegible]	
125	28	14,909	-49.6		296	15.0
100	28	[illegible]	-49.3		295	11.5
80		17,837	-49.0		305	8.4
60		19,727	-48.5		321	
50	27	20,927	-48.4		331	3.5
40	26	22,396	-47.9		35	1.7
30	24	24,301	-46.8		72	3.1
25	23	25,513	-46.0		[illegible]	3.9
20	21	26,998	-44.5		89	5.1
15	[illegible]	28,941	-42.5		71	[illegible]
10		31,696	-38.9			

ANNETTE, ALASKA (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	37	11.6	89	131	2.1
1,000	31	136	11.9	85	116	.6
950	31	[illegible]	10.2	79	220	.8
900	31	1,013	7.6	77	242	2.1
850	31	1,483	4.7	76	242	2.7
800	31	1,974	1.7	75	264	3.1
750	31	2,488	- .9	68	274	5.6
700	31	3,041	- 3.5	62	278	9.1
650	31	3,617	- 6.5	57	293	12.0
600	31	4,246	-10.1	53	301	13.6
550	31	4,906	-14.2	[illegible]	307	16.1
500			-18.9	43	312	20.0
450	31	6,397	-24.5	41	311	20.0
400	30	7,257	-30.4	39	314	24.5
350	30	8,193	-37.4		315	23.5
300	29	9,240	-44.7		311	29.7
250	29	10,442	-51.0			
200	29	11,891	-50.9			
175	29	12,761	-49.9			
150	29	13,770	-50.2			
125	29	14,960	-50.3			
100	28	16,419	-50.5			
80	28	17,877	-49.8			
60	28	19,763	-49.3			
50	27	20,960	-48.9			
40	27	22,429	-48.0			
30	27	24,332	-46.8			
25	26	25,541	-45.7			
20	21	27,026	-44.2			
15	20	28,967	-41.9			
10	13	31,717	-38.8			

ATHENS, GA. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	246	21.2	94	348	0.8
1,000	30	151				
950	30	600	22.6	74	285	2.9
900	30	1,070	20.5	69	287	2.1
850	30	1,562	17.5	69	305	2.1
800	30	2,078	14.3	69	289	2.1
750	30	2,621	11.2	65	292	2.3
700	30	3,195	8.3	56	336	2.9
650	30	3,799	4.8	53	322	3.5
600	30	4,453	1.1	49	307	3.5
550	30	5,141	- 2.8	45	306	1.7
500	30	5,898	- 7.2	42	332	1.4
450	30	6,707	-12.1	36	324	.6
400	30	7,604	-17.8	33	32	1.7
350	30	8,590	-24.7		336	1.6
300	30	9,692	-33.1		322	4.1
250	30	[illegible]	-42.8		343	5.8
200	30	12,417	-54.1		343	9.1
175	30	13,263	-59.8		358	8.5
150	30	14,214	-65.2		21	9.7
125	30	15,312	-69.2		44	7.0
100	29	16,645	-68.8		63	9.1
80	29	17,995	-64.8		79	13.2
60	28	19,775	-59.5		85	20.8
50	27	20,927	-56.1		92	25.8
40	25	22,361	-52.5		97	28.0
30	23	24,231	-49.0		97	29.0
25	20	25,437	-46.8		94	29.0
20	10	26,918	-44.7			
15						
10						
7						

BARROW, ALASKA (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	1.8	95	81	5.4
1,000	31	121	1.8	92	83	5.6
950	31	534	4.4	80	88	4.5
900	31	978	4.2	69	72	1.2
850	31	1,442	2.4	60	43	1.7
800	31	1,930	.5	57	73	1.4
750	31	2,445	- 2.0	[illegible]	68	1.0
700	31	2,993	- 4.9	52	340	1.4
650	31	3,565	- 8.1	47	319	1.7
600	31	4,191	-11.6	44	3	1.6
550	31	4,845	-16.0	[illegible]	349	1.4
500	31	5,565	-20.8	44	265	.8
450	31	6,328	-26.6	47	[illegible]	1.9
400	31	7,177	-32.9	47	333	6.4
350	31	8,103	-39.9		342	7.2
300	31	9,140	-47.7		[illegible]	6.8
250	30	10,329	-54.6		331	8.0
200	30	11,765	-50.4		319	8.2
175	30	12,642	-48.2		317	7.4
150	30	13,660	-47.5		326	5.8
125	30	14,866	-47.4		334	6.2
100	30	16,342	-47.2		15	3.9
80	30	17,822	-46.5		25	4.5
60	30	19,735	-46.0		34	4.7
50	30	20,948	-46.0		48	6.0
40	29	22,435	-46.1		55	5.6
30	28	24,353	-45.0		56	6.6
25	28	25,576	-43.5		74	7.4
20	[illegible]	27,078	-42.1		74	8.0
15	19	29,076	-39.1		94	7.4
10	13	31,938	-33.9			

BARTER IS., ALASKA (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	1.1	95	68	1.2
1,000	31	111	1.9	91	52	1.4
950	31	527	5.0	80	274	2.5
900	31	969	4.4	70	275	3.1
850	31	1,434	2.6	65	283	5.4
800	31	1,922	.2	63	292	6.6
750	31	2,433	- 2.5	65	312	7.6
700	31	2,982	- 5.3	59	324	7.2
650	31	3,553	- 8.6	54	333	6.4
600	31	4,177	-12.5	50	334	7.0
550	31	4,825	-16.9	48	340	8.7
500	31	5,544	-21.7	44	341	11.1
450	31	6,298	-27.3	40	339	12.4
400	31	7,149	-33.7	40	342	12.8
350	31	8,072	-40.6		349	13.2
300	31	9,106	-47.6		349	15.9
250	31	10,294	-52.6		342	16.9
200	31	11,745	-49.0		339	15.3
175	31	12,626	-47.0		334	13.8
150	31	13,648	-46.5		340	13.6
125	31	14,859	-46.5		337	11.1
100	29	16,346	-46.0		353	9.1
80	27	17,835	-45.5		1	7.2
60	27	19,755	-45.2		18	6.6
50	27	20,973	-45.0		39	5.1
40	25	22,466	-44.7		47	5.6
30	25	24,395	-43.9		68	5.6
25	24	25,627	-42.8		72	5.8
20	22	27,131	-41.3		86	8.5
15	20	29,091	-39.1		81	4.9
10	16	31,898	-35.9		71	5.2
7	7	34,225	-35.7			

BETHEL, ALASKA (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	10.0	89	247	4.1
1,000	31	99			278	4.9
950	31	534	9.4	73	275	1.9
900	31	974	7.2	72	246	2.9
850	31	1,443	4.8	69	215	2.5
800	31	1,936	1.9	70	215	3.9
750	31	2,459	- 1.0	66	224	3.7
700	31	3,003	- 3.9	67	242	3.3
650	31	3,587	- 6.6	55	273	7.6
600	31	4,209	-10.1	51	270	8.2
550	31	4,874	-14.0	48	269	8.5
500	31	5,594	-18.6	46	285	7.4
450	31	6,370	-23.9	44	319	6.0
400	31	7,223	-29.9	42	353	6.6
350	31	8,161	-36.7		3	13.0
300	31	9,213	-44.1		357	11.3
250	31	10,419	-50.4		360	11.5
200	31	11,870	-50.8		359	10.5
175	31	12,742	-49.7		4	9.3
150	31	13,752	-49.5		8	12.0
125	31	14,946	-49.8		11	9.7
100	31	16,406	-49.9		348	8.5
80	30	17,863	-49.1		354	7.6
60	30	19,754	-48.5		5	6.8
50	30	20,955	-48.3		37	6.6
40	30	22,425	-48.0		45	8.0
30	27	24,333	-46.9		79	6.8
25	18	25,540	-46.3			

BISMARCK, N. DAK. (953 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	505	15.4	74	56	2.9
1,000	31	91				
950	31	534			72	3.7
900	31	995	19.8	50	207	4.5
850	31	1,487	18.4	43	248	7.8
800	31	2,004	15.6	41	267	8.7
750	31	2,542	12.0	40	273	11.1
700	31	3,121	7.8	41	272	15.2
650	31	3,725	3.1	45	267	20.0
600	31	4,371	- 1.7	47	265	25.1
550	31	5,050	- 6.7	48	268	29.0
500	31	5,797	-11.5	42	265	30.9
450	31	6,591	-16.6		263	34.0
400	31	7,473	-22.8		262	36.9
350	31	8,439	-29.9		261	41.8
300	31	9,519	-38.0		263	43.3
250	31	10,753	-46.3		264	48.6
200	[illegible]	12,211	-52.8		261	53.4
175	31	13,070	-54.9		255	47.4
150	31	14,049	-57.5			
125	31	15,196	-59.0			
100	30	16,600	-58.8			
80	30	18,007	-56.5			
60	30	19,849	-52.5			
50	30	21,031	-50.8			
40	30	22,491	-48.6			
30	29	24,395	-45.8			
25	25	25,607	-44.3			
20	6	27,088	-44.0			

BOISE, IDAHO (915 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	868	15.1	54	167	3.3
1,000	31	101				
950	31	542				
900	31	1,005	17.7	44	256	1.7
850	31	1,497	19.1	32	315	6.4
800	31	2,015	16.0	33	287	7.2
750	31	2,556	12.1	36	264	7.6
700	31	3,134	7.7	39	259	13.0
650	31	3,734	3.0	44	255	18.1
600	31	4,383	- 1.8	44	248	22.3
550	31	5,062	- 6.7	43	246	26.6
500	31	5,808	-11.8	38	250	27.6
450	31	6,603	-17.4		255	27.4
400	30	7,482	-23.2		255	31.7
350	30	8,446	-30.3		254	32.6
300	30	9,524	-38.7			
250	30	10,754	-47.1			
200	30	12,212	-52.2			
175	30	13,073	-54.2			
150	29	14,056	-56.9			
125	29	15,205	-58.9			
100	29	16,604	-59.5			
80	29	18,004	-58.0			
60	29	19,832	-54.6			
50	29	21,004	-52.9			
40	27	22,456	-50.8			
30	27	24,341	-48.1			
25	25	25,553	-46.3			
20	19	27,032	-44.4			
15	10	28,964	-41.1			
10						

BROWNSVILLE, TEX. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	25.0	89	154	2.3
1,000	31	115	25.6	86	165	7.4
950	31	565	23.5	82	173	15.3
900	31	1,038	21.3	71	171	14.4
850	31	1,533	18.8	64	164	12.6
800	31	2,052	16.0	60	153	8.9
750	31	2,591	12.9	58	136	6.0
700	31	3,175	9.5	58	121	5.2
650	31	3,780	6.0	57	112	5.4
600	31	4,439	2.3	54	104	6.0
550	31	5,127	- 1.7	48	91	6.8
500	31	5,890	- 6.4	42	84	8.0
450	31	6,701	-11.3	35	84	8.9
400	31	7,603	-17.1	36	75	8.4
350	31	8,591	-23.8	33	85	9.9
300	31	9,699	-31.9		90	10.1
250	31	10,961	-42.0		94	12.2
200	31	12,433	-54.0		86	15.0
175	31	13,277	-60.7		82	17.7
150	31	14,222	-67.0		76	17.5
125	31	15,307	-72.1		69	20.6
100	31	16,620	-71.6		77	20.6
80	30	17,953	-67.1		81	25.8
60	29	19,718	-60.7		82	30.9
50	29	20,861	-57.8		83	32.6
40	28	22,280	-54.2		84	34.6
30	27	24,141	-49.8		85	34.6
25	27	25,340	-47.6		85	33.8
20	26	26,825	-44.7		82	35.4
15	12	28,761	-42.4			

BUFFALO, N. Y. (994 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	182	20.8	83	218	2.7
1,000	31	126				
950	31	570	20.7	71	257	6.6
900	31	1,038	18.1	69	275	10.1
850	31	1,527	15.2	69	279	12.6
800	31	2,039	12.4	64	278	15.3
750	31	2,577	9.4	63	280	13.8
700	31	3,148	6.3	57	281	14.8
650	31	3,752	3.1	52	283	16.7
600	31	4,397	- .3	48	283	19.0
550	31	5,085	- 4.3	45	282	20.6
500	31	5,835	- 8.6	40	282	21.0
450	31	6,640	-13.7	37	284	22.7
400	31	7,530	-19.5	36	285	23.5
350	31	8,508	-26.8	36	286	25.8
300	30	9,603	-35.0		288	28.2
250	30	10,850	-44.2		293	32.3
200	30	12,319	-52.1		292	35.9
175	30	13,176	-55.9		290	34.6
150	30	14,148	-59.8		289	29.0
125	30	15,279	-62.5		291	20.8
100	30	16,659	-61.1		289	13.2
80	29	18,051	-58.6		307	7.4
60	28	19,879	-54.3		60	3.3
50	27	21,055	-51.9		79	5.6
40	25	22,508	-49.1		92	7.4
30	24	24,408	-46.7		91	9.9
25	23	25,619	-44.9		90	12.2
20	22	27,120	-42.6		92	14.0
15	18	29,096	-39.7		92	15.7
10	8	31,886	-36.0			

BURRWOOD, LA. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	3	27.3	83	158	1.0
1,000	31	136	26.8	80	173	1.2
950	31	590	23.8	80	189	1.4
900	31	1,061	20.8	78	156	3.3
850	31	1,554	18.0	73	153	4.3
800	31	2,072	15.2	69	144	4.7
750	31	2,613	12.3	63	141	4.3
700	31	3,194	9.2	60	135	3.1
650	31	3,802	5.8	58	107	3.3
600	31	4,457	2.0	59	89	3.1
550	31	5,150	- 2.1	59	73	2.5
500	30	5,907	- 6.5	55	60	3.7
450	30	6,722	-11.2	46	57	4.1
400	30	7,620	-17.0	44	47	5.1
350	29	8,608	-24.1	39	41	5.6
300	29	9,715	-32.7	38	27	6.2
250	29	10,973	-42.8		24	7.2
200	29	12,441	-54.6		22	7.6
175	29	13,285	-60.6		40	7.4
150	29	14,232	-66.0		52	14.0
125	28	15,325	-70.4		59	18.8
100	28	16,647	-70.3		78	16.3
80	27	17,986	-66.5		76	19.4
60	26	19,749	-60.6		79	26.2
50	26	20,892	-57.6		86	29.9
40	25	22,312	-54.1		92	31.1
30	21	24,163	-50.3		87	29.1
25	21	25,356	-48.2		82	27.0
20	18	26,829	-45.7		85	30.5
15	13	28,741	-42.9			

CAPE HATTERAS, N. C. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	23.8	89	260	1.6
1,000	31	140	24.5	84	273	3.1
950	31	585	22.3	75	284	3.1
900	31	1,059	19.5	72	295	3.7
850	31	1,550	16.7	67	291	4.3
800	31	2,064	13.8	67	295	4.7
750	31	2,601	10.9	58	288	6.0
700	31	3,180	7.8	52	284	6.0
650	31	3,784	4.8	47	280	5.8
600	31	4,437	1.3	45	269	5.4
550	31	5,127	- 2.6	41	268	5.2
500	31	5,884	- 6.9	37	290	4.7
450	31	6,694	-12.0	36	299	5.8
400	30	7,591	-17.9	36	296	5.8
350	30	8,576	-24.9	36	308	6.4
300	30	9,679	-33.1		342	6.6
250	30	10,936	-42.6		353	8.2
200	30	12,409	-53.5		354	13.0
175	30	13,258	-58.6		350	12.0
150	30	14,215	-63.8		349	10.3
125	30	15,323	-67.2		6	8.7
100	30	16,671	-65.8		37	7.0
80	30	18,036	-63.0		58	9.5
60	29	19,829	-57.8		79	16.5
50	28	20,988	-54.7		82	22.2
40	26	22,431	-51.7		85	25.6
30	25	24,313	-48.1		87	29.5
25	22	25,519	-45.8		84	30.1
20	18	27,016	-43.6		85	31.1
15	15	28,967	-40.8		84	33.8
10	7	31,758	-36.8			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

AUGUST 1959

CARIBOU, ME. (992 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	191	14.4	93	252	0.6
1,000	31	125				
950	31	560	14.0	80	266	2.7
900	31	1,016	12.3	77	290	5.8
850	31	1,494	10.1	73	296	8.0
800	31	1,997	8.1	64	293	10.5
750	31	2,528	5.8	62	290	13.8
700	31	3,090	2.9	58	290	16.3
650	31	3,688	.2	51	286	18.8
600	31	4,326	- 3.2	50	283	21.8
550	31	5,005	- 7.2	45	279	22.5
500	31	5,748	-11.5	40	281	24.1
450	31	6,546	-16.7	38	281	26.6
400	31	7,424	-22.6	39	283	31.9
350	31	8,391	-29.6	35	284	34.6
300	31	9,473	-37.7		283	40.0
250	31	10,706	-46.7		286	40.8
200	31	12,163	-52.6		286	46.4
175	30	13,028	-53.9		275	42.9
150	30	14,014	-55.9		279	35.0
125	29	15,174	-56.6		281	27.0
100	27	16,594	-55.5		284	16.7
80	26	18,020	-54.3		285	9.3
60	22	19,876	-51.5		18	2.7
50	22	21,066	-49.4		88	3.7
40	22	22,536	-47.4		91	5.6
30	16	24,447	-44.7		87	9.1
25	12	25,680	-43.0		97	12.0
20	9	27,187	-42.8			
15	6	29,126	-39.2			
10						

CHARLESTON, S. C. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	13	22.5	99	222	1.2
1,000	31	149	23.7	89	242	2.5
950	31	598	23.0	75	278	3.1
900	31	1,070	20.1	76	293	2.1
850	31	1,562	17.0	75	306	1.2
800	31	2,077	14.0	68	314	1.4
750	31	2,615	11.2	62	309	2.3
700	31	3,194	8.3	56	302	3.7
650	31	3,800	5.0	54	293	3.9
600	31	4,452	1.3	55	277	4.1
550	31	5,140	- 2.7	53	274	4.5
500	31	5,898	- 7.0	52	279	3.3
450	31	6,705	-11.9	47	300	1.4
400	31	7,605	-17.8	42	44	.8
350	31	8,591	-24.8	37	35	2.3
300	31	9,694	-33.0		39	4.1
250	31	10,952	-42.8		24	7.0
200	31	12,421	-53.8		20	7.6
175	30	13,267	-59.4		34	11.5
150	28	14,219	-64.9		42	12.4
125	28	15,320	-68.6		53	9.7
100	26	16,657	-67.6		63	12.8
80	26	18,011	-63.9		75	16.5
60	25	19,798	-59.1		81	23.3
50	24	20,950	-55.7		87	29.0
40	24	22,384	-51.9		89	29.7
30	18	24,265	-48.4		90	32.1
25	13	25,480	-46.2		89	34.0
20	12	26,967	-44.2		87	38.3
15	8	28,937	-41.5			
10						

COLD BAY, ALASKA (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	27	9.9	92	213	6.4
1,000	31	132	9.6	89	272	5.4
950	31	555	8.8	86	277	7.4
900	31	1,005	7.5	80	268	9.1
850	31	1,476	6.0	74	291	7.8
800	31	1,971	4.3	65	297	12.4
750	31	2,492	2.3	51	298	13.8
700	31	3,051	- .3	47	307	10.1
650	30	3,629	- 3.7	47	309	10.9
600	30	4,266	- 7.2	46	305	8.7
550	30	4,932	-11.1	42	306	8.4
500	30	5,665	-15.7	43	303	12.4
450	30	6,441	-21.0	42	318	7.0
400	30	7,312	-27.2	43	314	14.0
350	30	8,261	-34.1	46	316	15.0
300	29	9,324	-42.1		296	17.3
250	29	10,536	-50.2		300	15.0
200	27	11,975	-52.6		287	12.0
175	27	12,837	-52.8		288	15.9
150	27	13,831	-53.1		288	12.4
125	27	15,007	-53.0		296	12.8
100	27	16,445	-52.8		304	10.3
80	27	17,890	-51.7		310	8.5
60	25	19,762	-50.2		325	3.9
50	24	20,952	-49.6		24	4.9
40	24	22,416	-48.8		58	3.9
30	23	24,311	-47.3		70	5.4
25	22	25,517	-46.8		67	8.0
20	21	27,010	-45.2		84	12.8
15	19	28,938	-43.5		82	9.5
10	14	31,710	-40.2			

COLUMBIA, MO. (988 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	238	21.3	88	174	2.7
1,000	31	131				
950	31	580	23.5	73	233	10.7
900	31	1,051	21.2	71	249	12.2
850	31	1,545	18.5	66	248	9.5
800	31	2,063	15.7	61	247	7.8
750	31	2,604	12.7	57	243	7.4
700	31	3,185	9.1	52	240	6.0
650	31	3,791	5.2	52	233	5.8
600	31	4,445	1.2	50	253	6.2
550	31	5,131	- 2.8	41	256	8.0
500	31	5,889	- 7.2	35	255	9.5
450	31	6,698	-12.0		265	9.1
400	31	7,596	-17.8	32	266	9.7
350	31	8,581	-24.6		272	12.2
300	31	9,686	-32.6		287	11.9
250	31	10,946	-41.9		295	17.1
200	31	12,420	-52.8		296	23.3
175	31	13,272	-58.1		292	21.4
150	31	14,231	-63.2		296	15.2
125	31	15,341	-66.8		284	10.1
100	30	16,690	-66.1		282	5.2
80	30	18,051	-63.2		25	1.7
60	29	19,847	-57.1		79	10.3
50	29	21,009	-54.3		84	12.6
40	29	22,448	-51.5		93	15.9
30	28	24,327	-48.9		90	19.4
25	26	25,535	-46.3		87	23.5
20	18	27,046	-43.6		88	24.7
15	8	28,988	-40.4			
10						

DAYTON, OHIO (982 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	297	19.5	85	300	0.6
1,000	31	141				
950	31	586	21.8	75	278	4.9
900	31	1,056	19.5	71	269	8.2
850	31	1,547	16.8	68	275	8.7
800	31	2,062	14.0	62	278	10.1
750	31	2,600	11.0	57	280	11.7
700	31	3,178	7.8	50	281	11.9
650	31	3,780	4.7	47	279	12.2
600	31	4,435	.9	45	278	11.9
550	31	5,122	- 3.2	41	281	11.1
500	31	5,879	- 7.6		279	12.8
450	31	6,683	-12.3		277	15.0
400	31	7,583	-18.3		277	15.9
350	31	8,567	-25.4		280	17.1
300	31	9,668	-33.5		293	17.5
250	31	10,924	-43.0		297	21.8
200	31	12,396	-53.1		297	25.5
175	31	13,247	-57.9		298	23.5
150	31	14,209	-62.2		297	17.9
125	31	15,326	-65.6		301	12.2
100	31	16,683	-65.1		317	6.8
80	31	18,054	-61.6		12	4.5
60	31	19,859	-56.3		74	9.9
50	31	21,025	-53.6		83	12.2
40	31	22,471	-50.4		87	15.3
30	29	24,363	-47.1		88	18.5
25	27	25,574	-45.2		85	18.7
20	24	27,068	-43.2		83	21.6
15	19	29,021	-40.4		93	23.3
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DENVER, COLO. (839 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,611	15.2	65	237	3.9
1,000	30	96				
950	30	542				
900	30	1,011				
850	30	1,503				
800	30	2,024	19.9	44	281	4.3
750	30	2,577	17.0	41	297	4.9
700	30	3,162	12.9	43	276	5.4
650	30	3,779	7.9	50	268	6.0
600	30	4,434	2.7	56	255	7.4
550	30	5,123	- 2.6	58	252	9.9
500	30	5,881	- 7.4	53	258	12.2
450	30	6,687	-12.6	47	253	15.3
400	30	7,584	-18.3	42	254	20.2
350	30	8,567	-25.2	39	254	25.1
300	30	9,669	-33.6	36	256	30.5
250	30	10,924	-42.8		256	36.7
200	30	12,397	-53.1		261	42.0
175	30	13,247	-58.3		261	37.5
150	30	14,206	-63.1		260	29.5
125	29	15,320	-66.2		253	20.0
100	29	16,674	-65.6		246	12.2
80	27	18,046	-61.8		219	2.7
60	25	19,854	-56.0		93	8.2
50	25	21,020	-54.0		95	12.4
40	24	22,463	-51.3		98	14.4
30	20	24,350	-48.4		92	17.5
25	19	25,560	-46.8		90	20.4
20	17	27,054	-44.0		85	22.9
15	16	28,997	-41.5		88	26.0
10	9	31,760	-38.6			

DODGE CITY, KANS. (924 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	792	20.8	73	178	8.0
1,000	30	103				
950	30	552				
900	30	1,024	22.8	62	201	13.2
850	30	1,522	21.7	55	232	19.4
800	30	2,047	18.6	53	240	16.1
750	30	2,594	14.8	54	239	12.8
700	30	3,178	10.5	53	228	10.3
650	30	3,789	6.1	51	220	8.7
600	30	4,442	1.6	49	219	7.8
550	30	5,136	- 2.7	47	240	4.5
500	30	5,889	- 7.1	41	260	7.8
450	30	6,698	-12.2	40	266	7.6
400	30	7,595	-18.2	38	268	11.1
350	30	8,578	-25.3	36	279	13.8
300	30	9,679	-33.6	35	284	16.5
250	30	10,933	-43.1		287	23.7
200	30	12,402	-54.2		275	22.3
175	30	13,247	-59.9		277	26.2
150	30	14,198	-64.8		278	23.9
125	30	15,300	-68.4		279	15.5
100	29	16,640	-67.2		258	9.1
80	28	18,001	-63.2		117	3.9
60	27	19,798	-57.2		90	12.6
50	26	20,959	-54.5		99	17.9
40	25	22,401	-51.6		96	17.9
30	22	24,277	-49.0		91	23.9
25	20	25,480	-46.9		90	23.5
20	11	26,955	-44.9			
15	5	28,890	-42.6			
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EL PASO, TEX. (882 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,197	22.4	69	33	1.0
1,000	31	82				
950	31	533				
900	31	1,016				
850	31	1,516	21.7	60	304	1.9
800	31	2,041	19.3	57	189	2.3
750	31	2,587	15.4	61	174	3.5
700	31	3,176	11.2	65	169	4.3
650	31	3,783	6.7	68	149	4.7
600	31	4,443	2.5	65	142	4.9
550	31	5,135	- 1.9	61	138	6.0
500	31	5,894	- 6.3	57	142	5.8
450	31	6,709	-11.3	50	151	6.0
400	31	7,606	-17.1	45	173	5.2
350	31	8,594	-24.1	42	178	2.5
300	31	9,701	-32.3	37	185	2.5
250	31	10,962	-42.2		268	2.1
200	31	12,432	-54.3		299	1.4
175	31	13,276	-60.9		253	2.3
150	31	14,221	-67.2		136	1.0
125	28	15,311	-71.3		127	2.3
100	23	16,628	-70.8		86	9.1
80	19	17,968	-66.4		98	12.0
60	18	19,733	-60.9		91	18.8
50	18	20,878	-57.1		95	25.1
40	18	22,303	-53.4		94	25.6
30	17	24,164	-49.9		92	27.0
25	17	25,363	-47.6		88	29.9
20	16	26,847	-45.0		84	29.9
15	15	28,776	-42.1		84	33.8
10	5	31,532	-39.5			

ELY, NEV. (811 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,908	10.7	56	190	8.9
1,000	31	117				
950	31	559				
900	31	1,025				
850	31	1,510				
800	31	2,021	16.2	41	181	7.8
750	31	2,571	15.6	35	185	8.0
700	31	3,151	11.6	35	217	11.3
650	31	3,764	6.8	38	227	11.5
600	31	4,418	1.6	41	225	12.4
550	31	5,105	- 3.9	45	229	14.6
500	31	5,857	- 9.3	46	248	16.5
450	31	6,659	-14.4	30	253	19.0
400	31	7,548	-20.6		246	19.6
350	31	8,522	-27.5		245	25.1
300	31	9,614	-35.3		241	32.1
250	31	10,861	-44.2		237	35.4
200	31	12,330	-52.5		243	39.8
175	30	13,189	-56.6		255	40.6
150	30	14,156	-61.2			
125	29	15,279	-63.8			
100	29	16,647	-63.5			
80	29	18,021	-61.2			
60	29	19,829	-56.4			
50	29	20,991	-53.9			
40	29	22,430	-52.1			
30	28	24,305	-49.2			
25	27	25,505	-47.4			
20	25	26,987	-45.3			
15	17	28,941	-41.9			
10	7	31,717	-36.5			

FAIRBANKS, ALASKA (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	135	8.3	89	353	1.9
1,000	31	103				
950	31	530	10.6	66		.0
900	31	979	8.0	64	270	2.3
850	31	1,448	4.7	66	273	4.1
800	31	1,940	1.3	68	277	5.1
750	31	2,455	- 1.7	66	269	4.7
700	31	3,003	- 4.9	65	258	4.5
650	31	3,581	- 8.1	61	288	4.5
600	31	4,201	-11.7	56	308	4.5
550	31	4,860	-15.8	50	324	5.2
500	31	5,576	-20.5	50	313	8.0
450	31	6,341	-25.9	51	326	9.1
400	31	7,192	-32.2	50	349	9.5
350	31	8,121	-39.2		349	10.1
300	31	9,160	-47.1		359	9.9
250	31	10,347	-53.9		324	6.6
200	31	11,787	-50.1		321	8.7
175	31	12,663	-48.6		316	11.9
150	31	13,679	-48.4		326	10.7
125	31	14,879	-48.4		308	7.4
100	31	16,348	-48.4		323	6.2
80	31	17,820	-47.7		327	5.4
60	29	19,719	-47.3		342	3.9
50	29	20,925	-47.2		33	3.5
40	24	22,412	-46.5		60	5.1
30	22	24,343	-45.0		80	5.6
25	18	25,590	-43.4		86	5.8
20	15	27,106	-41.1		91	6.6
15	14	29,057	-39.0		102	7.6
10	10	31,910	-34.9			

FLINT, MICH. (988 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	234	19.3	91	216	2.1
1,000	31	133				
950	31	577	20.1	79	266	6.6
900	31	1,043	18.1	74	281	10.5
850	31	1,532	15.8	67	284	11.9
800	31	2,045	13.2	62	285	11.9
750	31	2,583	10.1	57	283	13.6
700	31	3,156	6.9	51	281	15.5
650	31	3,760	3.6	46	283	16.5
600	31	4,408	- .1	47	282	17.1
550	31	5,094	- 3.9	41	282	19.2
500	31	5,847	- 8.3	37	282	20.6
450	31	6,651	-13.1		287	21.8
400	31	7,546	-19.0		289	23.5
350	31	8,526	-26.2		290	27.2
300	31	9,624	-34.1		295	29.9
250	31	10,875	-43.6		294	36.3
200	31	12,345	-52.3		292	37.9
175	31	13,200	-56.8		292	37.1
150	31	14,168	-60.8		290	28.8
125	31	15,295	-62.8		292	23.7
100	31	16,670	-62.4		288	14.2
80	31	18,056	-59.5		305	6.0
60	31	19,880	-54.3		59	5.1
50	29	21,053	-52.0		75	9.1
40	29	22,507	-49.7		82	10.3
30	29	24,404	-46.6		83	13.6
25	27	25,615	-44.9		82	14.4
20	24	27,112	-42.6		88	15.7
15	18	29,063	-40.0		87	17.1
10	15	31,844	-36.0		83	19.4
7	7	34,350	-34.0			

FORT WORTH, TEX. (994 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	180	24.0	82	177	3.5
1,000	31	125				
950	31	576	23.6	73	199	13.8
900	31	1,049	21.4	70	200	12.0
850	31	1,543	18.8	66	189	6.6
800	31	2,062	15.9	61	164	4.7
750	31	2,605	12.8	56	146	3.9
700	31	3,186	9.4	53	149	2.9
650	31	3,791	6.0	51	141	1.9
600	31	4,450	2.5	45	105	1.9
550	31	5,145	- 1.3	39	104	1.2
500	31	5,903	- 5.7	33	64	2.3
450	31	6,717	-10.8	33	56	2.7
400	31	7,618	-16.9	29	57	2.3
350	31	8,608	-23.6		8	2.9
300	31	9,717	-31.9		12	4.3
250	31	10,980	-41.7		344	6.2
200	31	12,456	-53.2		334	7.4
175	31	13,305	-59.2		345	6.4
150	31	14,257	-65.4		10	5.6
125	31	15,354	-69.7		57	4.5
100	29	16,677	-69.7		87	9.9
80	29	18,020	-65.5		82	14.2
60	28	19,796	-59.3		89	20.8
50	25	20,948	-55.8		92	25.3
40	23	22,377	-53.4		93	27.2
30	23	24,241	-50.0		88	32.8
25	23	25,441	-46.9		89	35.6
20	19	26,927	-44.1		89	37.7
15	16	28,870	-41.3		90	35.6
10	7	31,629	-38.5			
7						

GLASGOW, MONT. (932 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	696	14.3	56	54	1.9
1,000	31	90				
950	31	533				
900	31	991	18.0	44	248	.6
850	31	1,479	16.8	40	277	5.8
800	31	1,993	13.5	38	268	9.5
750	31	2,529	9.5	39	265	13.0
700	31	3,100	5.5	45	259	17.9
650	31	3,695	.8	48	258	22.5
600	31	4,338	- 3.9	48	258	28.4
550	31	5,011	- 8.5	45	255	29.1
500	31	5,753	-13.1	37	254	30.3
450	31	6,540	-18.5	33	252	30.3
400	31	7,416	-24.8		250	32.1
350	31	8,372	-32.2		256	36.5
300	31	9,442	-40.2		255	43.3
250	31	10,663	-48.4		256	42.6
200	31	12,112	-53.1			
175	31	12,973	-53.7			
150	31	13,959	-55.5			
125	31	15,117	-56.6			
100	31	16,535	-56.0			
80	31	17,957	-55.0			
60	31	19,808	-52.1			
50	31	20,993	-50.4			
40	30	22,451	-48.8			
30	30	24,351	-46.3			
25	29	25,574	-44.4			
20	26	27,070	-43.1			
15	14	29,050	-39.9			
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7						

GRAND JUNCTION, COLO. (853 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,474	18.6	51	117	8.9
1,000	31	80				
950	31	527				
900	31	1,005				
850	31	1,504	19.0	50	119	8.5
800	31	2,028	19.1	44	156	7.8
750	31	2,578	15.9	45	215	5.1
700	31	3,163	11.6	47	246	7.4
650	31	3,774	6.7	53	248	9.3
600	31	4,431	1.4	60	246	10.7
550	31	5,118	- 3.5	56	239	13.0
500	31	5,874	- 8.4	50	244	14.2
450	31	6,684	-13.0	37	249	18.8
400	31	7,574	-19.1	38	250	22.7
350	31	8,554	-26.0	38	256	27.6
300	31	9,652	-34.3	36	248	31.3
250	31	10,902	-43.7		252	40.0
200	31	12,370	-53.6		250	38.7
175	31	13,219	-58.8		255	37.5
150	31	14,176	-63.4		263	28.8
125	30	15,287	-67.0		234	16.3
100	30	16,636	-66.1		241	10.7
80	30	17,999	-62.4			
60	29	19,800	-56.8			
50	29	20,961	-54.6			
40	27	22,394	-52.1			
30	25	24,269	-49.2			
25	22	25,476	-47.3			
20	19	26,955	-45.2			
15	10	28,886	-41.8			
10						
7						

GREAT FALLS, MONT. (887 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,123	13.9	51	237	5.8
1,000	31	89				
950	31	531				
900	31	997				
850	31	1,481	15.1	43	248	14.6
800	31	1,992	12.3	43	254	12.8
750	31	2,526	8.8	46	257	15.3
700	31	3,098	4.9	46	254	19.8
650	31	3,694	.8	45	252	25.6
600	31	4,337	- 3.5	43	254	27.8
550	31	5,009	- 8.1	41	251	30.5
500	31	5,753	-13.3	40	253	32.1
450	31	6,536	-18.9	40	252	34.2
400	31	7,415	-25.4	42	253	38.1
350	31	8,371	-32.3		255	43.3
300	31	9,441	-40.4		256	50.1
250	31	10,663	-48.5		252	57.5
200	31	12,114	-52.9		252	59.8
175	31	12,976	-53.2		253	60.4
150	31	13,967	-54.5		252	46.4
125	29	15,126	-56.3		251	39.2
100	29	16,543	-56.3		254	28.0
80	29	17,964	-55.4		255	17.3
60	28	19,806	-52.8		248	5.2
50	28	20,986	-51.3		166	1.2
40	27	22,434	-50.2		101	2.5
30	25	24,320	-48.0		97	5.4
25	22	25,523	-46.1		96	6.0
20	22	27,013	-44.1		82	6.6
15	19	28,942	-41.6		79	8.5
10	7	31,674	-39.1			
7						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

AUGUST 1959

GREEN BAY, WIS. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	210	18.3	95	297	2.1
1,000	31	115				
950	31	556	18.2	80	260	3.9
900	31	1,020	16.9	70	258	6.8
850	31	1,507	14.9	66	264	9.7
800	31	2,018	12.0	61	269	11.9
750	31	2,551	8.8	57	277	13.4
700	31	3,124	5.2	54	278	15.5
650	28	3,725	1.9	44	277	18.7
600	28	4,371	-1.6	36	272	20.0
550	28	5,052	-5.4		273	21.0
500	28	5,802	-10.2		271	21.0
450	28	6,605	-15.5		269	25.1
400	28	7,487	-21.2		270	25.6
350	28	8,459	-28.1		278	27.2
300	28	9,548	-36.2		274	30.5
250	28	10,788	-45.5		275	40.2
200	28	12,245	-54.1		275	38.9
175	27	13,097	-57.4		273	34.0
150	27	14,063	-60.7		269	30.7
125	27	15,192	-62.6		272	19.6
100	27	16,569	-62.0		287	13.8
80	27	17,956	-59.1		295	4.7
60	27	19,779	-54.7		8	3.7
50	27	20,950	-52.5		59	9.9
40	27	22,399	-50.5		83	11.9
30	25	24,291	-48.1		81	14.6
25	24	25,499	-46.3		93	16.9
20	21	26,986	-44.0		92	16.9
15	13	28,951	-40.3			
10	7	31,714	-36.7			

GREENSBORO, N. C. (986 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	273	21.0	94	281	1.4
1,000	31	151				
950	31	599	22.6	75	305	3.5
900	31	1,069	20.3	70	314	3.9
850	31	1,561	17.3	71	313	3.7
800	31	2,077	14.1	72	298	3.7
750	31	2,617	11.0	67	304	5.1
700	31	3,194	8.1	58	314	5.8
650	30	3,799	4.8	53	310	6.0
600	30	4,452	1.5	44	304	6.6
550	30	[illegible]	-2.4	39	294	5.4
500	30	[illegible]	-6.7		287	4.9
450	30	6,706	-12.0	36	291	5.2
400	30	7,607	-18.2		304	5.4
350	30	8,590	-25.2		306	5.2
300	30	9,691	-33.7		315	6.4
250	[illegible]	10,944	-43.2		311	8.9
200	[illegible]	12,412	-53.7		318	12.2
175	30	13,260	-59.2		319	13.2
150	30	14,214	-64.0		331	10.1
125	30	15,320	-67.8		339	7.4
100	30	16,662	-66.8		15	5.2
80	30	18,023	-63.1		67	9.9
60	29	19,816	-57.7		82	15.3
50	29	20,974	-55.2		84	20.0
40	28	22,409	-52.6		86	23.7
30	26	24,281	-49.5		90	26.0
25	22	25,481	-47.7		89	25.6
20	[illegible]	26,956	-45.7		89	29.9
15	8	28,882	-44.0			
10						

HILO, T. H. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31		22.5	88	241	3.3
1,000	31	126	23.1	81	273	1.7
950	[illegible]	574	20.4	83	68	5.8
900	31	1,039	17.3	85	73	8.0
850	31	1,526	14.8	83	73	7.4
800	31	2,038	12.7	75	85	7.6
750	31	2,581	10.6	56	99	8.4
700	31	3,151	8.0	40	108	6.8
650	31	3,757	5.3	32	111	6.0
600	31	4,409	1.8	31	[illegible]	5.1
550	31	5,101	-1.7		108	3.1
500	31	5,859	-5.8			.0
450	31	6,673	-10.8		177	1.2
400	[illegible]	7,572	-17.2		236	4.7
350	31	8,560	-24.2		251	7.4
300	31	9,665	-32.9		[illegible]	10.7
250	[illegible]	10,922	-42.9		271	14.2
200	31	12,389	-54.5		264	15.7
175	31	13,232	-60.9		249	16.1
150	31	14,175	-67.6		241	14.6
125	31	15,255	-73.4		226	4.7
100	31	16,561	-72.5		88	11.5
80	31	17,884	-68.4		88	25.8
60	31	19,631	-62.9		86	32.6
50	31	20,762	-59.7		88	34.4
40	31	22,168	-56.2		87	33.6
30	26	24,011	-52.2		86	33.0
25	19	25,192	-50.3		93	33.2
20						
15						
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INTERNAT. FALLS, MINN. (970 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE		360	14.5	89	189	1.0
1,000	31	98				
950	31	536	16.7	79	199	3.9
900	31	996	15.7	68	241	8.9
850	31	1,480	13.6	60	256	12.2
800	31	1,989	11.5	50	265	14.0
750	31	2,522	8.8	[illegible]	268	15.2
700	31	3,094	5.2	[illegible]	274	17.3
650	30	3,692	1.2	40	270	20.8
600	30	4,337	-2.7		[illegible]	24.1
550	30	5,015	-6.6		271	26.8
500	30	5,761	-11.3		[illegible]	[illegible]
450	30	6,555	-16.7		[illegible]	32.4
400	30	7,437	-22.7	32	268	36.3
350	30	8,403	-29.7		267	42.0
300	30	9,485	-37.6		265	49.5
250	30	10,718	-46.6		[illegible]	54.8
200	30	12,176	-52.9		263	62.8
175	30	13,035	-54.0		265	59.5
150	30	14,020	-56.4		266	53.0
125	30	15,174	-57.5		263	43.5
100	29	16,586	-57.1		264	30.5
80	29	18,002	-55.9		[illegible]	[illegible]
60	28	[illegible]	-52.5		277	7.2
50	27	21,032	-51.0		291	1.9
40	27	22,489	-49.1		81	2.1
30	24	24,385	-46.8		81	4.9
25	21	25,594	-45.4		80	5.8
20	18	27,088	-43.4		[illegible]	3.7
15	10	29,023	-41.4			
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JACKSON, MISS. (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	101	22.3	94	146	0.6
1,000	31	142	22.8	91	133	1.2
950	31	591	23.2	77	207	4.5
900	[illegible]	1,063	20.6	76	198	5.1
850	31	1,556	17.5	77	201	4.9
800	31	2,073	14.6	73	199	4.3
750	[illegible]	2,615	11.9	64	187	3.3
700	31	3,192	8.8	58	179	2.9
650	31	3,798	5.2	58	178	1.7
600	31	4,451	1.6	54	174	2.1
550	31	5,144	-2.0	47	202	1.0
500	31	5,900	-6.1	40	47	.8
450	[illegible]	6,713	-11.0	38	23	2.7
400	31	7,613	-16.8	33	[illegible]	3.7
350	31	8,602	-23.8	33	27	4.3
300	31	9,709	-32.4	32	8	4.3
250	31	10,969	-42.1		17	3.7
200	[illegible]	12,441	-53.5		358	4.5
175	31	13,290	-59.1		17	7.2
150	31	14,244	-64.7		34	8.7
125	31	15,344	-69.2		46	11.5
100	31	16,674	-69.2		70	13.6
80	31	18,017	-65.4		78	15.9
60	[illegible]	19,794	-59.0		83	22.5
50	30	20,946	-55.7		89	27.0
40	27	22,375	-52.7		92	28.8
30	26	24,250	-48.9		90	29.1
25	24	25,451	-47.1		85	33.4
20	18	26,938	-44.7		87	36.5
15	9	28,890	-40.7			
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JACKSONVILLE, FLA. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	23.2	96	282	0.6
1,000	31	155	24.2	88	219	1.7
950	31	599	22.7	79	208	2.9
900	31	1,075	20.1	73	167	2.3
850	31	1,567	17.3	70	124	2.7
800	31	2,084	14.4	67	118	2.7
750	31	2,619	11.4	62	99	3.1
700	31	3,201	8.1	61	107	1.9
650	31	3,802	4.9	57	124	1.7
600	31	4,459	1.3	55	155	1.0
550	31	5,146	-2.5	53	207	.8
500	31	5,907	-6.9	55	[illegible]	1.6
450	31	6,715	-11.9	52	62	1.4
400	31	7,615	-17.5	45	39	2.9
350	31	8,602	-24.4	39	49	4.1
300	31	9,707	-32.8	37	45	6.4
250	31	10,965	-42.5		45	10.5
200	31	12,437	-53.5		34	[illegible]
175	31	13,285	-59.4		31	15.2
150	30	14,240	-64.7		41	17.3
125	30	15,341	-69.1		53	16.1
100	30	16,674	-69.1		72	16.9
80	29	18,020	-65.5		76	19.2
60	26	19,793	-60.1		79	29.3
50	25	20,939	-57.1		85	35.6
40	25	22,361	-53.5		93	36.1
30	22	24,221	-49.6		93	37.1
25	21	25,417	-48.2		88	36.5
20	20	26,896	-45.8		82	36.1
15	19	28,817	-43.7		81	40.2
10	5	31,485	-40.1			

KING SALMON, ALASKA (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	9.6	95	208	5.2
1,000	31	110	9.7	92	224	9.7
950	31	539	8.9	84	236	10.5
900	31	984	7.5	79	249	8.5
850	31	1,453	5.1	77	247	6.6
800	31	1,946	2.4	75	246	8.5
750	31	2,464	-.2	71	248	9.5
700	31	3,016	-2.8	65	263	10.1
650	31	3,596	-5.7	58	270	11.9
600	31	4,225	-9.1	51	270	13.6
550	31	4,888	-13.2	48	271	16.9
500	31	5,615	-17.8	43	272	16.5
450	31	6,387	-23.1	41	274	20.6
400	31	7,249	-29.1	38	275	25.3
350	31	8,190	-36.1		275	28.0
300	31	9,243	-43.8		279	32.6
250	31	10,447	-50.8		[illegible]	34.0
200	30	11,885	-51.0		273	31.1
175	29	12,757	-51.0		273	29.5
150	29	13,759	-51.3		277	21.0
125	29	14,945	-51.1		276	18.8
100	28	16,394	-51.1		280	13.8
80	28	17,849	-50.2		292	10.3
60	27	19,729	-49.3		299	4.1
50	26	20,926	-49.1		329	2.7
40	24	22,398	-48.3		10	3.5
30	22	24,307	-46.9		78	2.7
25	19	25,507	-46.0		96	3.1
20	17	27,011	-44.6		87	5.4
15	[illegible]	28,954	-42.0			
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KOTZEBUE, ALASKA (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	10.0	88	269	2.1
1,000	31	96	10.5	81	267	1.0
950	31	520	9.3	73	183	2.3
900	31	970	6.9	71	195	3.1
850	31	1,438	4.3	67	203	2.9
800	31	1,930	1.9	65	201	3.7
750	31	2,449	-.8	61	185	3.9
700	31	2,997	-3.9	57	184	2.7
650	31	3,575	-7.3	52	186	.8
600	31	4,199	-11.2	50	168	1.2
550	31	4,858	-15.4	47	172	3.5
500	31	5,577	-20.1	43	162	3.9
450	31	6,346	-25.5	41	210	2.7
400	31	7,195	-31.7	40	236	7.4
350	31	8,126	-38.6		230	13.6
300	31	9,168	-46.2		225	14.4
250	31	10,362	-52.3		227	12.4
200	31	11,808	-49.9		250	12.8
175	31	12,685	-48.2		241	12.2
150	31	13,702	-47.9		243	9.5
125	31	14,905	-47.8		276	7.2
100	31	16,378	-47.7		264	6.6
80	31	17,856	-47.3		268	7.8
60	30	19,764	-47.2			
50	30	20,974	-47.0			
40	27	22,456	-46.7			
30	25	24,379	-45.9			
25	19	25,615	-44.6			
20	10	27,161	-42.7			
15						
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LAKE CHARLES, LA. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	[illegible]	23.6	91	45	2.9
1,000	31	136	24.7	86	89	2.7
950	31	585	23.4	80	178	4.7
900	31	1,060	20.8	77	181	5.8
850	31	1,553	17.7	74	181	6.4
800	31	2,071	14.9	69	179	6.0
750	31	2,609	12.1	61	163	5.1
700	31	3,191	8.9	57	141	4.9
650	30	3,795	5.4	53	139	5.2
600	30	4,453	1.5	55	140	4.7
550	30	5,141	-2.2	53	117	2.9
500	30	5,903	-6.4	45	87	3.9
450	30	6,712	-11.4	43	59	4.1
400	30	7,616	-17.3	38	64	3.9
350	30	8,603	-24.2		61	3.5
300	30	9,709	-32.5		37	
250	30	10,969	-42.3		355	
200	30	12,440	-54.1		339	6.6
175	30	13,285	-60.3		4	7.8
150	30	14,233	-66.4		28	7.6
125	28	15,328	-70.4		71	12.0
100	28	16,650	-70.5		79	18.3
80	27	17,988	-66.1		87	19.4
60	27	19,758	-59.8		82	24.9
50	26	20,907	-56.5		90	26.4
40	26	22,333	-53.2		95	28.4
30	24	24,197	-49.3		94	31.9
25	21	25,401	-46.3		90	35.6
20	11	26,898	-45.0			
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LANDER, WYO. (830 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,696	15.7	44	243	4.5
1,000	31	80				
950	31	523				
900	31	997				
850	31	1,492				
800	31	2,011	17.9	34	257	3.1
750	31	2,555	14.8	34	260	5.8
700	31	3,139	10.5	37	257	10.7
650	31	3,744	5.7	40	264	15.3
600	31	4,401	.3	44	263	21.4
550	31	5,081	-4.8	38	260	22.9
500	31	5,835	-10.1	35	258	25.1
450	31	6,630	-15.6	36	258	27.6
400	31	7,519	-22.0	35	257	33.2
350	31	8,488	-28.8	35	255	38.1
300	[illegible]	9,573	-36.7		259	46.4
250	[illegible]	10,812	-45.3		261	52.5
200	[illegible]	12,276	-52.6		262	52.3
175	30	13,130	-56.3			
150	30	14,101	-59.7			
125	30	15,234	-62.1			
100	30	16,611	-61.9			
80	29	18,000	-58.9			
60	28	19,822	-54.6			
50	28	20,993	-52.6			
40	28	22,438	-51.2			
30	25	24,315	-48.0			
25	22	25,525	-46.3			
20	18	27,018	-43.7			
15	14	28,957	-41.2			
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LAS VEGAS, NEV. (935 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	660	25.1	33	212	5.2
1,000	31	65				
950	31	517				
900	31	1,001	27.3	31	215	7.0
850	31	1,504	24.5	32	216	8.0
800	31	2,031	20.4	37	211	9.3
750	31	2,582	15.9	40	200	9.9
700	31	3,165	11.3	43	191	9.3
650	31	3,774	6.8	43	181	8.4
600	31	4,431	2.3	37	194	9.1
550	31	5,121	-2.3		209	8.7
500	31	5,879	-7.1		229	12.8
450	31	6,686	-12.2		242	16.7
400	31	7,583	-18.7		240	19.2
350	31	8,565	-25.7		242	22.9
300	31	9,665	-33.6		235	28.2
250	31	10,919	-42.9		234	33.4
200	30	12,392	-53.0		233	38.5
175	30	13,243	-58.1		233	37.1
150	29	14,201	-63.2		235	30.9
125	29	15,311	-67.0		243	19.2
100	29	16,656	-66.9		225	8.4
80	29	18,013	-63.8		120	4.1
60	28	19,795	-58.8		93	12.4
50	26	20,946	-56.5		91	16.1
40	25	22,367	-54.2		91	19.2
30	24	24,219	-52.0		91	23.7
25	24	25,403	-50.5		93	26.6
20	22	26,865	-48.8		90	27.8
15	14	28,754	-46.9		90	30.3
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LITTLE ROCK, ARK. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	79	22.6	92	198	1.6
1,000	31	142	22.8	88	206	2.1
950	31	589	22.6	78	216	4.5
900	31	1,061	20.0	76	210	4.5
850	31	1,552	17.0	74	206	3.3
800	31	2,068	14.2	68	206	2.1
750	31	2,607	11.4	61	205	2.1
700	31	3,185	8.2	58	196	1.6
650	31	3,788	4.8	54	170	2.5
600	31	4,443	1.1	52	200	4.1
550	31	5,127	-2.7	51	214	2.9
500	31	5,889	-6.7	47	251	.8
450	31	6,698	-11.6	39		.0
400	31	7,599	-17.4	34	355	1.4
350	31	8,586	-24.6	33	356	1.4
300	31	9,690	-33.0		314	5.2
250	31	10,948	-42.7		326	6.4
200	29	12,421	-53.7		338	8.9
175	28	13,266	-59.6		325	8.0
150	28	14,218	-65.5		331	10.3
125	28	15,315	-69.7		357	9.5
100	27	16,644	-69.1		44	7.8
80	27	17,989	-65.0		73	10.7
60	25	19,773	-58.3		82	16.1
50	25	20,929	-55.2		93	20.2
40	24	22,361	-52.1		90	23.3
30	21	24,226	-49.3		85	25.5
25	18	25,423	-46.7		81	28.6
20	8	26,901	-44.9			
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McGRATH, ALASKA (999 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	103	9.4	85	220	1.4
1,000	31	98			269	1.4
950	31	523	10.0	69	99	.8
900	31	974	7.2	70	204	1.4
850	31	1,441	3.9	74	219	3.5
800	31	1,932	1.3	71	224	5.2
750	31	2,444	-1.6	71	226	5.2
700	31	2,995	-4.7	65	250	4.9
650	31	3,567	-8.0	57	253	4.1
600	31	4,193	-11.5	51	271	5.2
550	31	4,848	-15.3	45	247	2.1
500	30	5,566	-20.1	42	258	1.9
450	30	6,329	-25.6	41	251	3.3
400	30	7,182	-31.8	40	278	4.7
350	30	8,113	-38.5		330	5.6
300	30	9,156	-46.2		313	6.8
250	30	10,348	-52.3		325	11.3
200	29	11,799	-51.3		316	15.9
175	29	12,671	-49.4		306	10.7
150	29	13,682	-49.3		298	9.7
125	29	14,877	-49.7		311	9.9
100	28	16,335	-49.4		310	7.4
80	28	17,801	-49.0		323	5.2
60	27	19,693	-48.3		354	4.3
50	27	20,896	-48.1		347	4.1
40	27	22,370	-47.9		24	3.9
30	27	24,274	-46.8		58	5.8
25	24	25,503	-45.8		55	6.4
20	20	27,005	-44.1		68	7.8
15	17	28,956	-42.4		98	8.9
10	5	31,644	-42.1			

MEDFORD, OREG. (969 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	401	13.3	70	203	0.6
1,000	31	134				
950	31	575	16.6	57	286	2.3
900	31	1,030	15.9	54	294	2.1
850	31	1,514	14.1	53	344	1.2
800	31	2,025	12.5	40	305	2.1
750	31	2,561	10.2	31	261	6.0
700	31	3,134	6.8	33	250	10.1
650	31	3,734	3.0	28	254	12.8
600	31	4,382	-1.3	28	258	13.6
550	31	5,061	-5.7		262	15.7
500	31	5,811	-10.7		262	19.6
450	31	6,605	-16.5		267	19.8
400	31	7,488	-23.1		269	18.3
350	31	8,453	-30.3		263	18.8
300	31	9,531	-38.8		261	21.6
250	31	10,759	-47.7		275	24.5
200	31	12,214	-53.0		263	28.0
175	31	13,073	-54.5		258	27.0
150	31	14,054	-57.4		249	29.0
125	31	15,201	-59.4		253	24.5
100	31	16,598	-59.5		243	14.4
80	31	18,000	-58.1		256	10.5
60	31	19,826	-55.1		100	3.3
50	31	20,996	-53.4		79	10.1
40	31	22,438	-51.7		81	11.7
30	31	24,315	-49.5		87	14.4
25	30	25,519	-48.1		86	17.1
20	26	26,996	-46.3		85	19.2
15	11	28,888	-45.3			
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MIAMI, FLA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	24.7	89	104	1.6
1,000	31	144	26.1	77	113	4.3
950	31	595	23.2	78	124	8.0
900	31	1,067	20.2	76	125	8.0
850	31	1,559	17.0	75	124	6.2
800	31	2,075	14.2	69	124	4.5
750	31	2,613	11.5	65	127	4.9
700	31	3,194	8.2	64	127	4.1
650	31	3,800	4.8	59	115	4.1
600	31	4,452	1.2	58	120	4.3
550	31	5,137	-2.7	54	121	3.9
500	31	5,899	-6.8	46	97	3.7
450	31	6,707	-12.1	41	76	3.9
400	31	7,606	-18.3	38	63	6.0
350	31	8,589	-25.2	37	41	8.4
300	31	9,689	-33.7	35	48	12.0
250	31	10,941	-43.8		42	16.1
200	30	12,403	-55.2		41	22.0
175	30	13,244	-60.7		46	25.3
150	30	14,192	-65.7		49	22.7
125	29	15,288	-69.7		63	20.6
100	28	16,615	-69.4		70	20.4
80	27	17,954	-66.6		70	24.1
60	26	19,718	-60.6		82	35.8
50	25	20,860	-57.6		90	37.5
40	25	22,280	-54.0		90	38.9
30	24	24,145	-49.4		91	34.4
25	20	25,342	-47.2		87	34.4
20	13	26,818	-44.2			
15	5	28,758	-41.7			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

AUGUST 1959

MIDLAND, TEX. (916 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	871	21.3	75	127	3.5
1,000	31	103				
950	31	557				
900	31	1,026	22.3	70	155	7.6
850	31	1,523	20.7	67	188	15.5
800	31	2,047	18.1	62	186	7.2
750	31	2,593	14.5	60	127	2.7
700	31	3,178	10.9	54	96	4.1
650	31	3,789	7.1	48	91	4.1
600	31	4,447	2.7	47	94	2.9
550	31	5,136	-1.7	43	106	2.7
500	31	5,899	-6.2	37	133	2.7
450	31	6,709	-11.3	32	102	2.1
400	31	7,610	-17.1		73	3.3
350	31	8,599	-23.9		49	3.9
300	31	9,706	-32.3		32	5.8
250	31	[illegible]	-42.6		10	5.6
200	31	12,435	-54.3		24	5.2
175	31	13,278	-60.9		13	3.3
150	31	14,223	-67.1		70	3.9
125	30	15,313	-71.1		91	5.8
100	29	16,635	-70.0		92	13.8
80	[illegible]	17,978	-65.8		[illegible]	[illegible]
60	[illegible]	19,750	-59.8		[illegible]	22.2
50	26	20,902	-56.4		[illegible]	26.6
40	26	22,329	-53.4		94	29.5
30	23	24,199	-49.1		89	31.3
25	21	25,402	-47.0		86	33.8
20	14	26,875	-46.1			
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MONTGOMERY, ALA. (1010 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	22.3	93	[illegible]	0.6
1,000	31	144	23.0	88	93	.8
950	31	590	23.7	74	213	.6
900	31	1,065	20.9	72	179	1.0
850	31	1,558	17.6	73	186	1.7
800	31	2,075	14.5	70	183	1.4
750	31	2,613	11.6	62	165	2.3
700	31	3,192	8.2	59	162	2.3
650	31	3,795	4.8	56	190	1.7
600	31	4,451	1.2	55	153	.6
550	31	5,141	-2.6	55	55	1.4
500	31	5,897	-6.8	50	21	1.7
450	31	6,704	-11.4	45	14	3.1
400	31	7,607	-17.2	41	28	3.5
350	31	8,595	-24.0	34	27	4.7
300	31	9,703	-32.0		22	4.7
250	31	10,965	-41.8		357	5.1
200	31	12,439	-53.1		17	7.8
175	30	13,288	-59.1		29	11.5
150	30	14,242	-64.6		29	10.7
125	29	15,346	-68.8		41	12.6
100	28	16,677	-68.5		66	13.0
80	26	18,029	-64.3		70	16.3
60	26	19,813	-58.9		82	26.2
50	26	20,967	-55.4		89	29.3
40	26	22,402	-52.1		94	30.3
30	26	24,279	-48.8		96	30.3
25	22	25,482	46.7		90	32.3
20	21	26,964	-44.2		87	34.8
15	15	28,903	-41.7		89	33.4
10	7	31,653	-38.8			

NANTUCKET, MASS (1014 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	14	19.1	89	274	1.0
1,000	31	138	19.5	82	292	2.1
950	31	577	19.3	70	296	4.5
900	31	1,045	17.0	65	282	6.6
850	31	1,531	14.8	62	287	7.8
800	31	2,043	12.5	54	292	10.5
750	31	2,578	9.4	49	299	12.0
700	31	3,151	6.3	47	295	15.0
650	31	3,754	3.0	44	296	17.9
600	31	4,400	-.7	42	292	19.8
550	31	5,085	-4.9	42	288	20.8
500	31	5,834	-9.2	43	287	20.6
450	31	6,638	-14.2	40	284	19.8
400	31	7,527	-20.2	35	280	19.6
350	31	8,503	-27.2		273	20.4
300	31	9,595	-35.5		267	21.0
250	31	10,843	-45.1		296	20.4
200	30	12,301	-54.7		295	18.3
175	30	13,148	-58.7		301	16.3
150	30	14,108	-62.2		298	15.3
125	30	15,229	-63.9		300	12.6
100	30	16,602	-61.7		323	6.8
80	29	17,995	-59.0		24	4.7
60	28	19,818	-55.2		67	8.9
50	28	20,987	-53.1		88	12.2
40	28	22,432	-51.1		85	14.0
30	26	24,313	-48.6		94	20.6
25	21	25,522	-46.6			
20	17	27,015	-44.9			
15	9	28,929	-43.0			
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NASHVILLE, TENN (996 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	177	21.6	93	210	0.8
1,000	31	145				
950	31	591	23.1	76	238	4.5
900	31	1,064	20.3	75	249	4.5
850	31	1,557	17.2	73	256	4.7
800	31	2,073	14.2	68	270	4.7
750	31	2,611	11.2	64	271	4.7
700	31	3,190	7.8	59	273	3.5
650	31	3,792	4.2	56	268	3.9
600	31	4,446	.7	55	253	5.2
550	31	5,133	-3.2	53	257	5.8
500	31	5,890	-7.3	48	283	3.7
450	31	6,696	-12.3	40	293	5.1
400	31	7,595	-18.0	35	304	5.8
350	31	8,579	-25.2	35	305	6.6
300	31	9,681	-33.5		315	10.5
250	31	10,935	-43.2		307	11.5
200	31	12,401	-54.3		324	12.0
175	31	13,246	-60.2		328	10.7
150	31	14,195	-65.6		342	10.1
125	31	15,293	-69.3		6	7.6
100	30	16,629	-67.3		46	7.4
80	30	17,985	-63.8		72	11.7
60	29	19,779	-57.7		87	17.9
50	29	20,940	-54.1		92	20.6
40	28	22,382	-51.6		92	22.3
30	28	24,262	-48.8		89	24.9
25	26	25,465	-47.1		87	28.0
20	21	26,953	-45.1		94	29.7
15	10	28,900	-41.7			
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N. Y. INT. AP, IDLEWILD (1016 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	21.7	81	295	2.5
1,000	31	139	21.3	78	305	3.3
950	31	583	19.8	71	304	4.5
900	31	1,049	17.5	69	293	6.8
850	31	1,536	15.0	67	288	9.9
800	31	2,047	12.4	64	282	11.3
750	31	2,587	9.7	56	283	13.4
700	31	3,157	6.6	54	289	14.2
650	31	3,760	2.9	53	290	15.0
600	31	4,405	-.7	49	286	18.5
550	31	5,091	-4.5	42	282	18.8
500	31	5,840	-8.8	40	282	19.6
450	31	6,646	-13.5	38	287	19.8
400	31	7,536	-19.7	36	287	20.4
350	31	8,514	-26.6		286	19.8
300	31	9,609	-34.9		283	22.2
250	31	10,856	-44.4		283	23.3
200	31	12,319	-53.7		296	27.8
175	31	13,169	-57.8		291	25.6
150	30	14,136	-61.7		291	23.3
125	30	15,257	-64.1		301	16.3
100	29	16,623	-62.9		313	9.9
80	29	18,009	-60.0		356	3.9
60	29	19,826	-55.4		74	7.6
50	28	20,999	-53.1		81	11.1
40	28	22,447	-50.3		86	13.0
30	27	24,338	-47.3		91	17.1
25	27	25,549	-45.8		89	18.7
20	25	27,044	-43.8		86	20.4
15	20	28,983	-41.4		88	21.0
10	15	31,738	-38.5			

NOME, ALASKA (1011 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	9.2	85	313	3.1
1,000	31	[illegible]	10.3	80	323	2.5
950	31	519	8.6	74	39	.6
900	31	967	6.6	71	140	2.3
850	31	1,435	4.4	64	152	2.1
800	31	1,927	1.8	63	179	1.4
750	31	2,440	-.8	58	146	1.7
700	31	2,993	-3.9	55	143	.6
650	31	3,570	-7.0	52	43	3.3
600	31	4,196	-10.4	47	74	2.1
550	31	4,855	-14.6	41	50	1.4
500	31	5,577	-19.4	40		.0
450	31	6,344	-25.1	43	301	1.0
400	31	7,199	-31.6	45	297	1.6
350	31	8,130	-38.5		343	2.5
300	31	9,173	-46.0		291	2.5
250	31	10,369	-51.6		295	5.6
200	31	11,819	-49.5		281	7.2
175	31	12,697	-48.1		300	7.0
150	31	13,713	-48.3		295	6.4
125	31	14,914	-48.4		310	5.8
100	31	16,384	-48.4		307	4.5
80	31	17,856	-47.7		3	5.2
60	31	19,757	-47.5		30	4.5
50	31	20,962	-47.6		36	5.1
40	30	22,435	-47.3		47	6.0
30	29	24,342	-46.5		63	6.0
25	27	25,551	-45.3		71	3.3
20	22	27,045	-43.7		71	5.1
15	12	29,000	-41.7			
10						

NORFOLK, VA. (1016 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	9	23.1	88	212	1.6
1,000	31	146	24.0	81	245	3.1
950	31	592	22.5	73	258	5.1
900	31	1,065	19.7	71	283	4.1
850	31	1,556	16.9	64	289	5.2
800	31	2,072	14.0	62	297	5.2
750	31	2,611	10.9	56	291	5.8
700	31	3,187	7.8	52	281	6.6
650	30	3,791	4.7	46	283	8.0
600	30	4,445	1.4	42	282	8.2
550	30	5,136	-2.3	37	280	8.5
500	30	5,893	-6.6	33	285	9.3
450	30	6,704	-11.8		288	9.9
400	30	7,602	-17.8		303	10.3
350	30	8,587	-24.9	35	308	10.1
300	30	9,689	-33.4		309	10.3
250	30	10,943	-43.1		305	12.8
200	29	12,415	-53.4		313	14.4
175	29	13,265	-58.5		314	13.0
150	29	14,223	-63.7		323	10.3
125	29	15,332	-66.9		333	7.4
100	29	16,684	-65.0		360	7.0
80	29	18,054	-62.2		62	8.9
60	29	19,857	-56.8		79	16.3
50	29	21,020	-54.0		85	19.6
40	29	22,463	-51.2		85	24.1
30	29	24,349	-47.6		92	26.6
25	28	25,559	-45.7		90	27.6
20	27	27,051	-43.7		89	30.7
15	26	28,997	-40.6		88	33.6
10	21	31,777	-37.3		87	32.3

NORTH PLATTE, NEBR. (915 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	848	18.2	84	163	1.2
1,000	31	81				
950	31	524				
900	31	994	20.4	75	190	3.9
850	31	1,491	22.2	53	228	10.9
800	31	2,017	20.1	44	233	9.3
750	31	2,565	16.4	43	239	7.4
700	31	3,153	11.9	44	243	8.7
650	31	3,764	7.1	47	251	9.9
600	31	4,422	1.8	52	259	11.3
550	31	5,109	-3.3	52	265	11.1
500	31	5,866	-8.1	49	258	13.6
450	31	6,673	-12.8	41	259	17.7
400	31	7,568	-18.8	36	256	20.6
350	31	8,549	-26.0	37	255	25.5
300	31	9,647	-34.2		258	29.3
250	31	10,897	-44.1		263	35.2
200	30	12,367	-53.8		261	38.3
175	30	13,215	-58.9		264	30.1
150	30	14,172	-63.1		266	27.8
125	30	15,286	-65.7		242	17.1
100	30	16,641	-65.1		254	8.5
80	30	18,015	-60.9		168	.8
60	30	19,825	-55.8		94	8.5
50	30	20,993	-53.1		93	9.9
40	30	22,440	-50.6		87	11.5
30	30	24,328	-47.8		90	13.6
25	29	25,539	-45.9		86	17.3
20	26	27,033	-43.9		89	19.6
15	10	29,002	-41.6			
10						

OAKLAND, CALIF. (1012 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	15.2	85	287	3.1
1,000	31	111	14.9	84	271	3.5
950	31	552	16.4	64	267	5.8
900	31	1,013	21.6	29	298	10.3
850	31	1,506	19.8	25	298	8.0
800	31	2,026	16.8	22	279	5.2
750	31	2,567	13.5	23	264	4.5
700	31	3,149	9.4	27	252	6.0
650	31	3,753	5.2	29	243	7.8
600	31	4,409	.7	32	237	10.1
550	31	5,095	-4.1	27	239	10.1
500	31	5,848	-9.2		243	11.7
450	31	6,647	-14.4		256	15.5
400	31	7,539	-20.9		258	18.8
350	31	8,511	-28.4		261	23.5
300	31	9,599	-36.4		259	26.2
250	31	10,842	-44.5		254	32.4
200	30	12,316	-51.9		252	33.2
175	30	13,174	-55.9		251	33.6
150	30	14,145	-60.5		249	31.1
125	30	15,271	-63.7		254	21.6
100	30	16,639	-63.8		250	8.7
80	30	18,011	-62.0		175	2.5
60	30	19,806	-57.8		95	8.0
50	30	20,961	-55.8		91	12.4
40	30	22,386	-54.0		92	16.7
30	30	24,242	-51.5		91	21.6
25	30	25,428	-50.2		90	23.3
20	30	26,888	-48.7		88	26.2
15	23	28,794	-46.6		87	29.3
10	9	31,517	-43.6			

OKLAHOMA CITY, OKLA. (970 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	392	21.5	92	178	7.6
1,000	31	121				
950	31	571	23.3	77	189	14.4
900	31	1,043	22.6	66	213	18.3
850	31	1,539	19.9	60	217	11.5
800	31	2,060	16.8	58	225	5.6
750	31	2,602	13.1	59	215	2.9
700	31	3,185	9.6	52	196	3.1
650	31	3,793	5.8	48	194	3.9
600	31	4,447	1.9	46	187	3.1
550	31	5,137	-2.1	38	208	2.9
500	31	5,896	-6.4	31	232	3.7
450	31	6,705	-11.3	29	256	4.9
400	31	7,607	-17.5		274	4.7
350	31	8,593	-24.5		284	6.0
300	31	9,698	-32.5		298	9.3
250	31	10,957	-42.2		305	11.3
200	30	12,429	-53.6		311	13.0
175	30	13,276	-59.6		318	11.9
150	30	14,227	-65.0		321	8.9
125	30	15,326	-69.2		327	3.3
100	30	16,656	-68.7		71	3.3
80	30	18,006	-64.6		79	9.7
60	28	19,792	-57.6		90	17.1
50	27	20,953	-54.7		92	20.2
40	27	22,391	-51.9		92	22.0
30	26	24,270	-48.5		88	27.8
25	24	25,477	-46.7		86	31.5
20	21	26,967	-43.9		90	33.0
15	13	28,908	-42.1			
10						

OMAHA, NEBR. (966 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	403	20.5	89	158	5.1
1,000	31	99				
950	31	546	22.1	75	182	8.0
900	31	1,017	22.4	60	233	12.8
850	31	1,514	20.4	51	249	13.2
800	31	2,036	17.3	52	257	12.2
750	31	2,582	13.6	51	252	11.9
700	31	3,163	9.8	52	254	10.7
650	31	3,769	5.5	52	264	11.9
600	31	4,425	1.1	51	261	13.6
550	31	5,111	-3.4	43	259	14.0
500	31	5,868	-7.6	39	261	14.4
450	31	6,679	-12.4	30	264	16.3
400	31	7,574	-18.5		273	16.3
350	31	8,556	-25.3		271	20.4
300	31	9,657	-33.6		272	22.3
250	31	10,911	-43.0		270	26.6
200	30	12,380	-53.6		271	28.8
175	30	13,230	-58.2		269	28.0
150	30	14,190	-62.6		267	25.8
125	30	15,306	-65.6		264	20.0
100	30	16,665	-64.1		266	13.8
80	30	18,039	-61.4		272	4.1
60	30	19,846	-56.4		88	2.9
50	30	21,011	-53.6		87	7.4
40	30	22,455	-50.9		86	10.3
30	29	24,341	-48.0		83	11.5
25	29	25,548	-46.3		86	13.8
20	24	27,040	-44.2		88	17.9
15	13	28,985	-41.3			
10	5	31,813	-38.0			
7						

PEORIA, ILL. (992 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	201	20.3	93	169	3.3
1,000	31	127				
950	31	576	22.5	76	229	8.9
900	31	1,045	20.4	70	245	8.4
850	31	1,537	17.7	63	254	9.1
800	31	2,054	14.7	58	260	8.7
750	31	2,593	11.4	53	262	8.4
700	31	3,170	8.3	46	264	9.5
650	31	3,773	4.6	45	269	10.5
600	31	4,426	.9	41	271	11.3
550	31	5,113	-3.2	39	275	12.4
500	31	5,869	-7.3		273	12.6
450	31	6,677	-12.5	31	271	12.8
400	31	7,571	-18.5		271	13.8
350	31	8,554	-25.4		275	14.6
300	31	9,655	-33.6		283	18.8
250	31	10,910	-43.2		287	24.9
200	30	12,377	-53.5		283	28.2
175	28	13,226	-57.7		287	27.0
150	27	14,187	-62.4		287	22.2
125	26	15,303	-64.8		282	18.5
100	26	16,664	-64.2		287	10.5
80	25	18,038	-61.4		322	2.9
60	25	19,847	-55.5		58	6.6
50	25	21,016	-53.3		89	11.5
40	25	22,461	-50.5		87	13.2
30	24	24,349	-47.7		88	16.3
25	24	25,557	-46.0		85	17.1
20	23	27,057	-43.8		83	20.4
15	23	29,001	-41.2		85	20.8
10	11	31,772	-37.0			
7						

PITTSBURGH, PA. (976 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	353	19.0	90	260	1.6
1,000	31	147				
950	31	590	21.1	79	267	5.8
900	31	1,058	18.8	76	280	8.7
850	31	1,548	16.1	69	286	10.1
800	31	2,061	13.2	66	287	10.7
750	31	2,596	10.2	60	284	12.4
700	31	3,174	7.1	56	285	13.8
650	31	3,778	3.7	51	286	12.4
600	31	4,428	.3	39	284	15.5
550	31	5,116	-3.6	34	286	15.9
500	31	5,870	-7.9		282	16.9
450	31	6,676	-13.0		281	19.8
400	31	7,571	-19.0		284	21.8
350	30	8,550	-26.4		289	25.3
300	29	9,648	-34.9		290	26.2
250	29	10,895	-44.4		292	26.8
200	29	12,360	-53.5		295	25.3
175	29	13,210	-58.1		294	25.5
150	29	14,172	-62.3		300	19.8
125	29	15,289	-65.0		305	15.3
100	28	16,651	-64.8		311	6.8
80	28	18,025	-61.3		10	3.9
60	27	19,831	-56.5		79	10.1
50	26	20,993	-54.2		85	12.4
40	25	22,432	-51.2		89	15.7
30	24	24,316	-48.3		87	17.7
25	23	25,519	-46.8		82	19.0
20	16	27,007	-45.2		85	22.7
15	10	28,935	-41.4			
10						
7						

POINT ARGUELLO, CALIF. (1000 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	113	13.6	94	349	1.2
1,000	31	114			338	1.7
950	31	559	17.4	62	353	4.7
900	31	1,015	21.0	35	17	4.3
850	31	1,509	19.8	30	29	4.5
800	31	2,027	17.0	28	11	3.5
750	31	2,575	13.7	28	334	1.7
700	31	3,152	10.4	27	245	2.3
650	31	3,762	6.4		227	3.7
600	31	4,415	2.3		239	4.3
550	31	5,107	-2.1		242	7.2
500	31	5,863	-7.1		238	11.7
450	31	6,674	-12.9		243	15.7
400	31	7,563	-19.4		243	17.5
350	31	8,542	-26.6		244	19.8
300	31	9,637	-35.0		239	22.0
250	31	10,886	-43.4		235	26.4
200	31	12,359	-52.4		237	30.3
175	31	13,213	-57.3		236	29.1
150	31	14,176	-62.4		236	24.9
125	31	15,290	-66.7		243	15.7
100	31	16,640	-66.7		225	3.7
80	31	17,997	-63.8		102	6.2
60	31	19,778	-59.0		96	14.2
50	31	20,928	-56.4		93	17.1
40	31	22,350	-54.6		88	21.2
30	30	24,202	-52.1		90	27.6
25	28	25,389	-50.6		90	29.1
20	28	26,849	-48.7		88	30.1
15	27	28,747	-46.7		89	31.9
10	21	31,451	-43.7		91	36.5
7	8	33,856	-40.4			

PORTLAND, ME. (1013 MB.)

Pressure	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	20	17.7	89	319	1.9
1,000	31	133	18.5	81	308	2.7
950	31	571	18.4	70	301	6.0
900	31	1,036	16.0	68	294	6.4
850	31	1,520	13.4	65	292	8.0
800	31	2,029	11.4	54	293	11.3
750	31	2,562	8.7	54	286	13.4
700	31	3,135	5.5	55	283	17.1
650	31	3,731	2.2	56	283	21.4
600	31	4,380	-1.5	54	286	23.9
550	31	5,062	-5.4	51	284	25.8
500	31	5,811	-9.7	47	282	27.8
450	31	6,611	-14.4	41	284	27.6
400	31	7,502	-20.4	37	282	28.2
350	31	8,478	-27.3	35	279	30.7
300	31	9,571	-35.6		280	34.4
250	31	10,814	-45.3		276	38.9
200	31	12,277	-53.0		282	39.2
175	31	13,132	-56.0		282	34.2
150	30	14,104	-59.4		283	29.0
125	29	15,240	-60.7		283	22.5
100	28	16,633	-59.7		293	14.8
80	28	18,038	-57.2		307	6.8
60	27	19,878	-53.1		53	4.1
50	26	21,062	-51.3		79	7.8
40	22	22,521	-48.7		88	8.5
30	22	24,431	-45.5		85	11.7
25	17	25,650	-44.0		87	14.8
20	12	27,153	-42.3			
15						
10						
7						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

AUGUST 1959

RAPID CITY, S. DAK. (903 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	[illegible]	17.0	54	340	1.7
1,000--	31	79				
950----	31	524				
900----	31	992			359	2.3
850----	31	1,484	20.7	40	266	5.1
800----	31	2,006	18.4	38	237	8.0
750----	31	2,549	14.8	38	242	10.3
700----	31	3,137	10.7	39	244	13.2
650----	31	3,745	5.6	46	250	14.6
600----	31	4,398	.3	49	251	17.7
550----	31	5,082	- 5.1	48	252	18.8
500----	31	5,832	-10.2	45	253	22.5
450----	31	6,633	-15.3	41	253	26.8
400----	31	7,518	-21.3	40	254	32.1
350----	31	8,490	-28.1		253	38.1
300----	31	9,579	-36.1		254	43.3
250----	31	10,821	-45.3		256	49.2
200----	31	12,282	-53.1		258	54.2
175----	31	13,136	-56.5		258	50.3
150----	31	14,106	-60.3		257	43.3
125----	31	15,235	-62.6		256	32.8
100----	31	16,614	-61.7		254	19.0
80-----	31	18,000	-59.8		247	9.5
60-----	29	19,819	-55.1		216	.6
50-----	29	20,988	-52.8		94	4.3
40-----	27	22,434	-50.7		87	7.2
30-----	24	24,319	-48.1		86	11.3
25-----	21	25,531	-46.1		88	14.0
20-----	18	27,019	-44.1		85	14.4
15-----	15	28,960	-41.2		87	12.0
10-----	8	31,739	-36.9			

ST. CLOUD, MINN. (975 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	316	17.6	90	109	1.9
1,000--	31	[illegible]				
950----	31	543	18.9	80	120	3.9
900----	31	1,008	18.5	65	204	4.1
850----	31	1,497	16.5	57	265	5.6
800----	31	2,011	13.8	51	275	9.5
750----	31	2,553	10.5	51	281	13.0
700----	31	3,124	6.7	50	275	15.7
650----	31	3,725	2.6	51	278	17.5
600----	31	4,371	- 1.7	51	275	20.2
550----	31	5,054	- 6.0	[illegible]	269	22.3
500----	31	5,799	-10.2	38	270	25.5
450----	31	6,602	-15.6	37	268	27.8
400----	31	7,484	-21.4	39	267	31.5
350----	31	8,455	-28.3	39	270	35.0
300----	31	9,544	-36.4		270	39.4
250----	31	10,784	-45.5		271	37.9
200----	31	12,243	-53.8		274	[illegible]
175----	31	13,095	-57.2		272	37.3
150----	31	14,062	-60.1		279	33.6
125----	31	15,194	-62.0		273	25.1
100----	31	16,575	-61.1		271	17.9
80-----	31	17,969	-58.9		281	5.1
60-----	31	19,796	-54.2		62	1.4
50-----	31	20,971	-52.3		96	8.7
40-----	28	22,416	-50.6		82	6.8
30-----	28	24,306	-47.6		76	10.7
25-----	28	25,513	-46.4		88	14.8
20-----	21	27,007	-44.4		92	15.5
15-----	15	28,933	-42.4		92	16.3
10-----						

ST. PAUL IS., ALASKA (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	[illegible]	96	237	3.5
1,000--	31	115	[illegible]	95	271	2.5
950----	31	538	7.5	90	300	6.2
900----	31	[illegible]	[illegible]	86	286	6.8
850----	31	1,453	[illegible]	80	309	7.2
800----	31	1,947	3.2	74	301	6.6
750----	31	[illegible]	.9	71	295	7.6
700----	31	3,021	- 1.9	67	288	8.5
650----	31	3,604	[illegible]	61	286	10.1
600----	31	4,234	[illegible]	[illegible]	291	6.6
550----	31	4,900	-12.2	48	4	1.7
500----	31	5,629	-16.6	46	321	2.1
450----	31	6,404	-21.8	45		.0
400----	31	7,272	-27.9	42	345	7.6
350----	31	8,218	-34.8	44	331	8.0
300----	30	9,275	-42.9		304	10.9
250----	30	10,483	-50.7		284	10.1
200----	30	11,926	-52.5		280	16.3
175----	30	12,791	-51.4		309	13.6
150----	30	13,794	-51.1		297	12.0
125----	30	14,979	-51.5		289	9.1
100----	30	16,428	-51.5		285	8.2
80-----	30	17,879	-50.8		337	5.2
60-----	30	19,758	-49.7		2	1.0
50-----	30	20,953	-49.1		118	5.4
40-----	29	22,421	-48.5		94	3.5
30-----	25	24,329	-47.4		97	4.3
25-----	22	25,553	-46.1		66	[illegible]
20-----	15	27,056	-44.6			
15-----	13	28,993	-43.1			
10-----						

SALEM, OREG. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	12.1	83	257	0.6
1,000--	31	148	13.1	76	347	2.1
950----	31	[illegible]	13.2	69	4	6.4
900----	31	1,036	12.7	61	341	4.5
850----	31	1,514	11.0	55	295	5.4
800----	31	2,019	8.8	50	287	8.5
750----	31	2,550	6.5	10	284	10.9
700----	31	3,115	4.1		281	13.8
650----	31	3,709	.8	28	278	16.9
600----	31	4,353	- 2.8	27	276	19.6
550----	31	5,029	- 7.4	30	273	22.2
500----	31	5,774	-12.3	31	[illegible]	[illegible]
450----	31	6,563	-18.0	33	271	27.4
400----	31	7,442	-24.4	32	270	29.1
350----	31	8,402	-31.4		266	31.3
300----	31	[illegible]	-40.0		265	33.8
250----	31	[illegible]	-48.8		267	37.3
200----	31	[illegible]	-54.0		266	39.8
175----	31	[illegible]	-54.2		263	41.8
150----	31	[illegible]	-55.5		262	38.9
125----	31	15,141	-57.2		264	31.7
100----	31	16,553	-57.2		261	23.1
80-----	31	17,969	-56.2		256	13.8
60-----	30	19,808	-54.2		263	4.3
50-----	29	20,984	-53.1		132	1.2
40-----	28	22,427	-51.5		94	3.9
30-----	22	24,302	-49.7		85	7.0
25-----	18	25,502	-48.7		79	9.1
20-----	14	26,977	-47.3		86	12.0
15-----	8	28,876	-45.7			
10-----						

SALT LAKE CITY, UTAH (871 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,288	17.6	53	168	7.0
1,000--	31	91				
950----	31	534				
900----	31	1,006				
850----		1,502	21.0	36	169	10.3
800----	31	2,025	19.2	32	[illegible]	10.7
750----	31	2,575	15.5	33	215	8.4
700----	31	3,158	11.1	36	238	10.3
650----	[illegible]	[illegible]	6.2	40	240	12.2
600----	31	4,422	.7	47	241	15.7
550----	31	5,106	- 4.9	51	239	18.8
500----	31	5,858	-10.5	52	246	21.2
450----	31	6,660	-15.6	39	246	25.1
400----	31	7,544	-21.2	35	242	28.6
350----	31	8,517	-27.8		242	35.2
300----	31	9,607	-35.6		[illegible]	[illegible]
250----	31	10,853	-44.4		237	48.8
200----	31	12,319	-52.6		238	52.8
175----	31	[illegible]	-56.5		240	50.1
150----	31	14,143	-60.5		243	42.7
125----	31	15,270	-63.2		248	28.6
100----	30	16,643	-63.4		247	15.5
80-----	30	18,017	-61.7		256	6.4
60-----	30	19,821	-56.8		99	3.7
50-----	30	20,983	-54.5		91	8.0
40-----	30	22,416	-52.9		92	10.3
30-----	29	24,283	-50.2		90	13.4
25-----	27	25,477	-48.7		91	16.3
20-----	26	26,949	-47.1		68	16.9
15-----	16	28,872	-44.4		93	22.0
10-----	5	31,608	-41.2			

SAN ANTONIO, TEX. (986 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	243	23.8	88	60	1.9
1,000--	31	123				
950----	31	576	22.5	85	165	7.2
900----	31	1,044	20.8	77	173	11.9
850----	31	1,538	18.5	72	164	10.9
800----	31	2,057	15.7	69	155	6.6
750----	31	2,599	12.6	67	147	5.6
700----	31	3,180	9.4	60	140	5.6
650----	31	3,793	6.3	55	137	4.9
600----	31	4,446	2.7	52	108	4.3
550----	31	5,143	- 1.5	49	111	5.1
500----	31	5,900	- 5.9	43	98	4.5
450----	31	6,716	-10.9	37	96	4.7
400----	31	7,615	-16.6	34	85	5.4
350----	31	8,605	-23.6		80	7.6
300----	31	9,713	-31.6		88	6.8
250----	31	10,977	-41.6		82	8.2
200----	31	12,452	-53.4		78	8.7
175----	31	13,299	-60.0		68	10.5
150----	31	14,246	-66.3		69	11.7
125----	30	15,338	-70.6		68	13.4
100----	30	16,660	-70.3		74	17.9
80-----	30	17,999	-65.9		87	20.0
60-----	30	19,771	-59.9		86	28.6
50-----	29	20,916	-57.1		87	30.9
40-----	27	22,340	-53.6		89	35.0
30-----	25	24,206	-48.7		89	37.5
25-----	24	25,408	-46.6		85	36.1
20-----	22	26,892	-44.6		86	38.5
15-----	19	28,832	-41.2		87	35.4
10-----	10	31,581	-37.9			

SAN DIEGO, CALIF. (998 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	124	19.2	89	323	2.1
1,000--	31	103				
950----	31	545	18.7	75		.0
900----	31	1,012	21.1	43	215	1.0
850----	31	1,506	20.6	35	221	2.7
800----	31	2,028	18.3	36	205	5.2
750----	31	2,569	14.7	37	193	7.4
700----	31	3,159	11.3	36	188	7.4
650----	31	3,765	7.6		189	7.0
600----	31	4,430	3.4		199	7.4
550----	31	5,117	- 1.2		210	6.8
500----	31	5,886	- 6.3		225	7.6
450----	31	6,694	-11.7		232	8.4
400----	31	7,597	-18.4		238	10.7
350----	30	8,579	-25.5		240	15.2
300----	30	9,680	-33.5		233	19.2
250----	30	10,936	-42.7		223	23.3
200----	30	12,409	-53.1		224	27.0
175----	30	13,259	-59.0		220	26.4
150----	29	14,213	-64.7		222	25.1
125----	28	15,316	-68.5		237	13.4
100----	27	16,651	-68.7		131	3.9
80-----	27	17,997	-65.3		101	9.3
60-----	26	19,766	-60.4		92	18.1
50-----	26	20,910	-57.5		96	21.2
40-----	26	22,326	-55.1		91	24.9
30-----	26	24,174	-52.3		91	29.9
25-----	25	25,359	-50.7		90	30.9
20-----	21	26,813	-49.1		93	31.1
15-----	13	28,737	-46.4		89	35.0
10-----						

SAN JUAN, P. R. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	25.1	84	109	2.7
1,000--	31	139	25.2	78	101	9.5
950----	31	592	22.6	77	95	15.9
900----	31	1,059	19.7	75	95	15.7
850----	31	1,550	17.2	66	98	15.3
800----	31	2,066	14.6	57	97	15.7
750----	31	2,603	11.8	45	95	16.1
700----	31	3,183	8.1	44	97	15.5
650----	31	3,789	4.2	42	99	14.4
600----	31	4,438	.6	38	104	11.9
550----	31	5,125	- 2.7		99	9.9
500----	31	5,882	- 6.9		97	8.4
450----	31	6,692	-12.0		94	6.6
400----	31	7,588	-18.5		101	2.5
350----	31	8,570	-26.1		166	2.9
300----	31	9,665	-35.0		212	3.5
250----	31	10,910	-44.9		233	6.2
200----	31	12,365	-56.3		253	8.9
175----	31	13,203	-61.4		253	8.0
150----	31	14,147	-66.7		229	4.3
125----	31	15,240	-70.4		121	6.0
100----	31	16,555	-72.9		86	13.0
80-----	31	17,876	-69.0		80	24.1
60-----	31	19,621	-63.2		86	32.4
50-----	30	20,755	-58.9		88	33.8
40-----	30	22,170	-54.7		87	30.3
30-----	29	24,028	-50.7		88	27.8
25-----	28	25,221	-48.7		92	26.0
20-----	24	26,704	-45.9		91	27.0
15-----	14	28,635	-42.1			
10-----						

SANTA MONICA, CALIF. (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	38	18.8	84		0.0
1,000--	31	109	18.2	82	149	.6
950----	31	553	18.2	[illegible]	124	3.7
900----	31	1,016	20.2	42	102	3.1
850----	31	1,508	19.7	32	161	1.0
800----	31	2,028	17.0	31	221	3.9
750----	31	2,571	14.2	30	[illegible]	4.5
700----	31	3,155	10.6	31	196	5.1
650----	30	3,762	6.9		210	6.4
600----	29	4,419	2.8		219	8.0
550----	29	5,109	- 1.9		220	9.9
500----	29	5,870	- 6.8		240	11.3
450----	29	6,676	-12.8		238	12.0
400----	29	7,573	-19.5		239	15.3
350----	29	8,552	-26.4		238	19.0
300----	29	9,649	-34.3		232	22.0
250----	29	10,901	-43.2		230	27.2
200----	29	12,372	-52.9		229	31.9
175----	29	13,223	-58.3		227	30.5
150----	29	14,181	-63.6		229	25.6
125----	29	15,288	-67.5		243	14.8
100----	28	16,635	-67.4		194	3.1
80-----	27	17,992	-64.8		100	8.4
60-----	27	19,771	-59.6		95	16.7
50-----	26	20,922	-56.9		92	19.4
40-----	24	22,346	-54.6		89	24.3
30-----	21	24,205	-51.8		93	29.1
25-----	18	25,393	-50.0		93	31.9
20-----	16	26,856	-47.9		92	31.9
15-----	6	28,771	-44.8			
10-----						

SAULT STE. MARIE, MICH. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	221	16.1	94	43	1.6
1,000--	31	126				
950----	31	567	17.6	80	212	1.6
900----	31	1,028	16.3	76	264	6.0
850----	31	1,513	13.9	72	267	9.3
800----	31	2,023	11.3	67	268	10.7
750----	31	2,558	8.4	63	273	13.6
700----	31	3,128	5.3	55	274	16.1
650----	31	3,728	2.2	48	277	19.0
600----	31	4,373	- 1.2	46	280	20.4
550----	31	5,058	- 5.2	44	280	22.5
500----	31	5,806	- 9.9	43	280	24.7
450----	31	6,608	-15.3	42	279	25.8
400----	31	7,492	-21.6	42	281	29.3
350----	31	8,462	-28.9	42	280	34.0
300----	31	9,546	-37.3		280	38.7
250----	31	10,782	-46.3		276	46.8
200----	31	12,237	-53.4		282	49.2
175----	31	13,092	-56.1		281	46.0
150----	31	14,065	-59.3		283	39.1
125----	30	15,202	-60.5		282	31.3
100----	30	16,593	-60.2		282	21.4
80-----	30	17,992	-57.5		286	12.6
60-----	30	19,823	-54.2		6	2.7
50-----	29	20,995	-52.6		68	5.4
40-----	29	22,442	-50.7		87	9.3
30-----	28	24,328	-48.0		84	11.9
25-----	26	25,536	-46.4		87	11.3
20-----	24	27,017	-44.1		79	15.5
15-----	16	28,972	-41.5		87	16.3
10-----	7	31,738	-38.0			

SEATTLE, WASH. (1002 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	125	12.7	86	155	2.5
1,000--	31	142			116	1.9
950----	31	573	12.2	77	205	2.9
900----	31	1,026	10.7	70	254	3.9
850----	31	1,501	8.8	68	264	5.6
800----	31	2,002	6.5	58	284	7.4
750----	31	2,528	4.1	50	286	10.3
700----	31	3,088	1.1	47	280	14.2
650----	31	3,677	- 1.7	37	276	17.3
600----	31	4,315	- 5.2	32	276	22.0
550----	31	4,985	- 9.4	30	272	24.9
500----	31	5,724	-14.0	28	271	27.8
450----	31	6,505	-19.4		272	30.9
400----	31	7,383	-25.8		272	34.2
350----	31	8,336	-32.9		269	38.1
300----	31	9,404	-40.7		269	40.8
250----	31	10,622	-48.8		269	44.9
200----	30	12,071	-52.9		266	45.5
175----	30	12,933	-52.5		265	44.1
150----	30	13,929	-53.3		265	39.2
125----	30	15,099	-54.6		263	32.6
100----	30	16,528	-54.1		257	24.1
80-----	30	17,960	-53.9		254	16.1
60-----	30	19,815	-51.9		259	7.2
50-----	29	20,997	-51.1		247	1.7
40-----	26	22,451	-50.0		120	1.6
30-----	22	24,332	-48.3		93	3.9
25-----	21	25,536	-47.0		92	5.8
20-----	18	27,020	-45.7		86	6.8
15-----	11	28,995	-41.8		98	9.1
10-----						

SHREVEPORT, LA. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	76	22.4	92	151	3.1
1,000--	31	135	22.9	90	160	4.5
950----	31	585	23.1	78	195	7.4
900----	31	1,057	20.6	75	196	7.0
850----	31	1,550	17.7	74	192	6.2
800----	31	2,067	15.1	64	177	5.1
750----	31	2,609	12.3	56	174	4.5
700----	31	3,189	8.9	55	192	3.9
650----	31	3,795	5.3	53	192	4.3
600----	31	4,450	1.9	48	179	2.5
550----	31	5,145	- 1.7	46	163	1.7
500----	31	5,903	- 5.9	40	85	.6
450----	31	6,719	-11.0	39	44	1.2
400----	30	7,619	-16.6	36	14	1.2
350----	30	8,609	-23.8	33	353	3.7
300----	30	9,717	-32.1		353	4.1
250----	30	10,980	-41.7		334	5.4
200----	30	12,456	-52.7		335	7.2
175----	29	13,308	-59.1		5	7.4
150----	29	14,261	-65.2		25	7.2
125----	29	15,359	-69.4		46	8.2
100----	29	16,686	-70.0		75	12.6
80-----	29	18,028	-65.6		82	15.7
60-----	29	19,806	-59.3		86	23.3
50-----	29	20,957	-56.3		90	25.8
40-----	29	22,385	-53.2		93	28.8
30-----	27	24,249	-50.0		90	30.7
25-----	26	25,449	-47.3		88	34.2
20-----	24	26,932	-45.0		86	36.7
15-----	21	28,861	-42.3		88	37.7
10-----	10	31,632	-38.5			

SPOKANE, WASH. (930 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	722	12.8	58	177	5.2
1,000--	31	107				
950----	31	543				
900----	31	1,002	15.3	47	215	9.1
850----	31	1,484	13.2	45	241	11.9
800----	31	1,991	9.6	51	245	14.2
750----	31	2,520	5.7	54	250	15.3
700----	31	3,084	2.0	50	254	17.3
650----	31	3,675	- .9	46	254	21.0
600----	31	4,313	- 4.6	37	254	25.5
550----	31	4,984	- 9.0	38	255	29.0
500----	31	5,724	-13.9	35	256	31.9
450----	31	6,508	-19.4	35	257	35.0
400----	31	7,382	-25.7	38	256	38.3
350----	31	8,337	-32.9	35	256	42.6
300----	31	9,404	-41.1		256	45.3
250----	31	10,620	-49.3		253	49.5
200----	31	12,069	-52.3		255	54.8
175----	31	12,934	-52.1		256	50.1
150----	31	13,931	-53.1		256	42.6
125----	31	15,102	-54.6		255	35.4
100----	31	16,529	-55.0		253	28.2
80-----	31	17,958	-54.2		256	16.3
60-----	31	19,808	-52.4		257	5.4
50-----	31	20,989	-51.3		284	1.2
40-----	30	22,443	-49.9		88	2.5
30-----	29	24,326	-48.2		93	4.5
25-----	26	25,527	-47.1		83	5.6
20-----	22	27,011	-45.2		80	6.6
15-----	16	28,938	-43.0		81	10.1
10-----						

SWAN ISLAND, W. I. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	26.6	88	82	8.9
1,000--	31	118	25.9	88	80	10.1
950----	31	574	22.9	88	94	12.8
900----	31	1,040	20.1	81	98	15.3
850----	31	1,534	17.4	73	102	16.9
800----	31	2,051	14.7	64	102	16.3
750----	31	2,591	11.6	58	103	16.3
700----	31	3,170	8.6	52	98	15.5
650----	31	3,779	5.4	46	99	13.2
600----	31	4,431	2.0	45	93	11.5
550----	31	5,120	- 2.3	43	86	9.9
500----	31	5,880	- 6.9	42	88	10.5
450----	31	6,688	-12.3	43	85	9.7
400----	31	7,586	-18.4	41	89	8.9
350----	31	8,568	-25.6	41	78	7.8
300----	31	9,667	-34.0	37	47	5.2
250----	31	10,917	-44.2		38	5.4
200----	31	12,374	-56.3		21	6.6
175----	31	13,210	-62.2		35	6.0
150----	31	14,150	-67.9		[illegible]	8.2
125----	30	15,234	-71.3		71	13.0
100----	30	16,549	-72.3		74	20.2
80-----	30	17,869	-69.1		82	24.7
60-----	29	19,611	-63.7		82	28.6
50-----	29	20,739	-60.1		85	33.2
40-----	29	22,146	-55.9		87	34.2
30-----	27	23,998	-51.5		93	30.5
25-----	26	25,191	-48.5		91	28.8
20-----	20	26,669	-45.6		87	25.6
15-----	10	28,588	-43.7			
10-----						

TAMPA, FLA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	23.8	93	88	3.3
1,000--	31	145	24.2	85	112	4.5
950----	[illegible]	595	22.0	81	164	4.9
900----	31	1,064	19.4	75	162	4.7
850----	31	1,555	16.6	73	148	4.1
800----	31	2,069	13.6	71	127	4.5
750----	31	2,610	10.7	67	111	4.3
700----	31	3,184	7.5	65	113	3.9
650----	31	3,790	4.1	64	120	3.7
600----	31	4,439	.4	61	107	3.1
550----	31	5,127	- 3.6	58	109	2.3
500----	31	5,881	- 7.8	53	81	3.1
450----	31	6,690	-12.6	48	59	4.1
400----	31	7,584	-18.5	46	63	5.1
350----	31	8,567	-25.6	42	53	7.0
300----	31	9,667	-34.1	[illegible]	47	10.3
250----	31	10,918	-44.0		45	12.2
200----	31	12,379	-55.4		37	16.7
175----	30	13,224	-61.1		39	19.4
150----	30	14,171	-66.0		51	20.4
125----	30	15,266	-70.0		59	21.6
100----	30	16,594	-69.2		72	19.4
80-----	29	17,934	-66.7		74	22.0
60-----	29	19,696	-61.1		82	31.9
50-----	29	20,837	-57.8		88	35.2
40-----	27	22,256	-55.2		94	36.3
30-----	26	24,108	-51.0		93	32.1
25-----	25	25,296	-48.8		88	32.1
20-----	21	26,765	-46.0		85	33.8
15-----	15	28,690	-42.9		75	35.2
10-----						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

Standard pressure surface (mb)	TATOOSH IS., WASH. (1013 MB.)				Wind	
	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed
SURFACE	31	31	11.7	86	207	5.4
1,000	31	141	11.8	92	224	4.5
950	31	570	11.3	79	284	6.0
900	31	1,022	10.1	69	282	7.8
850	31	1,496	8.1	63	276	8.9
800	31	1,994	5.7	57	278	8.9
750	31	2,516	3.2	54	273	12.8
700	31	3,077	.1	52	279	13.4
650	31	3,658	- 2.9	44	[illegible]	17.9
600	31	4,297	- 6.4	37	282	20.2
550	31	4,961	-10.4	34	281	24.5
500	31	5,700	-15.2		281	27.2
450	31	6,476	-20.6		284	30.7
400	31	7,349	-26.8	33	286	34.6
350	31	8,298	-33.8		287	38.5
300	31	9,362	-41.5		286	42.4
250	31	10,575	-50.0		286	45.9
200	31	12,016	-53.8		275	43.7
175	31	12,876	-52.6		[illegible]	42.4
150	31	13,872	-53.0		271	38.3
125	31	15,045	-54.2		274	29.9
100	31	16,472	-54.6		265	22.3
80	31	17,903	-53.5		265	15.5
60	30	19,758	-52.1		262	8.0
50	29	20,940	-51.3		256	3.7
40	28	22,390	-50.1		183	.6
30	25	24,280	-48.7		99	3.7
25	22	25,478	-47.3		91	7.8
20	11	26,960	-45.8			
15						
10						
7						

Standard pressure surface (mb)	TOPEKA, KANS. (983 MB.)				Wind	
	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed
SURFACE	31	269	22.0	86	167	6.2
1,000	31	119				
950	31	569	23.1	73	206	15.5
900	31	1,041	22.3	62	227	19.8
850	31	1,536	19.8	58	239	15.2
800	31	2,057	16.8	55	247	11.7
750	31	2,599	13.3	54	246	9.7
700	31	3,182	9.6	51	251	7.6
650	31	3,787	5.5	52	249	6.6
600	31	4,443	1.5	48	254	7.0
550	31	5,131	- 2.8	47	256	8.2
500	31	5,889	- 6.9	37	265	10.7
450	31	6,699	-11.9	37	264	11.1
400	31	7,597	-17.7		267	12.2
350	31	8,583	-24.5		270	13.6
300	31	9,687	-32.8		282	14.8
250	31	10,945	-42.5		288	16.3
200	31	12,418	-53.3		293	25.3
175	31	13,268	-58.3		288	22.5
150	31	14,227	-63.0		289	19.4
125	30	15,337	-66.9		277	13.0
100	30	16,686	-66.0		269	6.8
80	30	18,049	-63.2		79	2.3
60	29	19,845	-57.0		82	10.1
50	29	21,007	-54.2		95	14.6
40	27	22,445	-51.3		96	17.3
30	24	24,322	-48.7		91	20.6
25	22	25,521	-47.2		92	23.3
20	20	27,006	-45.0		90	26.8
15	14	28,951	-41.2		89	30.9
10	7	31,723	-37.8			
7						

Standard pressure surface (mb)	TUCSON, ARIZ. (923 MB.)				Wind	
	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed
SURFACE	31	781	23.2	77	150	5.2
1,000	31	85				
950	31	535				
900	31	1,014	23.9	66	164	3.9
850	31	1,513	21.5	64	157	1.7
800	31	2,037	18.3	65	146	1.7
750	31	2,581	14.6	67	152	2.1
700	31	3,168	10.6	70	161	4.3
650	31	3,775	6.8	69	155	6.2
600	31	4,437	2.8	69	161	5.8
550	31	5,126	- 1.4	62	158	4.5
500	31	5,892	- 5.7	54	160	3.7
450	31	6,702	-10.5	45	186	2.7
400	31	7,609	-16.5	42	207	4.3
350	31	8,599	-23.4	46	200	7.8
300	31	9,709	-31.4	43	203	11.9
250	31	10,974	-41.2		203	15.9
200	31	12,453	-53.1		218	16.7
175	31	13,300	-59.7		223	15.2
150	31	14,249	-65.8		231	14.4
125	31	15,343	-70.0		221	6.8
100	31	16,667	-70.6		110	5.6
80	31	18,005	-66.4		94	12.0
60	30	19,771	-60.6		89	21.4
50	29	20,911	-57.9		93	26.6
40	28	22,325	-55.4		94	27.8
30	22	24,176	-52.4		87	30.9
25	19	25,357	-50.4		87	32.4
20	18	26,818	-47.8		88	33.0
15	15	28,730	-45.4		88	38.7
10	8	31,475	-40.7			
7						

Standard pressure surface (mb)	WASHINGTON, D. C. (1006 MB.)				Wind	
	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed
SURFACE	31	88	21.8	87	197	0.8
1,000	31	143	22.2	84	226	1.4
950	31	588	21.9	70	285	4.1
900	31	1,060	19.3	69	283	5.2
850	31	1,550	16.6	64	276	6.8
800	31	2,065	13.5	59	279	6.8
750	31	2,600	10.5	53	282	8.5
700	31	3,178	7.1	51	283	8.5
650	31	3,780	4.1	44	282	11.1
600	31	4,432	.7	43	285	12.6
550	31	5,117	- 3.0	37	279	13.6
500	31	5,876	- 7.2		281	14.4
450	31	6,684	-12.4		284	14.8
400	31	7,579	-18.7		293	15.0
350	31	8,562	-25.5		297	17.9
300	31	9,661	-34.0		299	19.2
250	31	10,912	-43.6		301	19.8
200	30	12,381	-53.6		302	21.4
175	30	13,230	-58.2		303	19.2
150	30	14,190	-62.8		304	16.9
125	30	15,305	-65.6		309	12.2
100	30	16,660	-64.8		325	7.6
80	28	18,031	-61.4		41	4.7
60	28	19,834	-56.7		78	10.7
50	28	20,998	-53.9		83	14.2
40	28	22,440	-51.3		85	17.7
30	27	24,324	-47.6		86	21.2
25	25	25,533	-45.9		85	22.9
20	25	27,026	-43.9		83	24.3
15	23	28,965	-41.7		87	27.8
10	18	31,737	-37.2		89	24.1
7	9	34,213	-36.4			

Standard pressure surface (mb)	WINNEMUCCA, NEV. (869 MB.)				Wind	
	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed
SURFACE	31	1,310	12.8	35	99	1.2
1,000	31	103				
950	31	546				
900	31	1,013				
850	31	1,501	20.1	23	70	1.4
800	31	2,021	17.8	23	272	3.1
750	31	2,565	13.7	26	275	5.2
700	31	3,146	9.1	31	252	7.2
650	31	3,749	4.4	36	239	12.8
600	31	4,401	- .4	35	231	17.7
550	31	5,085	- 5.4	39	233	21.0
500	31	5,831	-10.7	35	237	22.7
450	31	6,629	-16.3		245	21.6
400	31	7,512	-22.6		245	23.5
350	31	8,478	-29.8		246	25.3
300	31	9,558	-37.7		243	30.9
250	31	10,795	-45.6		237	36.3
200	31	12,260	-52.0		240	38.9
175	31	13,118	-55.4		241	37.5
150	31	14,092	-59.1		248	37.1
125	31	15,228	-61.2		248	27.4
100	31	16,609	-61.7		250	17.3
80	31	17,994	-60.4		235	4.7
60	30	19,802	-56.8		100	2.7
50	30	20,963	-54.7		88	6.8
40	30	22,396	-52.9		89	11.1
30	30	24,261	-50.4		91	14.8
25	30	25,453	-49.2		92	15.5
20	27	26,920	-47.9		86	16.9
15	23	28,823	-46.0		89	20.8
10	10	31,508	-43.6			
7						

Standard pressure surface (mb)	YAKUTAT, ALASKA (1012 MB.)				Wind	
	Number of observations	Dynamic height	Temperature	Relative humidity	Direction	Speed
SURFACE	31	12	9.3	94	79	4.1
1,000	31	114	10.6	89	104	4.9
950	31	541	9.5	78	138	6.2
900	31	988	7.2	73	162	5.4
850	31	1,456	4.3	73	176	4.7
800	31	1,948	1.5	75	235	4.7
750	31	2,464	- 1.5	74	275	4.7
700	31	3,013	- 4.4	68	282	6.2
650	31	3,587	- 7.5	62	290	6.6
600	31	4,213	-11.4	60	298	8.7
550	31	4,872	-15.5	53	307	12.2
500	31	5,589	-20.1	47	303	12.8
450	31	6,356	-25.4	48	306	15.9
400	31	7,208	-31.3	47	310	16.5
350	31	8,141	-38.0		310	24.3
300	31	9,186	-45.8		313	22.3
250	31	10,381	-52.1		308	23.1
200	30	11,819	-50.1		301	23.7
175	30	12,694	-49.1		302	21.8
150	30	13,706	-48.9		295	22.7
125	28	14,908	-49.1			
100	27	16,376	-49.3			
80	26	17,841	-48.9			
60	26	19,734	-48.1			
50	25	20,937	-47.8			
40	25	22,412	-47.3			
30	25	24,320	-46.3			
25	25	25,535	-45.2			
20	23	27,024	-43.9			
15	19	28,967	-41.8			
10	14	31,767	-38.5			

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute for a surface normal to the direction of the sun [illegible]

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
† ALBUQUERQUE, N. MEX.									
Air mass	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Aug.									
1	0.71	0.82	0.93	1.17	1.36	----	----	----	----
2	.75	.84	1.00	1.17	1.37	----	----	----	----
3	.65	.74	.89	1.12	1.35	----	0.95	[illegible]	----
4	.70	.80	----	1.09	1.29	----	----	----	----
5	.77	----	----	----	1.31	----	----	----	----
6	----	----	----	----	1.28	----	----	----	----
7	----	----	----	1.00	1.23	1.05	----	----	----
8	----	----	----	----	1.26	----	----	----	----
9	----	----	----	----	1.29	----	----	----	----
12	.69	.79	.92	1.08	----	----	----	----	----
16	----	----	----	----	1.35	1.13	.96	.82	----
17	.78	.87	1.00	1.17	1.35	1.17	1.03	.89	----
18	.76	.89	----	1.15	----	----	1.01	----	----
19	----	----	----	----	1.33	----	----	----	----
20	----	----	----	----	1.35	----	----	----	----
21	----	----	1.04	1.15	1.35	----	----	----	----
22	----	.92	1.05	1.18	1.32	1.19	1.01	----	----
23	----	----	1.02	1.16	1.34	----	----	----	----
25	----	----	----	----	1.35	----	----	----	----
27	.88	.96	1.04	1.19	1.35	----	----	----	----
28	.87	.97	1.07	1.21	1.36	1.21	----	.99	0.89
29	.91	1.01	1.11	1.24	1.41	1.20	1.09	.95	.83
30	----	----	----	----	----	1.24	1.10	----	----
31	.89	.96	1.10	1.24	1.42	1.24	1.09	1.00	.90
Averages	0.78	0.89	1.01	1.17	1.35	1.21	1.04	1.00	0.90

* Values corresponding to true solar noon.
H Haze.
† Due to moisture in instrument consider data doubtful.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
MAUNA LOA OBS., HAWAII									
Air mass	[illegible]	[illegible]	[illegible]	[illegible]	*	[illegible]	[illegible]	[illegible]	[illegible]
Aug.									
1	----	1.22	1.33	1.44	1.60	1.47	1.36	1.28	1.22
2	1.21	1.29	1.38	1.49	1.61	1.44	1.33	[illegible]	1.15
3	1.22	1.30	1.39	1.50	1.61	1.49	1.35	1.24	[illegible]
8	1.20	1.32	1.40	1.51	1.62	----	1.32	1.23	[illegible]
9	1.16	1.24	1.34	1.45	1.63	1.49	1.37	1.29	1.20
10	1.21	1.30	1.39	1.50	1.61	[illegible]	1.37	----	----
11	1.21	1.28	1.37	1.47	1.61	[illegible]	1.33	1.25	1.14
14	----	----	----	----	----	----	1.34	1.25	1.16
16	1.25	1.32	1.41	1.50	----	----	----	----	----
17	1.26	1.32	1.41	1.51	----	----	----	----	----
18	1.21	1.29	1.38	1.48	----	----	----	----	----
19	1.22	1.30	1.38	1.49	----	----	----	----	----
20	1.21	1.28	1.37	1.47	----	----	----	----	----
21	1.22	1.29	1.39	1.48	----	----	----	----	----
22	1.23	1.30	1.39	1.50	----	----	----	----	----
23	1.21	1.28	1.37	1.48	----	----	1.34	1.25	1.18
24	1.27	1.34	1.42	1.52	1.65	----	1.39	1.30	1.23
30	1.19	1.26	1.36	1.47	----	----	----	----	----
31	1.15	1.23	[illegible]	1.44	----	----	----	----	----
Averages	1.21	1.29	1.38	1.48	1.62	1.47	1.35	1.26	1.18

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
TUCSON, ARIZ.									
Air mass	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Aug.									
8	----	----	----	----	H 1.27	----	----	----	----
16	----	----	----	----	H 1.24	----	----	----	----
26	0.84	0.92	1.03	1.17	----	----	----	----	----
27	H .77	H .87	H .99	----	H 1.32	----	----	----	----
28	----	----	----	----	H 1.32	----	H 0.97	----	H 0.74
29	----	----	----	----	----	H 1.13	H .96	H 0.84	H .75
30	H .77	H .88	H 1.01	1.17	1.37	1.19	1.03	.93	.83
31	.85	.95	1.07	1.20	1.41	1.17	1.05	.92	.81
Averages	0.81	0.90	1.02	1.18	1.32	1.16	1.00	0.89	0.78

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. [illegible] 1959

1959	Albuquerque, N.Mex.	Ames, Iowa	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.
Aug. 6	491	390	678	606	438	537	617	704	466	677	468	650	599	476	375	429	605	324	672	651
Aug. 7	702	516	424	552	433	442	545	436	498	681	487	485	612	694	---	400	246	586	687	632
Aug. 8	678	165	289	588	459	118	590	670	408	521	424	645	620	463	---	597	526	299	685	642
Aug. 9	579	457	214	592	610	137	482	579	121	658	161	585	601	415	113	406	286	632	705	661
Aug. 10	715	632	323	---	544	---	411	603	161	640	128	568	625	578	164	606	390	577	681	665
Aug. 11	706	---	124	---	503	140	527	604	496	466	482	605	570	662	245	575	507	659	599	648
Aug. 12	551	(575)	110	---	507	401	270	101	603	549	615	512	575	(623)	342	253	545	667	419	597
Average	632	(456)	309	585	499	296	492	528	393	599	395	579	600	(559)	248	467	443	535	636	642
Aug. 13	526	(579)	214	---	551	390	327	420	461	675	456	588	611	(661)	548	128	516	628	649	636
Aug. 14	374	(267)	664	---	332	---	---	678	561	633	605	247	633	637	626	375	538	647	587	584
Aug. 15	661	353	236	---	294	258	452	659	508	651	546	572	611	496	439	273	525	468	643	637
Aug. 16	697	224	542	---	450	257	140	667	548	642	595	613	496	621	81	290	479	212	631	626
Aug. 17	715	577	407	---	526	219	146	645	542	496	562	523	502	619	230	429	220	582	333	642
Aug. 18	519	495	511	---	343	164	122	532	357	618	401	512	572	673	361	611	593	636	397	618
Aug. 19	420	537	654	---	448	362	173	601	597	465	576	533	610	587	498	613	568	632	602	466
Average	559	(433)	461	---	421	275	227	600	511	597	534	513	576	(613)	397	388	491	544	549	601
Aug. 20	562	564	497	---	425	235	216	196	520	426	551	551	640	678	598	458	460	539	387	554
Aug. 21	659	580	462	---	503	263	250	424	474	544	434	462	618	523	436	472	491	480	360	630
Aug. 22	699	537	442	---	613	204	86	581	376	622	335	443	627	671	627	571	297	528	600	643
Aug. 23	447	319	670	---	554	89	155	606	604	619	657	386	611	442	613	570	499	503	---	595
Aug. 24	465	596	637	---	519	141	123	505	56	364	60	425	666	497	439	566	507	594	---	514
Aug. 25	525	---	638	---	558	273	114	520	406	489	---	251	670	(460)	298	532	424	469	605	622
Aug. 26	631	470	650	---	491	382	113	(566)	532	359	---	328	483	685	158	333	403	553	591	630
Average	570	511	571	---	523	227	151	(485)	424	489	408	407	616	(565)	453	500	440	524	509	598
Aug. 27	634	409	565	---	447	210	170	597	490	565	491	501	650	575	199	334	536	449	288	635
Aug. 28	675	515	561	---	574	328	95	561	417	491	396	620	652	368	272	274	343	452	437	613
Aug. 29	672	551	318	---	415	69	327	547	289	552	278	601	654	611	(374)	334	294	615	372	567
Aug. 30	601	415	399	---	340	84	108	549	100	509	82	599	594	373	477	114	211	490	607	619
Aug. 31	681	205	214	---	228	273	309	235	374	587	337	616	---	589	55	477	415	196	267	615
Sept. 1	691	270	634	---	440	131	376	409	326	602	338	591	652	636	353	490	365	360	573	605
Sept. 2	630	533	571	---	486	(127)	288	119	296	589	323	603	605	650	199	537	330	613	595	612
Average	655	414	466	---	419	(175)	239	431	327	556	321	590	634	543	(275)	366	357	454	449	609

1959	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Flaming Gorge, Utah	Ft. Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N.C.	Griffin, Ga.	Indianapolis, Ind.	Inyo[illegible], Calif.	Ith[illegible]	[illegible]	[illegible]
Aug. 6	460	617	579	522	407	651	620	575	645	674	-	646	556	560	294	768	291	571	[illegible]
Aug. 7	471	83	684	636	562	702	337	484	519	606	--	651	195	471	305	750	633	620	[illegible]
Aug. 8	686	307	706	657	375	705	707	549	570	595	--	584	458	465	376	445	306	541	722
Aug. 9	650	396	693	492	435	(516)	721	556	345	643	---	640	636	686	443	744	294	498	[illegible]
Aug. 10	658	497	678	652	507	(482)	702	580	352	492	--	554	662	641	589	755	128	578	582
Aug. 11	671	513	667	443	493	444	657	587	200	539		611	584	638	607	771	557	556	196
Aug. 12	671	480	601	711	501	363	679	[illegible]	401	527	-	445	653	495	622	777	671	544	562
Average	610	413	658	588	469	(552)	632	[illegible]	433	585		590	534	565	462	715	454	559	578
Aug. 13	581	515	532	612	292	468	612	606	672	555	[illegible]	500	630	480	602	785	418	--	522
Aug. 14	127	562	376	636	482	681	587	571	485	619	394	645	619	250	545	795	617	119	725
Aug. 15	119	370	450	645	457	521	580	563	419	390	[illegible]	341	549	430	477	[illegible]	631	196	524
Aug. 16	659	230	676	696	321	716	697	567	177	629	688	631	658	474	436	778	528	274	695
Aug. 17	681	216	629	687	348	517	634	573	581	619	--	(621)	584	500	273	767	290	324	463
Aug. 18	615	594	675	394	246	220	639	558	557	502	353	414	534	461	437	783	585	[illegible]	370
Aug. 19	632	623	631	544	202	403	677	378	605	138	408	73	532	469	526	777	631	597	471
Average	488	444	567	602	336	504	632	545	542	498	509	(461)	587	438	471	781	528	562	538
Aug. 20	642	533	475	711	257	663	658	532	640	181	659	181	580	553	554	795	660	497	682
Aug. 21	627	431	584	701	364	696	543	579	648	498	688	604	589	426	576	801	370	380	671
Aug. 22	378	513	652	707	363	675	598	570	652	(511)	526	406	508	552	508	751	257	283	689
Aug. 23	577	516	396	572	283	633	589	150	509	612	592	589	549	456	579	243	352	427	690
Aug. 24	618	552	491	552	218	344	571	555	560	(537)	364	454	436	302	546	752	350	460	437
Aug. 25	597	539	623	626	367	439	586	551	658	(605)	632	609	575	683	--	747	650	196	599
Aug. 26	361	515	528	593	385	406	334	560	591	509	651	468	462	454	390	751	434	166	560
Average	543	514	535	637	319	551	554	500	608	(493)	587	473	528	489	526	691	439	344	604
Aug. 27	600	463	504	673	81	464	223	574	568	513	619	599	398	478	470	749	391	558	627
Aug. 28	613	505	598	633	109	636	618	519	457	(371)	636	531	532	596	314	763	277		587
Aug. 29	625	451	608	593	144	---	635	545	621	277	642	324	375	497	507	773	465	557	621
Aug. 30	333	434	670	670	---	631	673	565	424	--	644	559	224	353	439	758	318	570	[illegible]
Aug. 31	610	419	648	684	155	592	619	566	376	372	648	251	228	245	570	746	117	513	590
Sept. 1	562	363	680	678	83	671	673	558	403	360	659	500	359	388	80	732	276	535	635
Sept. 2	644	428	657	653	91	657	598	530	390	583	648	548	426	508	471	736	320	319	622
Average	570	437	624	655	110	609	548	551	463	(413)	642	473	363	438	407	750	352	509	617

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. AUGUST 1959

1959	Laramie, Wyo.	Las Vegas, Nev.	Lemont, Ill.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.
Aug. 6	372	683	308	484	613	583	614	675	---	589	654	444	639	123	439	252	602	215
Aug. 7	665	657	220	482	---	386	636	663	---	470	628	582	637	292	460	---	579	273
Aug. 8	622	409	451	---	---	577	658	680	---	868	597	470	560	342	548	---	---	539
Aug. 9	428	502	533	571	---	---	640	664	---	868	610	647	678	585	78	---	576	538
Aug. 10	535	555	545	715	590	634	657	661	---	856	655	659	675	571	266	---	630	635
Aug. 11	513	561	474	---	636	658	621	646	---	849	630	713	621	694	444	560	634	658
Aug. 12	230	653	580	---	621	656	618	645	---	747	521	613	680	---	636	642	---	650
Average	481	574	444	563	615	582	635	662	---	750	613	590	642	434	410	---	604	501
Aug. 13	403	685	546	---	584	609	504	589	---	750	640	465	668	---	526	505	547	622
Aug. 14	415	678	538	(655)	193	503	546	524	---	816	597	285	667	---	612	568	191	573
Aug. 15	459	686	332	---	472	589	611	644	331	856	615	318	573	508	534	530	522	326
Aug. 16	649	682	215	383	478	557	627	679	534	660	619	326	584	488	459	558	444	460
Aug. 17	641	606	279	361	627	455	508	618	425	540	627	454	410	435	539	---	648	487
Aug. 18	496	504	604	699	619	428	442	418	96	558	585	629	553	402	297	299	621	369
Aug. 19	233	589	592	494	469	484	579	348	135	315	528	407	657	625	607	581	512	547
Average	471	633	444	(519)	492	518	545	546	304	642	602	412	587	492	511	507	498	483
Aug. 20	497	715	509	487	582	550	590	665	293	486	116	600	611	590	514	542	587	604
Aug. 21	536	685	594	596	574	563	657	681	194	541	539	544	607	455	504	445	593	549
Aug. 22	494	638	574	557	477	531	616	673	258	574	603	511	587	580	392	348	485	505
Aug. 23	571	460	511	621	507	641	428	432	57	820	597	370	435	511	637	158	563	421
Aug. 24	343	591	534	526	590	609	498	530	51	850	555	(390)	473	473	71	57	559	502
Aug. 25	264	645	512	480	591	640	477	400	328	706	568	509	526	510	500	571	601	553
Aug. 26	495	664	518	498	317	141	403	417	---	773	592	575	458	487	578	496	367	538
Average	457	628	536	538	520	525	524	543	197	679	510	(500)	528	515	457	374	536	525
Aug. 27	446	670	444	432	535	445	520	473	145	756	561	633	577	386	498	395	527	303
Aug. 28	553	657	385	165	538	417	533	555	102	719	534	526	505	282	496	460	521	328
Aug. 29	455	631	445	445	577	385	607	637	315	605	563	635	595	453	279	163	579	377
Aug. 30	519	665	413	403	486	331	665	671	337	661	484	360	471	389	224	243	448	405
Aug. 31	482	670	475	591	495	426	619	623	---	299	547	407	621	375	498	128	447	480
Sept 1	593	666	200	446	255	537	604	600	127	(249)	570	340	605	436	246	168	268	401
Sept. 2	567	655	415	508	472	583	523	511	183	229	544	430	610	513	269	269	415	462
Average	517	659	397	427	480	446	581	582	201	(503)	543	476	569	405	359	261	458	394

1959	Oklahoma City, Okla.	Page, Ariz.	Phoenix, Ariz.	Portland, Me.	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste.Marie, Mich.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Obs & Test Dev Ctr)
Aug. 6	637	---	651	461	682	630	648	538	649	696	587	(659)	665	686	350	600	456	598	727	252
Aug. 7	314	---	574	324	694	541	594	462	570	674	214	658	544	682	417	430	286	639	640	146
Aug. 8	673	---	671	473	676	629	581	570	237	660	293	667	554	675	67	640	221	558	595	--
Aug. 9	677	---	483	247	---	626	648	428	616	649	381	654	579	672	431	645	178	626	410	498
Aug. 10	595	(702)	659	122	---	549	654	566	516	633	671	(522)	599	572	164	606	89	590	740	608
Aug. 11	661	506	365	550	666	643	651	539	589	692	539	368	577	484	627	617	223	---	731	610
Aug. 12	660	622	603	669	---	286	659	309	648	616	346	411	583	558	635	625	350	571	743	559
Average	603	---	572	406	680	558	634	487	547	660	433	(563)	586	615	427	595	258	597	655	445
Aug. 13	626	541	649	503	---	527	642	(253)	446	699	387	558	630	657	605	602	485	320	775	597
Aug. 14	631	453	656	642	633	576	709	332	515	565	476	525	515	643	570	579	453	538	765	610
Aug. 15	593	538	647	619	---	615	698	611	544	598	151	401	589	655	610	369	345	358	312	627
Aug. 16	305	700	668	555	---	657	680	224	572	684	170	345	501	645	560	269	431	690	710	575
Aug. 17	525	685	391	594	---	651	636	646	553	401	469	422	635	629	448	577	488	361	707	629
Aug. 18	293	431	501	383	688	511	615	565	523	195	643	363	548	620	419	488	387	518	733	545
Aug. 19	611	588	608	625	161	602	426	588	620	487	405	375	528	---	658	583	479	648	748	574
Average	512	562	588	560	---	591	629	(460)	539	518	386	427	564	641	[illegible]	[illegible]	438	490	679	594
Aug. 20	626	732	585	440	96	450	707	436	475	719	407	505	416	84	629	524	525	608	778	591
Aug. 21	623	564	564	325	351	534	689	87	526	710	281	235	616	[illegible]	556	566	387	656	767	--
Aug. 22	621	(667)	574	639	436	616	624	116	606	680	224	(495)	580	470	454	---	604	533	753	516
Aug. 23	542	506	570	683	641	619	284	482	257	383	134	(508)	623	638	92	---	392	---	720	161
Aug. 24	589	388	521	96	617	444	649	483	349	660	647	(561)	603	590	169	467	405	349	759	304
Aug. 25	575	576	633	469	---	462	414	457	247	500	270	(540)	451	594	578	564	456	638	---	511
Aug. 26	501	599	648	533	470	530	520	535	454	470	461	(85)	173	362	504	512	514	667	571	583
Average	582	(576)	585	455	435	522	555	371	416	589	346	(418)	495	458	426	527	469	575	725	444
Aug. 27	478	665	637	529	299	585	528	456	449	581	283	(470)	363	345	481	449	469	667	710	289
Aug. 28	522	661	638	387	475	506	533	308	596	544	466	---	501	497	458	367	390	651	825	503
Aug. 29	562	644	634	663	563	539	645	537	604	583	529	(580)	619	617	486	506	540	644	777	291
Aug. 30	497	662	643	105	549	418	658	326	632	606	323	---	594	541	397	224	297	650	778	333
Aug. 31	562	670	641	178	268	514	676	485	548	681	367	(197)	391	299	430	517	335	661	782	172
Sept 1	565	674	637	356	537	568	653	109	617	675	401	(441)	587	596	289	480	168	656	875	361
Sept. 2	497	654	639	70	585	615	529	328	564	467	312	(525)	433	573	390	516	330	649	566	396
Average	526	662	638	327	468	535	603	364	573	591	383	(443)	503	495	419	437	361	654	759	335

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

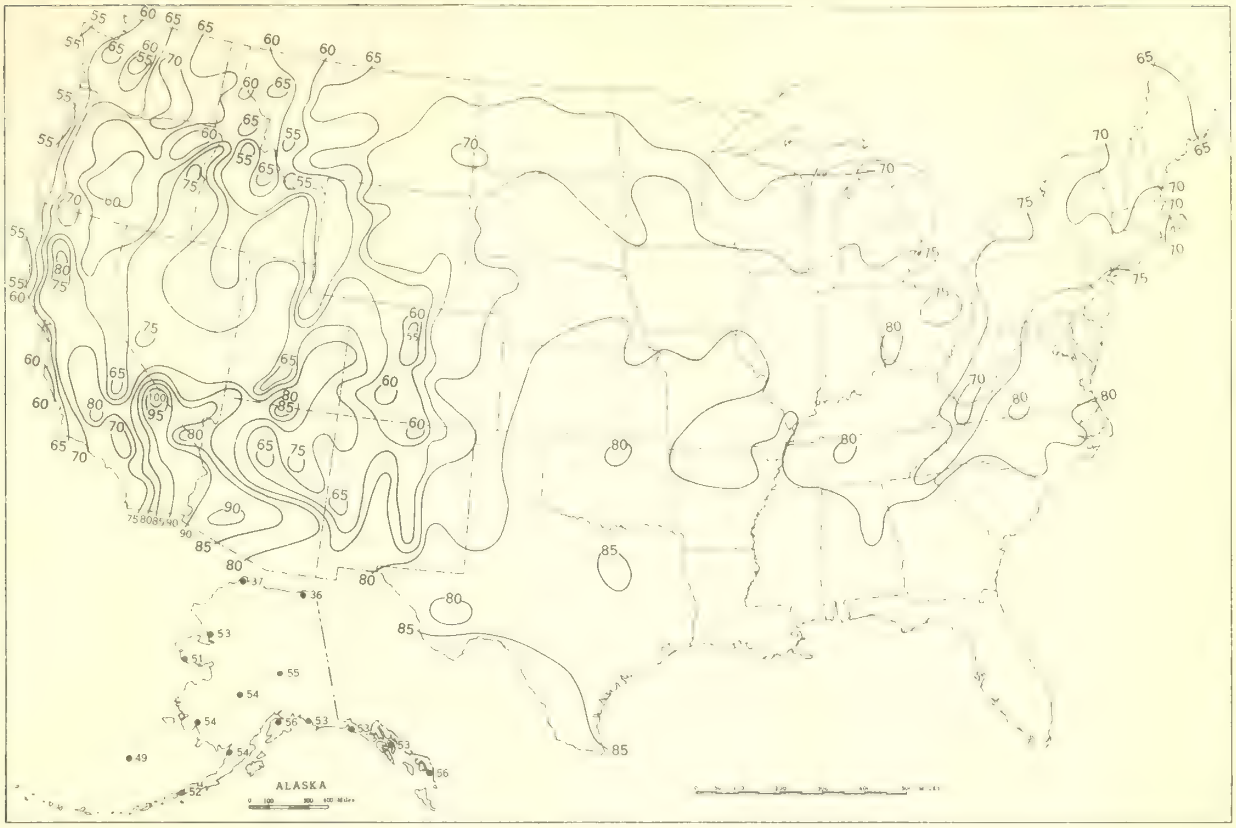
AUGUST 1959

Date	Bismarck, N. Dak.	Caribou, Me.	Green Bay, Wis.	Washington, D.C. (Silver Hill Obs.)
Aug.				
1	295	328	301	---
2	299	---	292	---
3	311	328	---	327
4	303	321	295	---
5	301	328	297	330
6	308	---	---	330
7	304	---	---	---
8	309	---	---	---
9	309	---	291	336
10	310	---	296	332
11	304	---	311	330
12	---	326	289	341
13	308	307	---	317
14	333	307	291	317
15	315	309	---	314
16	310	---	---	322
17	298	---	288	318
18	222	---	281	311
19	293	307	281	312
20	---	311	265	327
21	280	232	270	315
22	274	311	---	306
23	---	335	---	---
24	---	310	293	329
25	---	355	319	328
26	295	---	---	338
27	307	---	---	---
28	303	299	319	331
29	299	---	300	---
30	293	290	298	---
31	---	---	292	---

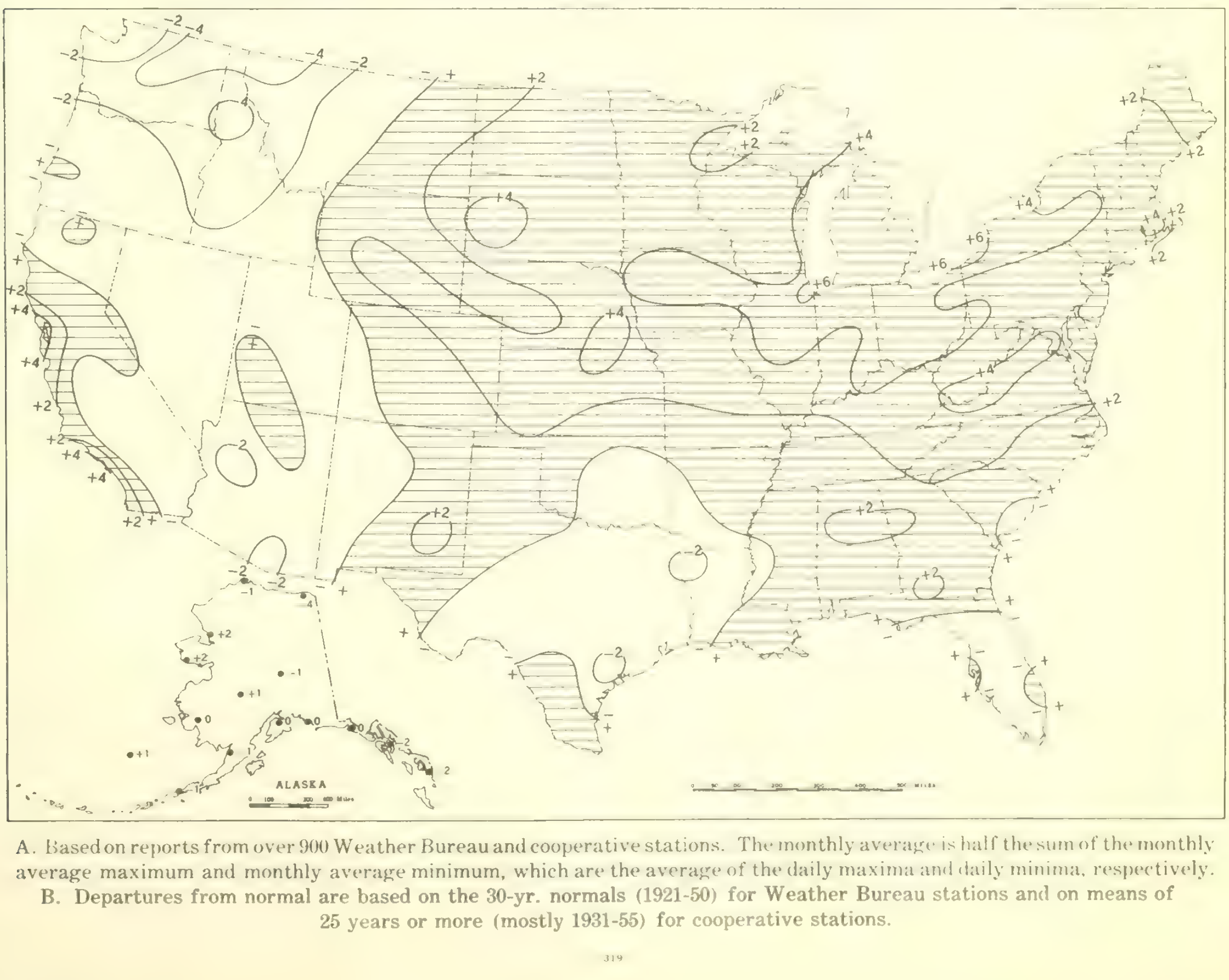
The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

Chart I. A. Average Temperature (°F.) at Surface, August 1959.



B. Departure of Average Temperature from Normal (°F.), August 1959.



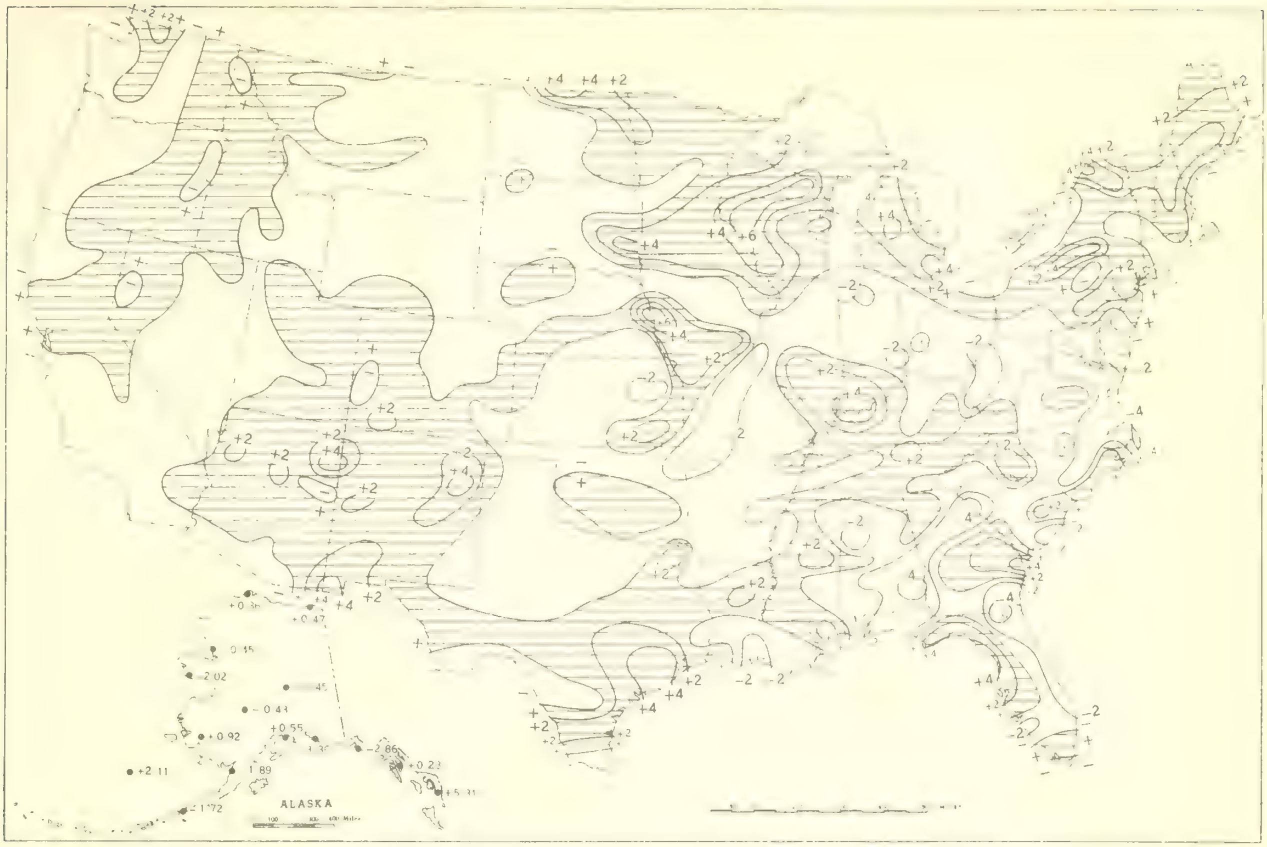
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.

B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

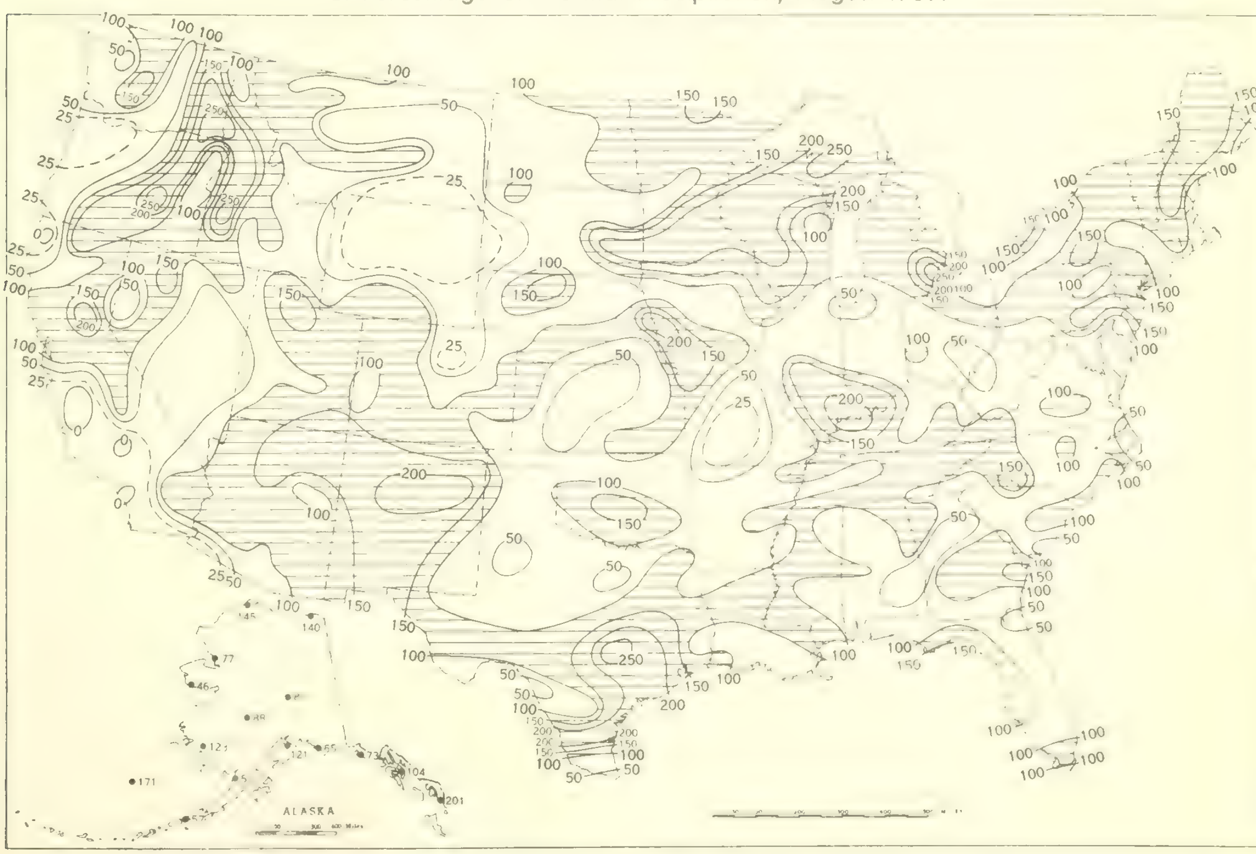
Chart II. Total Precipitation (Inches), August 1959.

Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), August 1959.

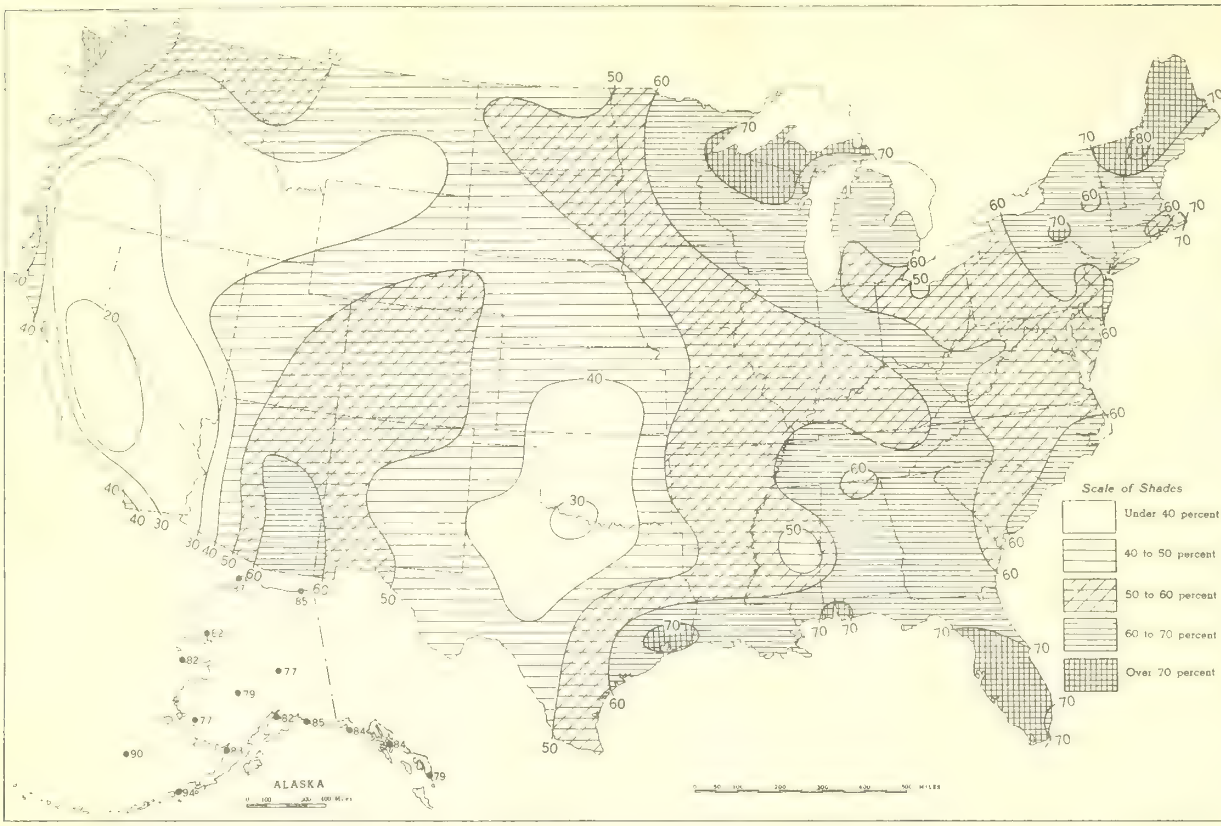


B. Percentage of Normal Precipitation, August 1959.

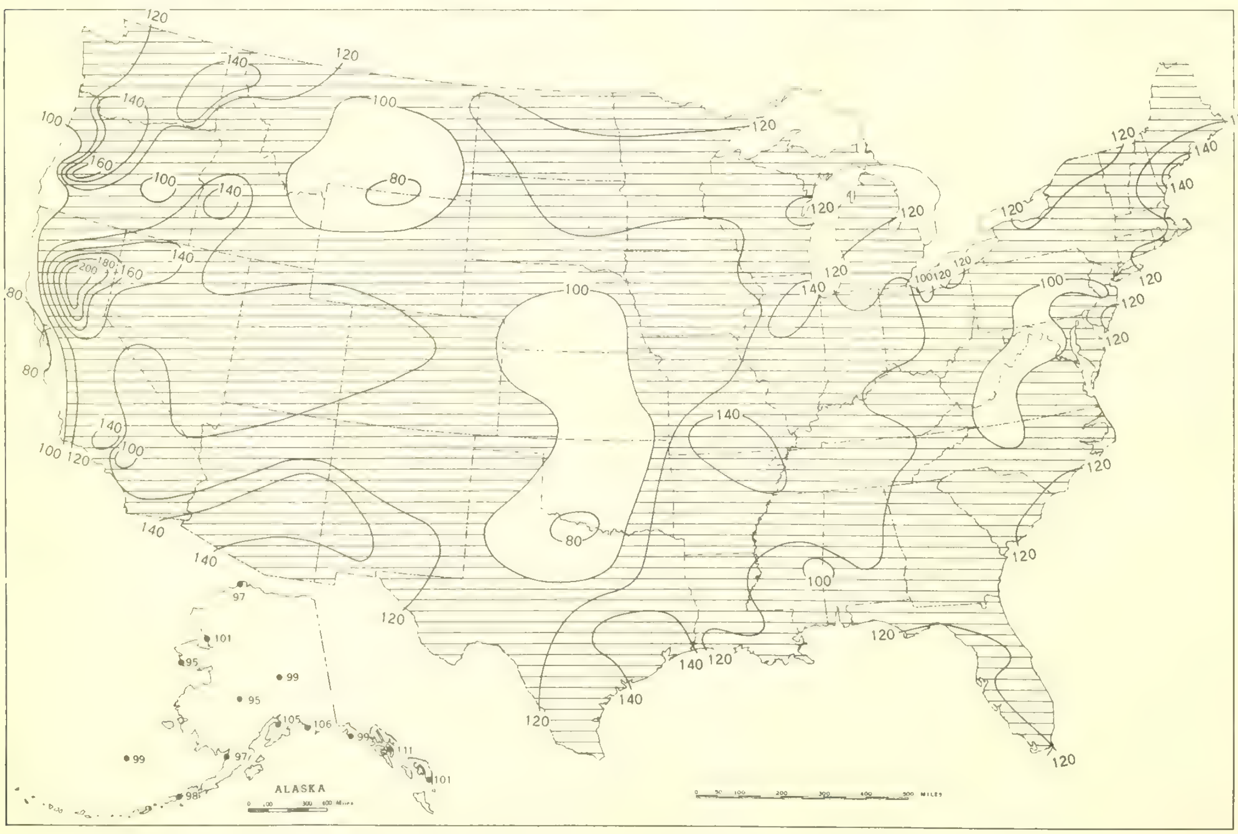


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, August 1959.



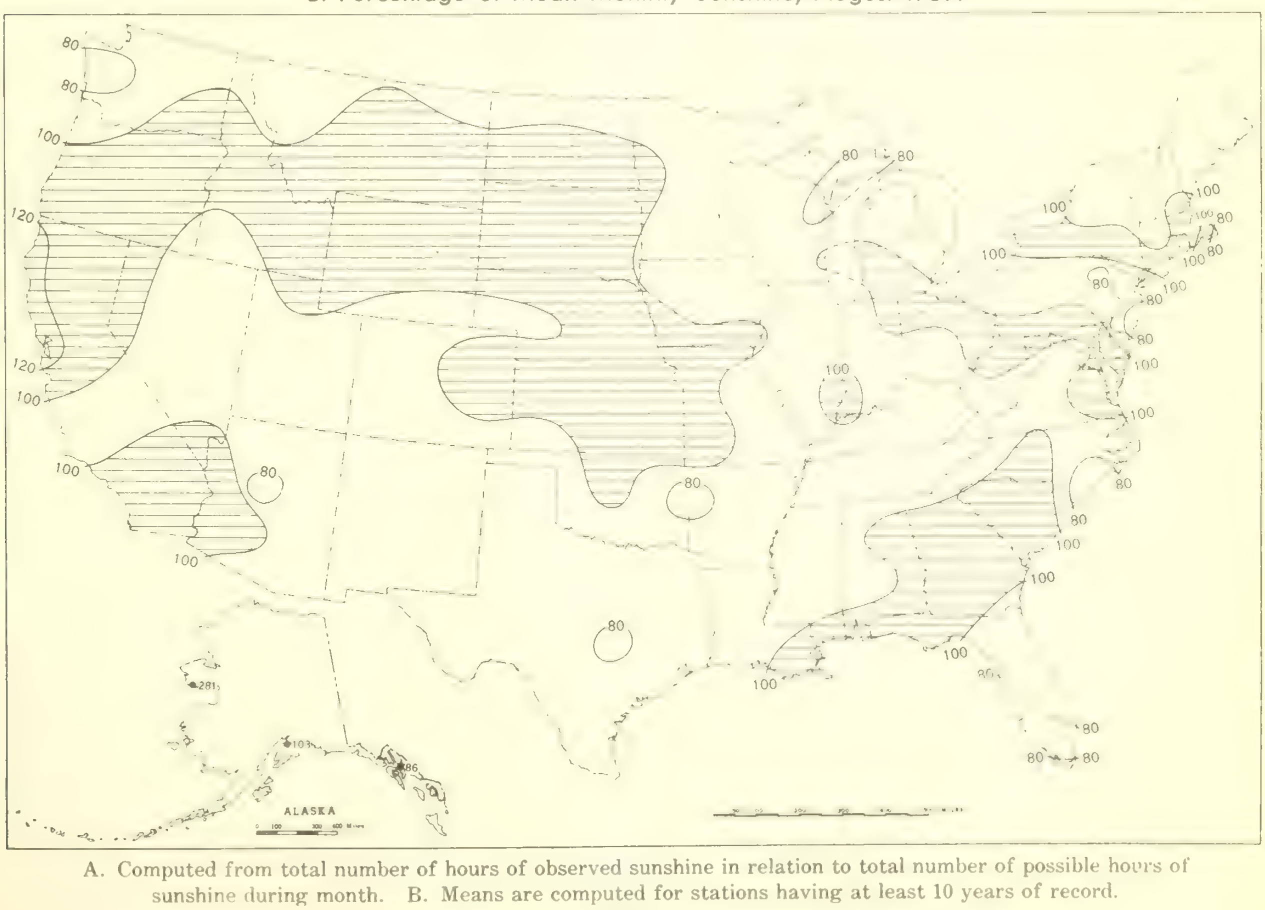
B. Percentage of Mean Monthly Sky Cover Between Sunrise and Sunset, August 1959.



A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of mean amount of sky cover are made for stations having at least 10 years of record.

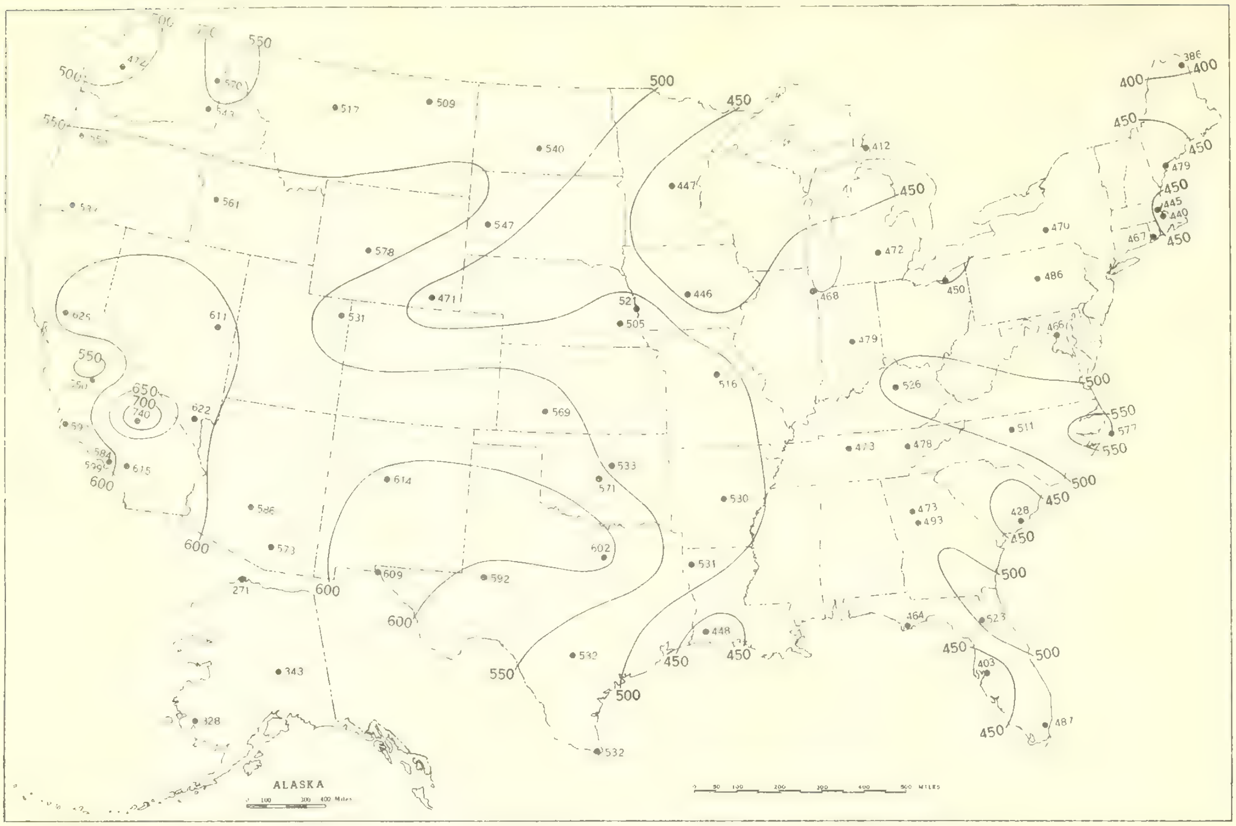
Chart VII. A. Percentage of Possible Sunshine, August 1959.

B. Percentage of Mean Monthly Sunshine, August 1959.

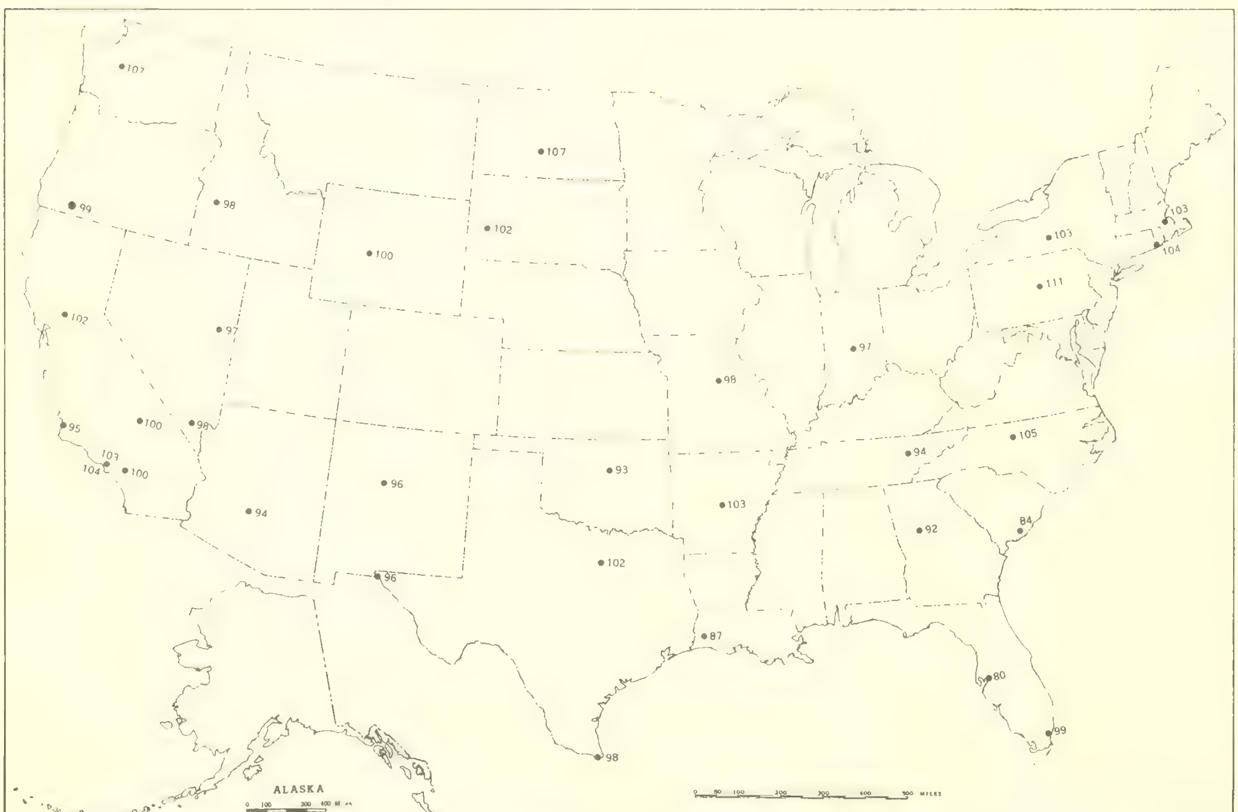


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Means are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, August 1959.



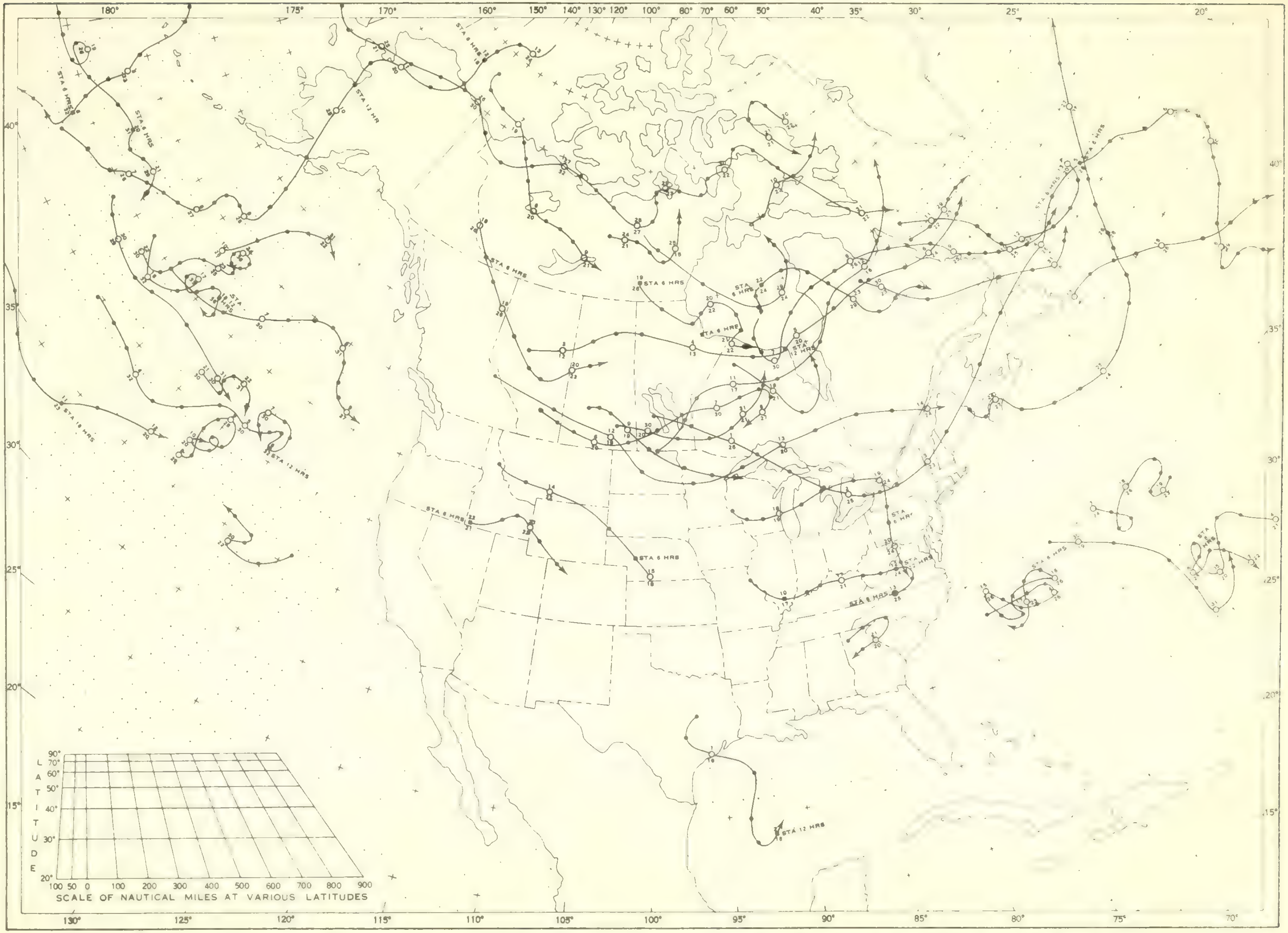
B. Percentage of Mean Daily Solar Radiation, August 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley -- 1 gm. cal. cm.$^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

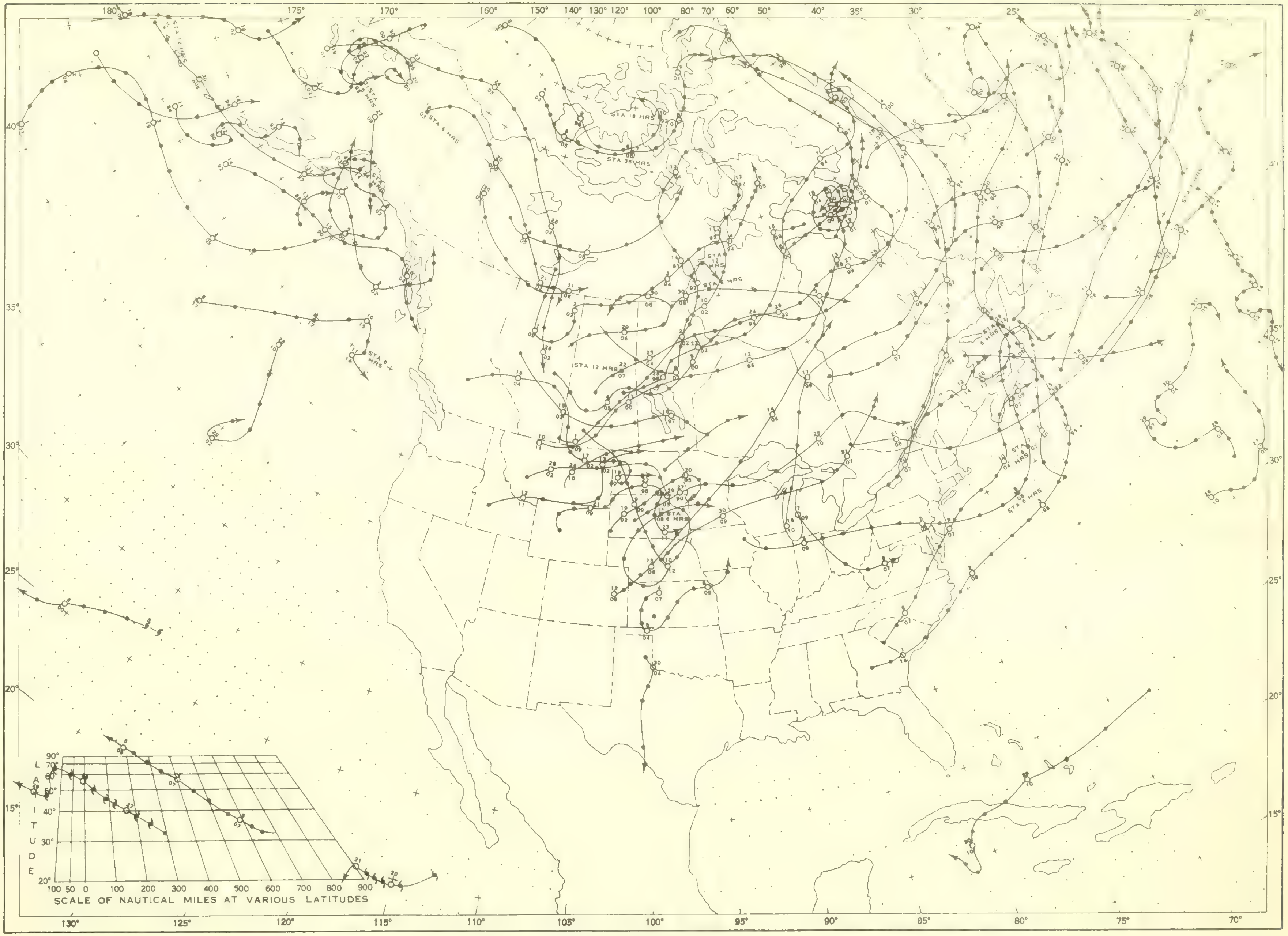
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, August 1959.



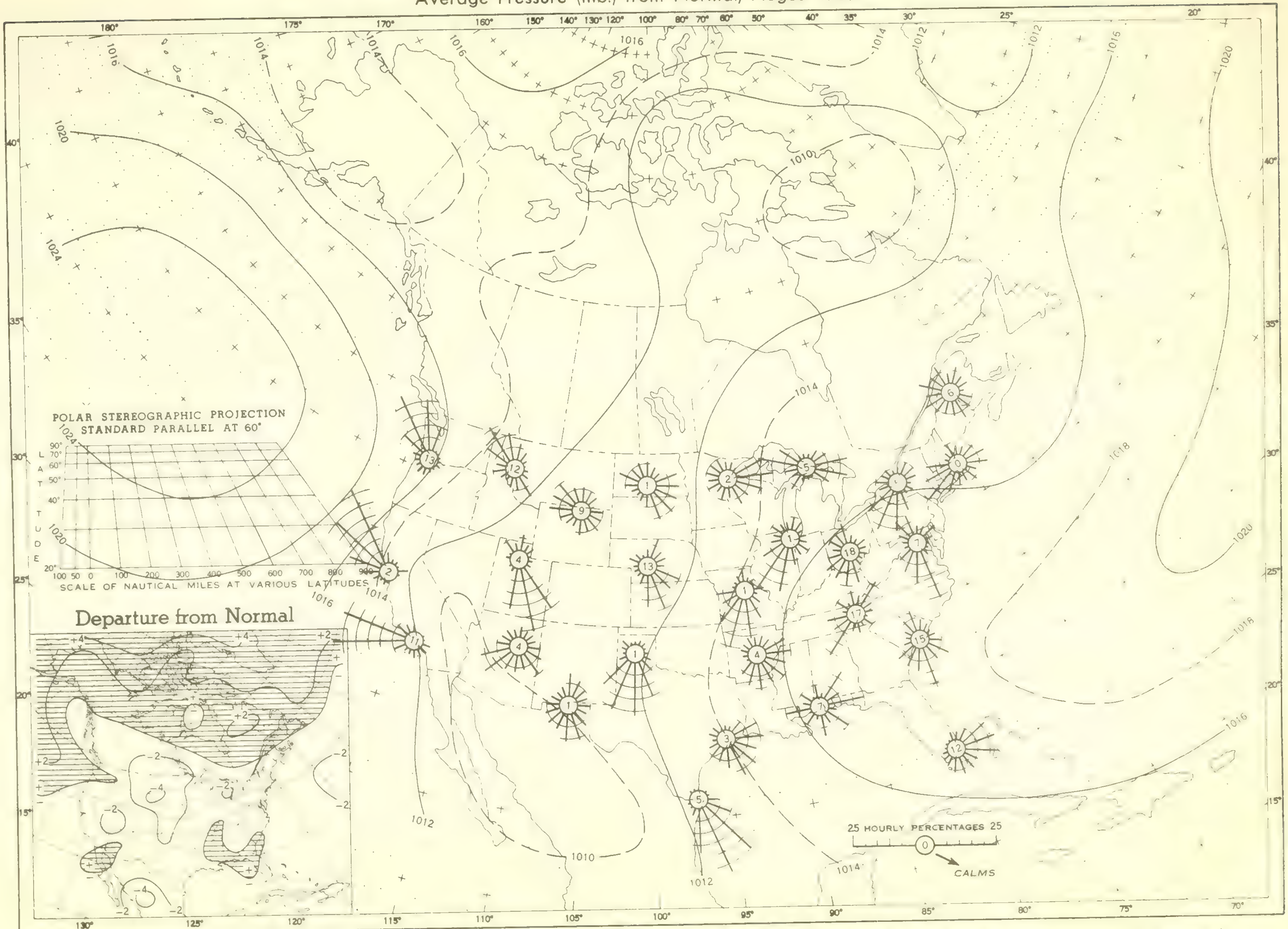
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, August 1959.



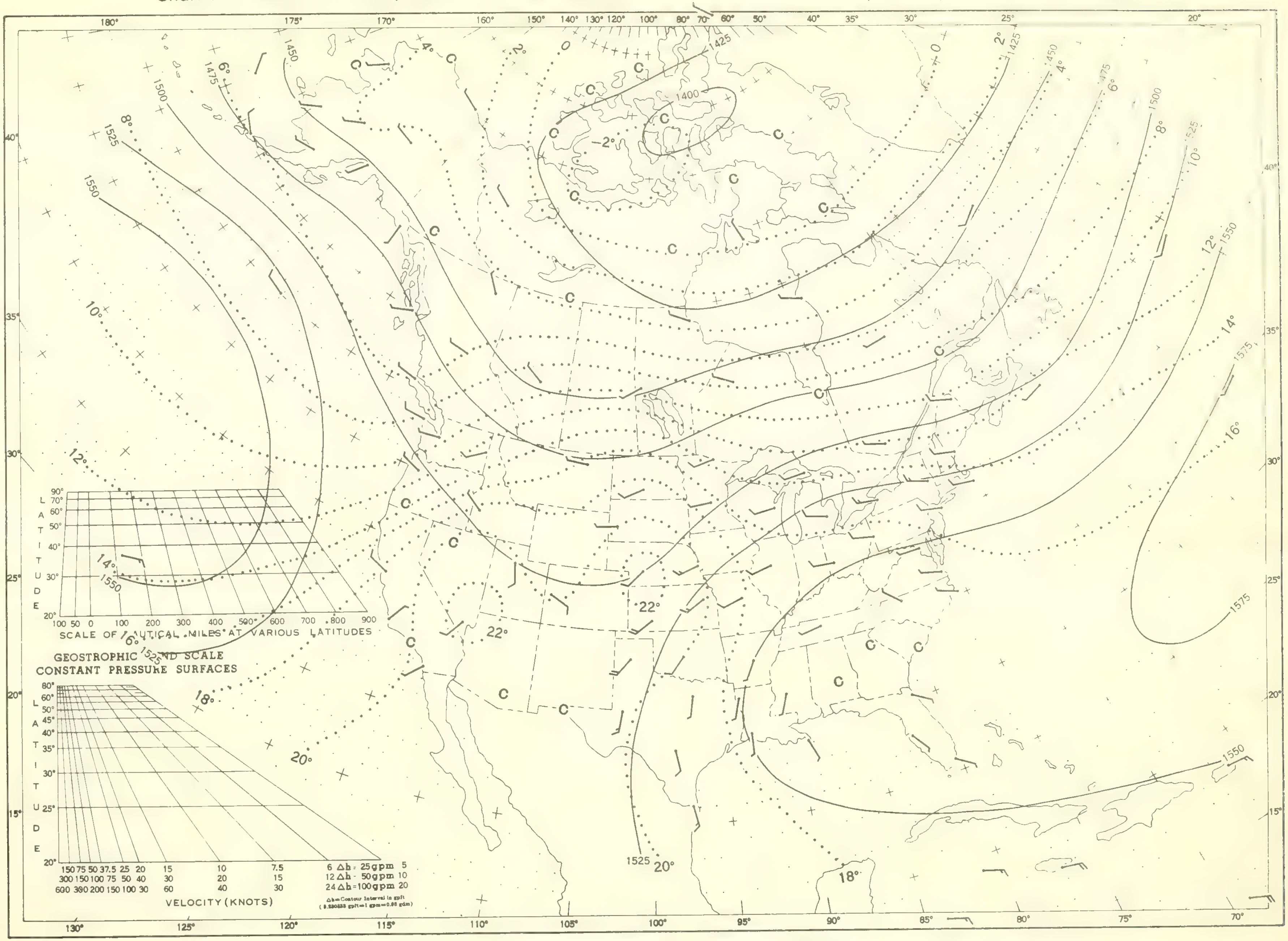
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, August 1959. Inset: Departure of Average Pressure (mb.) from Normal, August 1959.



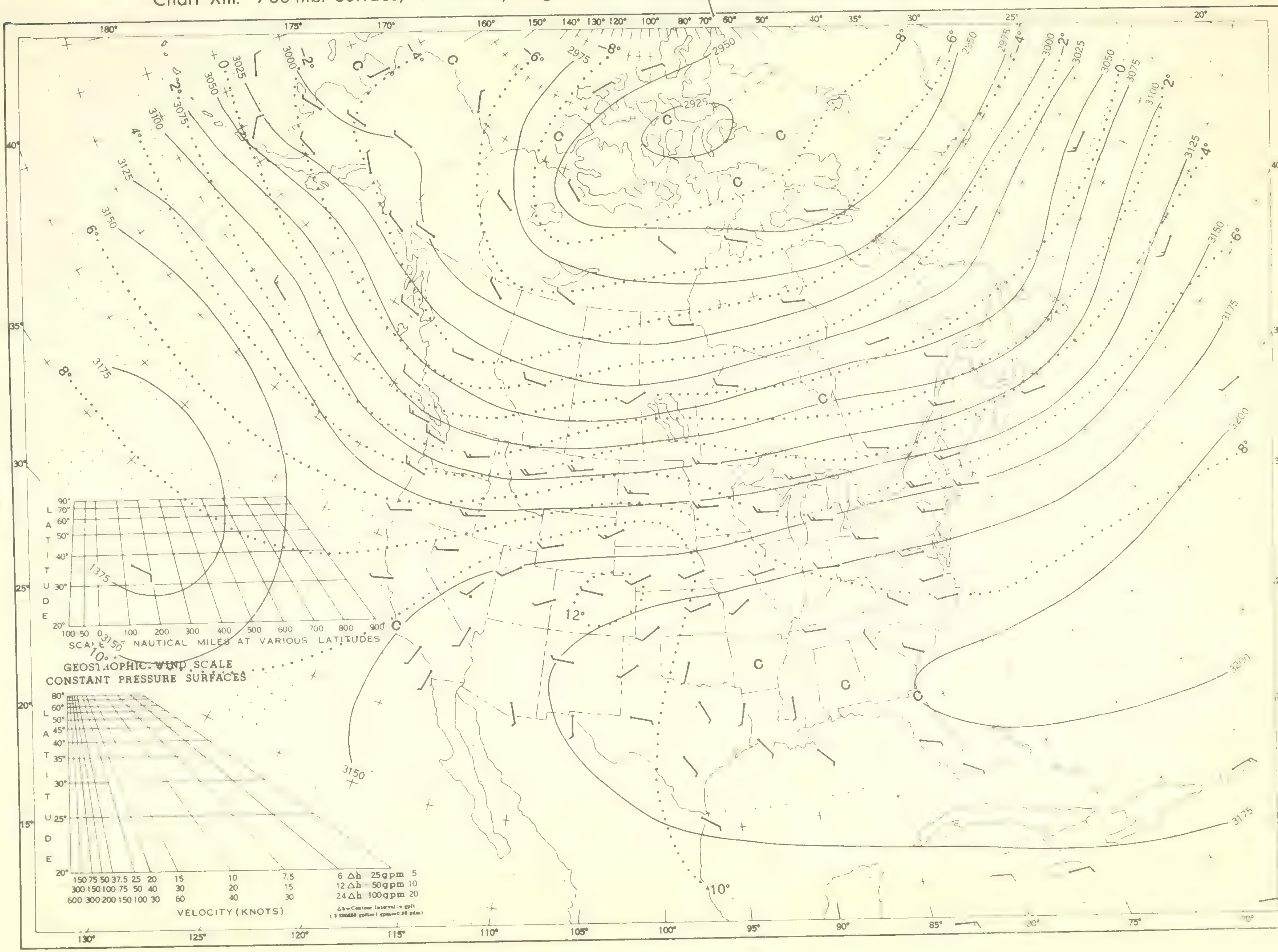
Average sea level pressures are obtained from the averages of the 7:00 a.m. and 7:00 p.m. E.S.T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, August 1959. Average Height and Temperature, and Resultant Winds.



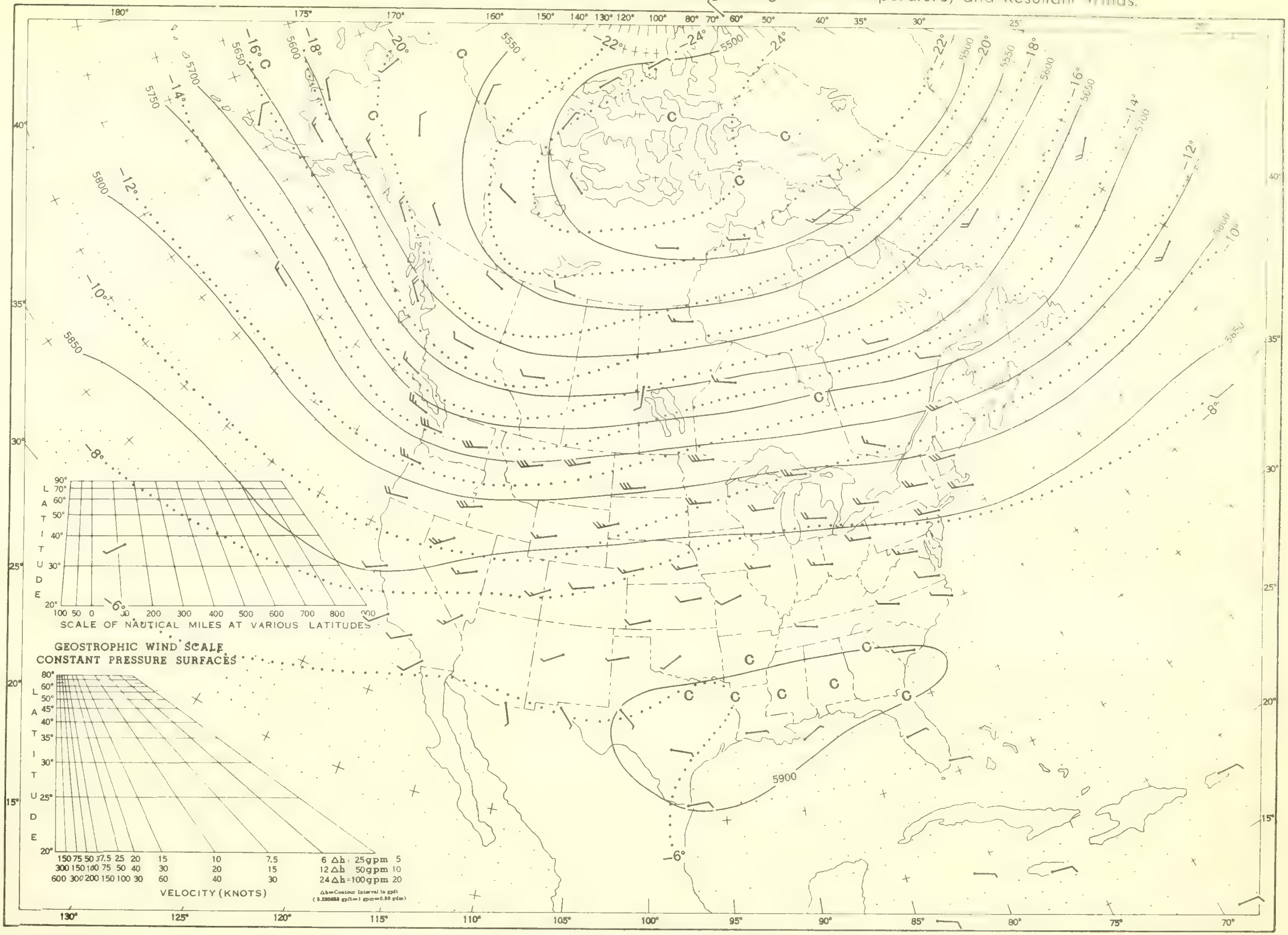
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, August 1959. Average Height and Temperature, and Resultant Winds.



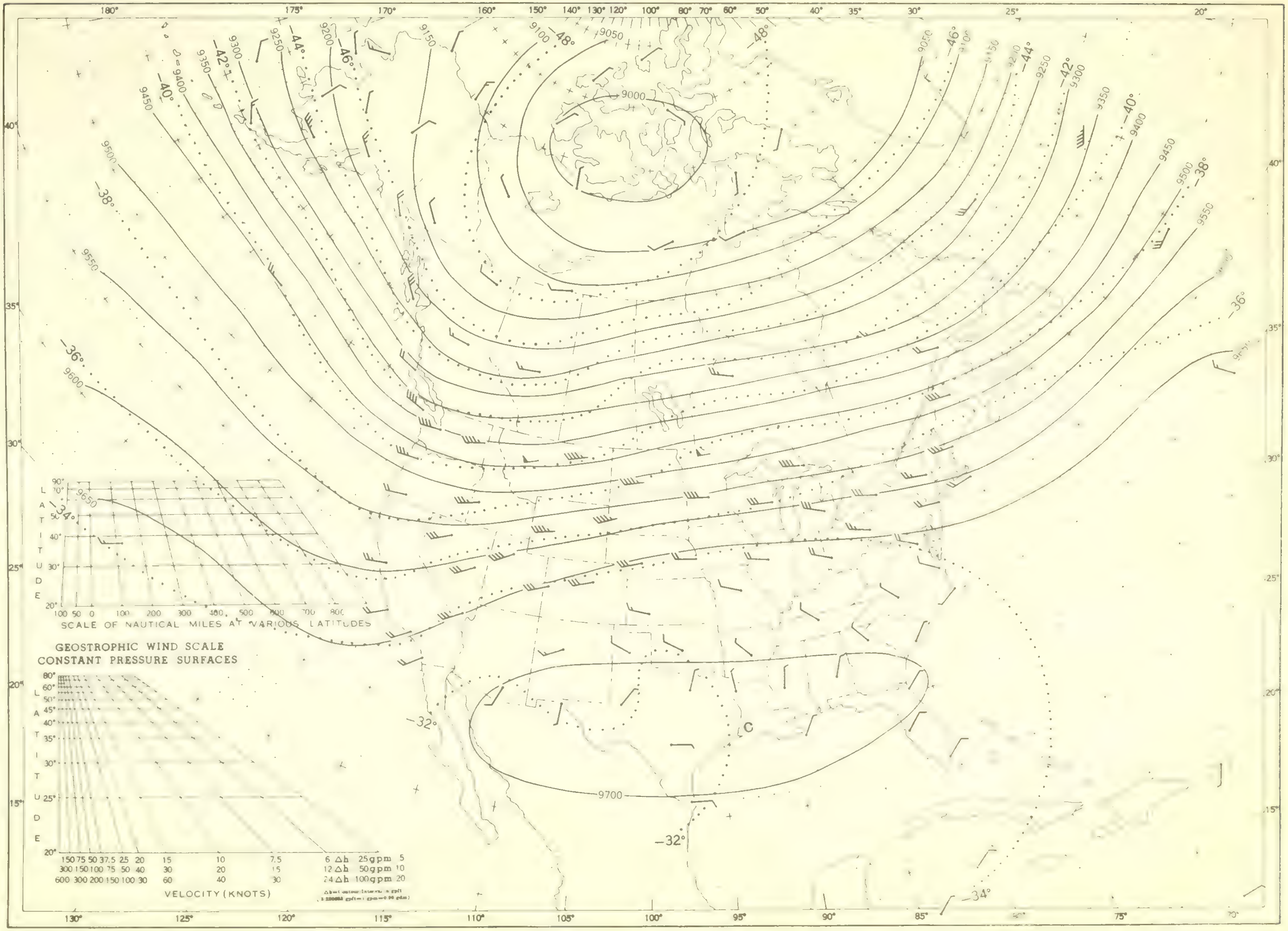
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, August 1959. Average Height and Temperature, and Resultant Winds.



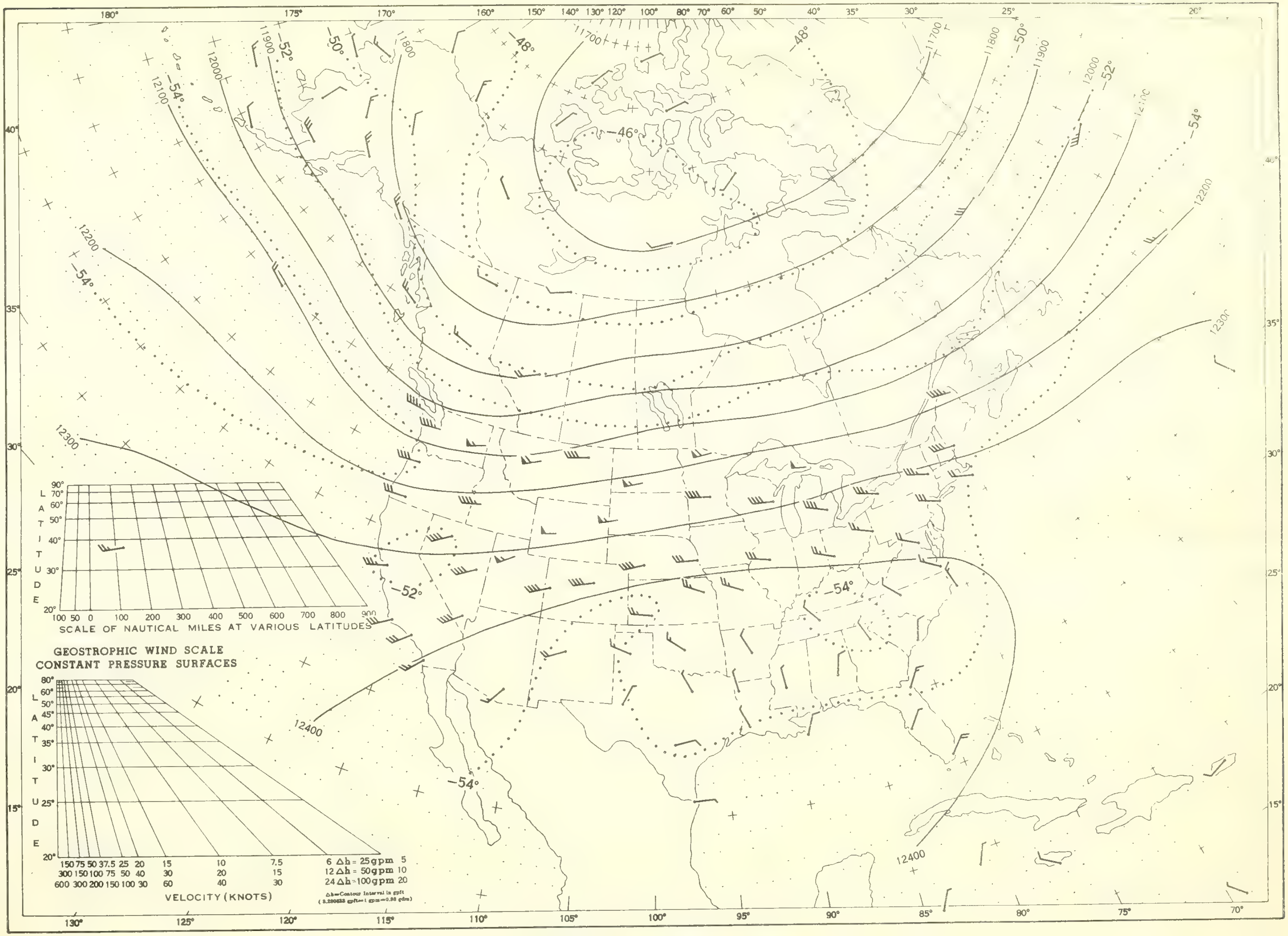
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, August 1959. Average Height and Temperature, and Resultant Winds.



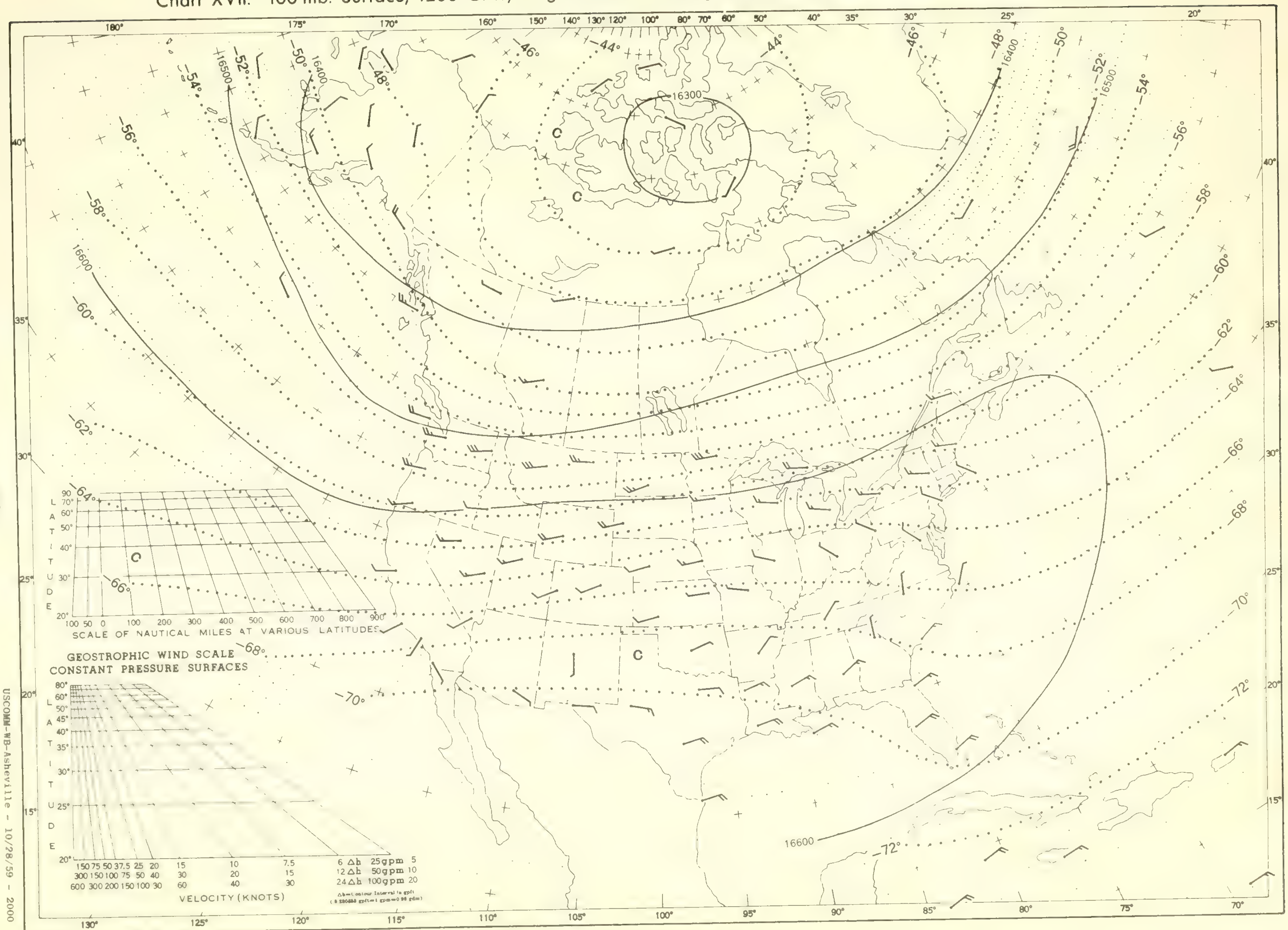
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, August 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, August 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 10/28/59 - 2000

U. S. DEPARTMENT OF COMMERCE
FREDERICK H. MUELLER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

SEPTEMBER 1959
Volume 10 No. 9

ASHEVILLE: 1959

C O N T E N T S

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 9 SEPTEMBER 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

September was somewhat cooler than usual in parts of the Far West, warmer than usual in southern New England and some adjacent areas, and had near normal temperatures elsewhere. East of the Rockies temperatures fluctuated widely, reaching record high levels at many stations early and late in the month, and record low levels about midmonth. The month was extremely dry in parts of the Ohio Valley and Northeast and in the Far Southwest, but precipitation was above to much above normal elsewhere. The month was unusually windy in the Pacific States, with Red Bluff and Sacramento, Calif., Pocatello, Idaho, and Olympia, Wash., reporting the windiest September on record. In the mid-continent area on the 26th and 27th, an outbreak of severe storms including several tornadoes and local flood-producing rains caused heavy losses, and hurricane Gracie was responsible for heavy damage in the Carolinas, Georgia, and Virginia the last 2 days of the month. (See articles "General Summary of River and Flood Conditions" and "Hurricane Gracie" in this publication.) In eastern Colorado the weather was highlighted by a damaging snowstorm.

TEMPERATURES.--Temperatures for the month averaged from 2° to over 4° below normal in the Great Basin of the Far West, and as much as 2° below in the central and upper Great Plains and in Georgia and the Carolinas. Elsewhere monthly averages were above normal, with departures ranging from 4° to 6° in southern New England and New York City and surrounding areas, and over 2° along the California coast, in the Rio Grande Valley, and from the Great Lakes region and Ohio Valley to the Atlantic coast. The monthly average at Binghamton, N. Y., 67.9°, was the highest since the beginning of records there in 1891. The month was the warmest September during the last 25 or 30 years in southern New England and many parts of New Jersey, Pennsylvania, and New York State. In the Rio Grande Valley, Laredo, Tex., had its warmest September since 1926.

East of the Rockies September's temperature regime was marked by three periods of extreme variations from normal, as unusually warm weather featured the early and late parts of the month, and unseasonable cold the middle portion.

High relative humidity added to the discomfort of the high temperatures in the East early in the month. During the first 8 days temperatures in the 90's or higher extended to the Northern Border States, with extremes up to 98° in Iowa, Illinois, and Indiana, 96° in Michigan, 107° in Kansas, and 103° in Minnesota. Rockford, Ill., recorded its highest temperature of the summer on the 7th, 95°. Many stations recorded their highest temperatures for so late in the season including North Platte, Nebr., 102° on the 7th, Bismarck and Fargo, N. Dak., 105° and 102°, respectively, on the 8th, and Erie, Pa., 94° and Buffalo, N. Y., 95° on the 9th. The first 9 days of the month was the hottest such period in 81 years of record at El Paso, Tex., and the first 10 days was the hottest such period at New York City on record.

About the middle of the second week cold northern air overspread most of the area east of the Rockies, with sharp drops of 20° to 40° in a few hours in northern areas. Freezing extended southward to Kansas, Illinois, Indiana, Kentucky, and Virginia. This was the first extensive freeze of the autumn east of the Rockies. Early seasons' lows on the 17th included Detroit, Mich., 36°; Lansing, Mich., 31°; Albany, N. Y., 32°; Buffalo, N. Y., 33°; Toledo, Ohio, 34°; and Erie, Pa., 35°. Columbus, Ohio, reported an early season low of 34° on the 18th, and Corpus Christi, Tex., one of 62° on the 12th.

Late in the month warm, summerlike weather returned to most areas east of the Rockies, although relative to normal this warm spell was not as intense as the one early in the month. Highs in the 90's were recorded along the east coast as far north as Massachusetts. Extreme highs reached 90° at Burlington, Iowa, on the 20th and Chicago, Ill., on the 22d; 93° at Columbia and 92° at St. Louis, Mo., on the 22d; 90° at Boston, Mass., on the 24th; and 90° at Rochester and Syracuse, N. Y., on the 29th.

In the Far West temperatures generally remained above normal during the first half of the month, except in the Pacific Northwest where they were slightly below. The latter half generally was unseasonably cool, except along the California coast where a prolonged period of above-normal temperatures continued. San Diego, Calif., had its fourth warmest September, while at Walla Walla, Wash., this was the coolest September since 1941. At Prescott, Ariz., the early season low of 37° was equaled on the 25th, and Helena, Mont., had an early season low of 25° on the 9th.

PRECIPITATION.--September precipitation was well above normal in the major portion of the Nation. Amounts were particularly heavy, relative to normal, in the Pacific Northwest, southern South Dakota and adjacent areas of Wyoming and Nebraska, most of Kansas and adjacent areas of Colorado and Oklahoma, northern Mississippi and adjacent areas of Arkansas and Alabama, South Carolina, western North Carolina, southern Virginia, and a few other scattered spots. Kalispell, Mont., with 3.84 inches and Williston, N. Dak., with 3.74 inches had their wettest September on record. Fresno, Calif., measured 0.92 inch, the greatest September amount since 1910; Sacramento, Calif., measured 1.46 inches, the third greatest September total since 1849. Near Eureka, Calif., rains on the 17th to 19th ended a high fire hazard. Boise, Idaho, measured 2.54 inches, its greatest September amount during a record dating back to 1864. Burns, Oreg., had a record amount of 1.93 inches for the month and a new record 24-hour amount for September of 1.16 inches on the 18th. In the Roseburg vicinity of western Oregon, rain beginning on the 14th eased the forest fire hazard and ended the drought which began in June.

Heaviest rain in the Southeast fell during the latter part of the second week when a low pressure

disturbance formed along a cold front in the northern Gulf of Mexico. Pensacola, Fla., measured nearly 10 inches in a 24-hour period.

Heaviest rains in many parts of the Mississippi Valley fell during the last week when local amounts of more than 10 inches fell in west-central Oklahoma, 6 inches in Kansas and south Texas, and 5 inches in Iowa, Minnesota, Illinois, and Michigan.

The heavy rains in the Carolinas and southern Virginia occurred at the end of the month and were caused by hurricane Gracie. Amounts totaled over 6 inches in most of South Carolina, over 8 inches in western North Carolina, and up to 10 inches in Virginia.

SNOWFALL.--On the 15th up to 2 inches of snow fell in the northern Appalachians, and a trace at Portland, Maine, was the earliest there on record. Heavy snow fell at higher elevations in the Sierra Nevada Mountains during the third week.

The outstanding snowstorm of the month extended down through the Rockies from Montana to New Mexico during the closing days, when falls up to 3 feet were measured at higher elevations in Colorado. In eastern Colorado, Colorado Springs and Pueblo measured new record amounts of 28 and 14 inches, respectively, and Denver had its second greatest fall in September, 13 inches. A maximum depth of 20 inches was measured at the Colorado Springs Airport. The heavy, wet snow severely damaged trees and disrupted traffic and communications.

DESTRUCTIVE STORMS AND UNUSUAL PHENOMENA.--The most destructive storm of the month was hurricane Gracie which moved inland a short distance southwest of Charleston, S. C., about 11 a.m., e.s.t. on the 29th. Winds on the beaches were estimated as high as 120 m.p.h. with gusts up to 140 m.p.h., and tides 9.7 feet above mean low water in the Charleston, S. C., area and near 5 feet above normal at high tide in the Savannah, Ga., area. Crop and property losses along the Georgia-South Carolina coast were widespread and preliminarily estimated at several million dollars. Winds ranging up to 75 m.p.h. in interior South Carolina and 40 to 50 m.p.h. in North Carolina and Virginia caused some local damage. The storm was blamed for 21 lives and total damage estimated at $14 million.

Intense storm activity occurred in the midcontinent area on the 26th and 27th, when wind and flooding caused considerable crop damage and tornadoes were reported in Missouri, Wisconsin, Illinois, Kansas, and Iowa. A tornado spawned by hurricane Gracie killed several persons at Ivy, Va. Damage in Chicago, Ill., from winds measuring 75 m.p.h. at the O'Hare Airport on the 26th was estimated at more than $1 million.

The record September snowfall in eastern Colorado on the last 2 days of the month was heavy and wet and caused much damage in Pueblo and Colorado Springs with losses estimated at more than $1 million in the latter city alone.

CONDENSED CLIMATOLOGICAL SUMMARY

SEPTEMBER 1959

Section	Temperature: Monthly extremes						Precipitation: Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	5 Stations	98	9+	Heflin	46	21+	Fort Morgan	25.48	Colbert Steam Plant	0.70
Arizona	4 Stations	112	7+	Fort Valley	20	25	Topock	1.74	26 Stations	.00
Arkansas	Subiaco	97	27	2 Stations	40	12+	Stuttgart 9ESE	11.84	Parks	.94
California	Cow Creek	115	10	White Mountain 2	8	30	Turntable Creek	15.30	35 Stations	.00
Colorado	Eversoll Ranch	105	6	Fraser	-2	30	Fraser	5.51	Campo 11WSW	.11
Connecticut	Norwich Pub Util Pl	94	10	2 Stations	26	19	Burlington	7.27	Bridgeport WB AP	.43
Delaware	Middletown 2S	94	23	3 Stations	38	19+	Newark Univ Farm	3.60	Lewes 1SW	.52
Florida	Fort Pierce	99	26	do	60	23+	Hialeah	19.79	Fountain 3S	2.88
Georgia	Camilla	99	1	Blairsville Exp Sta	39	21	Blackbeard Island	13.78	Fairmount	1.31
Idaho	Glenns Ferry	102	10	4 Stations	16	29+	Burke 2ENE	7.99	Howe	.48
Illinois	La Salle Peru	98	7	2 Stations	30	18	Glendale Exp Station	8.02	Elgin	1.89
Indiana	La Porte	98	7	Wheatfield	25	18	Princeton 1W	11.51	Jeffersonville	.57
Iowa	Inwood 2W	98	6	2 Stations	29	18+	Keosauqua No. 2	10.65	Onawa	.96
Kansas	Lincoln 2ESE	107	6	Jetmore	30	13	Alexander	10.08	Elkhart	.23
Kentucky	7 Stations	95	30+	Inez	28	19	Ford Ferry Dam 50	5.78	High Bridge Lock 7	.10
Louisiana	Farmerville	98	5	2 Stations	51	17+	Quarantine	9.76	Point Au Fer Reef	.09
Maine	West Buxton 2NNW	91	8	do	23	16+	Machias	7.26	Brassua Dam	.98
Maryland	3 Stations	95	24+	Oakland 1SE	27	19+	Elkton	4.24	Stevensville	.12
Massachusetts	2 Stations	93	25+	Barre Falls Dam	26	19	Washington 2	3.95	Hatchville	.16
Michigan	do	96	8	2 Stations	21	17	Beechwood 7WNW	10.78	Muskegon WB Airport	1.03
Minnesota	Wheaton	103	8	Cook 18W	18	17	Waseca Uni Exp Farm	7.97	Ortonville Sewage Pl	.74
Mississippi	2 Stations	96	9+	2 Stations	50	11	Pascagoula Jr HS	14.43	Rockport	.06
Missouri	do	100	7+	Berryman 6NW	33	11	Bethany	13.14	Richwoods	1.72
Montana	Albion 1N	104	8	Lakeview	10	29	Sweetgrass	6.06	2 Stations	.30
Nebraska	Beaver City	107	6	Fort Robinson	21	30	Falls City	11.02	Ord	.93
Nevada	Mesquite	110	1	Wilkins	12	28	Jarbidge	4.44	Pahrump	.00
New Hampshire	Concord WB Airport	94	8	Fabyan	22	19+	Claremont	4.95	Northwood	.99
New Jersey	Phillipsburg	99	9	Newton	29	19	Moorestown	4.63	Cape May 3W	.25
New Mexico	Hagerman	107	7	Eagle Nest	18	23	Chama	2.39	47 Stations	.00
New York	Dansville	99	10	2 Stations	20	17	Frost Valley	6.71	Freeport	.19
North Carolina	Kinston	96	4	Transou	33	19	Bee Tree Dam	15.32	Hatteras	.83
North Dakota	Breien 4S	106	[illegible]	Leeds	18	17	Tagus	7.02	Fargo WB Airport	.77
Ohio	2 Stations	98	9+	Millport 2NW	25	17	Findlay Sewage Pl	7.60	Portland Dam 21	.23
Oklahoma	Kenton	107	5	Kenton	35	30	Perkins	12.21	Kenton	.11
Oregon	Spray	100	12	Seneca	14	9	Valsetz	15.35	Redmond	.20
Pennsylvania	Greenville	98	[illegible]	Coudersport 3NW	19	17	Pine Grove 1NE	7.62	Natrona Lock 4	.10
Puerto Rico	2 Stations	94	17+	Guineo Reservoir, P. R.	57	6+	Rio Blanco Upper, P. R.	15.01	Mona Island, P. R.	.22
Rhode Island	Providence WB AP	88	5	Kingston	31	18	Woonsocket	.94	Newport	.25
South Carolina	McClellanville	96	4	Landrum 5ENE	41	21+	Waterboro	14.98	Salem	3.04
South Dakota	Usta 9WNW	109	8	Deerfield 5NW	15	30	Midland	6.46	Wilmot 1ENE	.83
Tennessee	Bolivar 2	96	7+	Mountain City 2	38	20	2 Stations	8.18	Pinewood	.53
Texas	Presidio	110	2	6 Stations	37	30+	San Angelo WB Airport	9.20	4 Stations	.00
Utah	2 Stations	103	10+	Silver Lake Brighton	13	30	Silver Lake Brighton	6.06	Mexican Hat	.03
Vermont	Enosburg Falls	93	9	West Burke	22	19	Salisbury	4.72	St. Albans Bay	.80
Virginia	3 Stations	94	25+	Monterey	27	19	Rocky Knob	16.10	Lincoln	.47
Washington	2 Stations	95	14+	2 Stations	25	9+	Palmer 3SE	19.56	Yakima WB AP	.52
West Virginia	do	98	29+	Canaan Valley	20	19	Mathias	6.20	Creston	.14
Wisconsin	Chilton Sewage Plant	96	8	Gordon 2ESE	18	17	Big St. Germain Dam	13.32	Union Grove	1.83
Wyoming	2 Stations	102	8	Foxpark	3	30	Kirtley	3.27	Cody 23SW	T

+ And also on an earlier date or dates.

Note: Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb.	°F	°F	°F.	°F.	°F		°F		#		°F.	%	In.	In.	In.			In.	In.	M p h		M p h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Birmingham	610	992.5	1017.8	84	66	74.8	0.0	92	4	57	17	7	0	67	80	5.95	3.24	2.09	12	6	0.0	0	8.1	ENE	34	E	5	6	11	13	6.1	62
Huntsville	605	995.1	1018.1	86	65	75.5	----	94	3	58	22	11	0	65	75	3.49	----	.76	10	9	.0	0	6.7	SE	*28	SE	27	8	10	12	6.2	--
Mobile	211	1013.6	1016.0	86	70	77.9	.2	94	5	65	17	7	0	70	81	8.47	2.69	3.53	10	11	.0	0	9.9	E	*29	E	13	7	11	12	6.2	--
Montgomery	195	1008.8	1016.9	87	67	77.0	-.1	95	7+	60	20	11	0	67	78	4.37	.86	1.44	8	7	.0	0	7.0	NE	21	E	8	8	10	12	6.2	57
ALASKA																																
Anchorage	90	1002.7	1007.6	56	39	47.7	-.3	65	29	29	27	0	2	41	77	1.42	-1.29	.55	12	0	.0	0	6.5	S	*23	SSE	29	5	7	18	7.2	42
Annette	110	1008.1	1012.1	57	47	52.4	-.7	64	18+	41	8	0	0	48	86	14.60	5.00	3.46	20	0	.0	0	9.8	SE	*43	SE	8	1	4	25	8.8	--
Barrow	22	1015.9	1016.6	33	27	30.2	-.4	50	12	19	28+	0	28	27	89	1.12	.57	.56	12	0	5.1	1	10.8	E	47	E	29	1	2	27	9.4	--
Barter Island	39	1013.2	1015.3	33	26	29.5	-1.8	44	30	16	27	0	28	28	91	.13	-.78	.04	7	0	1.1	1	12.3	W	*46	E	29	2	0	28	9.1	--
Bethel	125	1004.7	1006.0	53	37	44.9	-.4	62	20	27	27+	0	7	39	82	2.36	-.65	.49	14	0	1.3	T	12.2	ENE	*44	SSE	29	1	8	21	8.2	--
Cold Bay	90	1002.0	1005.7	52	43	47.5	.0	55	28+	35	28+	0	0	43	85	5.27	1.70	1.76	17	0	.0	0	16.8	SSE	*44	ESE	21	0	2	28	9.3	--
Cordova	40	1006.4	1008.2	57	37	46.7	-1.3	65	14+	30	27	0	7	41	83	7.93	-7.54	2.62	13	0	.0	0	3.9	E	*21	E	22	2	5	23	8.4	--
Fairbanks	436	992.2	1009.4	53	34	43.6	-1.0	62	29	26	11	0	14	36	78	.92	-.29	.36	11	0	T	0	6.5	N	*26	SW	30	6	6	18	7.5	--
Juneau	24	1009.8	1010.5	55	42	48.2	-.8	63	19	34	8	0	0	44	87	5.51	-1.41	1.24	20	0	.0	0	7.9	E	*37	ESE	9	3	3	24	8.6	36
King Salmon	44	1004.1	1006.1	55	38	46.5	-1.1	62	29	27	13+	0	6	40	81	1.00	-2.37	.48	12	0	.0	0	11.3	S	*58	ESE	27	4	9	17	7.3	--
Kotzebue	10	1010.2	1010.4	47	32	39.8	-1.1	55	13	21	25	0	12	34	80	.65	-.29	.29	5	0	.0	0	11.3	E	*41	E	29	12	9	[illegible]	4.9	--
McGrath	334	995.6	1008.2	54	33	43.6	-.4	65	29	22	27	0	14	35	76	1.86	-.55	.65	13	0	T	0	5.3	N	*40	S	30	6	6	18	7.0	--
Nome	13	1007.5	1008.0	49	34	41.8	-.2	56	18	24	25	0	11	36	77	2.73	-.20	.84	10	0	T	0	11.0	N	*30	ENE	29+	5	5	20	7.2	41
Shemya	122	1003.1	1006.6	52	45	48.7	----	57	7	38	27+	0	0	45	87	3.74	----	1.36	19	0	.0	0	16.4	NNW	*45	ENE	11	2	10	18	7.9	--
St. Paul Island	22	1004.4	1005.4	49	41	44.9	-.4	52	1	29	6	0	1	42	89	3.37	-.12	.85	22	0	.0	0	----	---	--	---	--	0	6	24	9.1	--
Yakutat	28	1008.5	1009.6	56	40	48.0	-.4	63	17+	31	27	0	1	44	86	9.26	-7.06	2.35	16	0	.0	0	6.8	ENE	*35	SE	9	2	6	22	8.5	--
ARIZONA																																
Flagstaff	6993	------	------	72	41	56.4	-0.6	83	9	24	25	0	2	--	--	.28	-1.57	.18	3	3	.0	0	----	---	--	---	--	17	8	5	3.1	--
Phoenix	1109	970.9	1008.9	96	71	83.3	.6	106	6	60	26+	27	0	50	33	.04	-.96	.03	1	1	.0	0	7.0	NE	*25	SSE	16	22	4	4	2.2	96
Prescott	5014	847.3	1011.6	81	53	67.0	-1.2	92	1	37	25	7	0	39	--	.12	-2.04	.07	2	1	.0	0	10.8	S	35	S	15	19	7	4	2.8	81
Tucson	2584	923.5	1009.3	94	67	80.2	.1	103	4	57	30+	22	0	45	31	T	-1.48	T	0	2	.0	0	9.9	SSE	34	SW	30	23	5	2	1.8	89
Winslow	4880	851.0	1009.7	86	54	69.9	1.3	97	1	39	25	9	0	34	31	.23	-.89	.07	3	2	.0	0	11.4	WSW	*29	WSW	28+	19	4	7	3.1	--
Yuma	199	1003.4	1008.5	101	72	86.2	-2.1	112	1	58	30	27	0	53	37	.02	-.62	.02	1	1	.0	0	7.8	SSE	37	SE	11	28	0	2	.9	93
ARKANSAS																																
Fort Smith	458	998.6	1015.4	87	64	75.3	.3	95	5	49	11	12	0	65	74	4.47	.76	2.87	9	6	.0	0	7.7	ENE	32	W	28+	7	13	10	5.7	57
Little Rock	257	1004.1	1017.0	85	66	75.2	.4	92	2	55	11	3	0	66	76	7.02	4.17	2.12	10	10	.0	0	8.1	SSE	28	SE	26	9	11	10	5.6	59
Texarkana	361	------	1015.9	87	67	77.2	.0	92	28+	55	11	9	0	--	--	1.70	-1.09	.48	7	7	.0	0	6.3	NE	--	---	--	--	--	--	---	--
CALIFORNIA																																
Bakersfield	494	994.2	1012.2	87	62	74.3	-1.3	98	9	52	16+	13	0	50	45	.04	-.03	.04	2	0	.0	0	7.7	NW	*21	NNW	14+	18	9	3	3.0	--
Bishop	4108	872.3	1011.2	85	47	65.9	-1.4	98	6+	34	30	11	0	--	--	.28	.09	.25	4	1	.0	0	----	---	--	---	--	20	7	3	2.6	--
Blue Canyon	5280	839.1	1012.5	68	50	59.0	-4.5	83	[illegible]	35	15	0	0	--	--	3.78	3.22	3.08	5	1	.0	0	8.4	WSW	49	E	28	20	2	8	3.4	--
Burbank	699	986.5	1012.5	82	62	71.8	.6	98	10	54	17	5	0	58	67	.27	-.02	.22	3	0	.0	0	3.1	S	*13	SSW	30	12	11	7	4.6	--
Eureka (U)	43	1013.9	1016.3	63	52	57.8	1.6	69	18+	46	29	0	0	--	--	1.54	.87	.78	6	1	.0	0	7.1	⊛ N	34	N	30+	7	9	14	6.3	61
Fresno	331	1000.0	1011.7	86	58	71.9	-1.6	100	[illegible]	47	30	12	0	52	53	.92	.87	.91	2	1	.0	0	6.8	NW	18	W	16	20	8	2	2.5	90
Long Beach	34	1011.9	1012.9	81	63	71.9	----	100	11	57	24	2	0	60	71	.01	----	.01	1	0	.0	0	6.7	WNW	*20	SSW	30+	12	11	7	4.9	--
Los Angeles (U)	312	------	------	82	65	73.5	2.5	100	11	60	29+	3	0	62	73	.01	-.26	.01	1	0	.0	0	5.7	⊛ W	21	W	19	8	14	8	5.1	63
Los Angeles	99	1008.8	1012.6	80	66	72.8	6.1	103	11	60	29	1	0	61	70	.04	-.17	.03	2	0	.0	0	8.4	WSW	*22	SW	30+	7	18	5	5.2	--
Mt. Shasta (R)	3544	892.0	1014.9	72	44	58.1	-1.7	89	2	31	15	0	2	--	--	1.95	1.19	1.94	3	0	.0	0	----	---	--	---	--	19	4	7	3.4	--
Oakland	3	1013.5	1013.9	74	56	65.1	1.8	82	29+	50	30	0	0	54	73	3.27	3.18	3.23	2	0	.0	0	9.2	WNW	*33	NNE	30	18	7	5	3.6	--
Point Arguello	367	1000.0	1013.3	67	53	59.5	----	75	17	45	30	0	0	--	--	.27	----	.17	7	0	.0	0	7.5	---	*25	NW	15	4	10	16	7.0	--
Red Bluff	341	999.7	1012.2	86	60	72.8	-2.2	101	1	49	16+	11	0	43	38	1.03	.70	.97	3	1	.0	0	12.5	N	38	N	30	18	8	4	3.2	91
Sacramento	17	1010.8	1012.0	84	56	69.7	-.6	97	1	46	30	8	0	51	57	1.61	1.55	1.56	3	0	.0	0	11.0	SW	33	N	30	21	6	3	2.4	95
Sandberg (R)	4517	862.2	1011.5	73	54	63.5	-5.9	91	10	40	15	1	0	--	--	.92	.69	.73	3	2	.0	0	13.8	N	*45	NNW	27	20	7	3	2.4	--
San Diego	19	1009.1	1012.2	77	66	71.6	2.9	102	11	62	30	1	0	61	72	.04	-.13	.02	2	0	.0	0	7.0	SSW	24	S	30	14	10	6	4.7	59
San Francisco (U)	52	------	------	69	57	62.9	1.3	79	28+	53	3	0	0	--	--	2.06	1.93	2.06	2	0	.0	0	9.0	⊛ W	26	SE	18	--	--	--	---	79
San Francisco	8	1013.2	1014.0	73	55	64.3	2.3	79	28+	51	30	0	0	54	74	2.30	2.19	2.30	2	0	.0	0	11.9	WNW	48	S	18	16	10	4	3.2	--
Santa Maria	238	1005.1	1013.8	73	52	62.5	.4	82	26+	46	16	0	0	54	81	.20	.08	.16	3	0	.0	0	7.1	WNW	*29	WNW	15	13	10	7	4.3	--
COLORADO																																
Alamosa	7536	773.1	1015.6	73	35	54.0	-.7	86	7	17	25	0	8	--	--	1.94	1.25	1.82	4	1	2.2	1	----	---	--	---	--	17	6	7	4.0	--
Colorado Springs	6173	811.7	1013.9	74	44	59.0	-3.0	94	8	26	30	5	3	32	45	3.58	2.51	1.73	7	3	27.9	17	9.8	SSE	*25	N	24	14	5	11	4.9	--
Denver	5292	838.1	1013.5	75	47	61.1	-1.6	95	6	29	30	5	2	31	41	1.82	.74	1.20	[illegible]	1	12.9	7	10.0	SSW	35	NW	27	11	9	10	5.2	77
Grand Junction	4849	858.1	1012.0	77	52	64.6	-2.7	93	7+	34	28	9	0	31	37	.82	-.20	.48	5	5	.0	0	9.5	ESE	35	W	27	11	6	13	5.4	57
Pueblo	4639	856.4	1013.0	79	47	63.0	-1.8	98	8+	33	30+	5	0	37	46	2.49	1.74	1.32	6	0	14.0	1	8.0	ESE	32	W	8	14	6	10	4.5	76
CONNECTICUT																																
Bridgeport	7	1020.7	------	79	60	69.4	4.2	89	9+	42	19	0	0	--	--	.43	-3.12	.26	5	0	.0	0	----	---	--	---	--	12	9	9	4.8	--
Hartford	169	1014.7	1020.6	78	55	66.3	2.5	89	24+	34	19+	0	0	57	77	1.68	-1.76	1.01	6	2	.0	0	4.9	S	21	NE	11	12	8	10	5.2	69
New Haven	6	1020.4	1021.0	78	58	67.8	4.2	90	9	38	18	1	0	--	--	.64	-2.82	.32	4	3	.0	0	6.9	---	22	N	11	12	11	7	4.6	78
DELAWARE																																
Wilmington	78	1017.3	1020.7	80	61	70.4	2.4	90	9	40	18	1	0	60	75	2.29	-1.51	2.19	5	3	.0	0	6.7	S	*23	S	30	10	12	8	5.0	--
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	83	63	72.8	2.9	93	9	45	19	7	0	--	--	2.78	-1.58	1.34	[illegible]	--	----	--	----	---	--	---	--	--	--	--	---	--
Wash. Nat'l. AP	14	1015.8	1020.4	82	64	73.2	3.6	92	[illegible]	48	19	4	0	61	69	2.05	-2.07	.86	7	4	.0	0	7.1	S	34	ESE	30	10	13	7	4.9	72
FLORIDA																																
Apalachicola (U)	13	1013.5	------	84	72	78.4	-.5	92	29	67	20	2	0	--	--	16.38	8.73	5.60	9	11	.0	0	7.0	---	27	E	13	14	10	6	4.9	73
Daytona Beach	31	1014.7	1016.5	87	73	80.1	.7	92	30+	67	17	6	0	72	83	5.26	-1.26	2.19	15	11	.0	0	10.1	ENE	*29	N	28	4	11	15	6.7	--
Fort Myers	15	------	------	89	73	81.0	-.3	92	8	71	30+	19	0	--	--	6.89	-1.70	1.84	16	17	.0	0	7.4	---	29	N	1	6	14	10	6.0	--
Jacksonville	24	1015.2	1016.6	87	72	79.0	-.2	95	3	67	16	6	0	72	83	5.67	-1.29	2.21	18	9	.0	0	9.0	NE	34	NE	19	2	14	14	7.2	37
Key West	4	1013.3	------	88	77	82.5	-.2	92	30	72	9	7	0	--	--	8.50	2.45	2.51	12	10	.0	0	8.0	---	32	SW	16+	2	16	12	6.8	68
Lakeland (U)	214	------	------	87	72	79.6	-.5	93	30+	68	16+	7	0	--	--	7.04	.67	2.66	15	12	.0	0	7.0	---	--	---	--	4	16	10	6.4	61
Miami	7	1013.4	1014.7	87	74	80.6	-1.1	90	14+	71	11+	2	0	74	84	12.98	4.65	3.45	22	16	.0	0	5.8	ENE	*23	W	16	0	14	16	7.2	--
Miami Beach	9	------	------	87	76	81.3	-.6	94	28	71	19	5	0	--	--	13.60	7.75	5.34	20	--	.0	0	----	---	29	NE	22	4	11	15	---	¢41
Orlando	106	1011.6	1015.9	[illegible]	71	79.7	-1.0	93	30	67	17	10	0	72	93	8.33	1.18	1.54	16	9	.0	0	7.6	NE	*29	WSW	13	1	15	14	6.9	--
Pensacola (U)	13	------	------	85	73	79.0	.7	93	30+	68	16	6	0	--	--	14.84	9.06	6.97	11	10	.0	0	----	---	24	N	13+	--	--	--	---	68
Tallahassee	64	1013.4	1016.2	87	71	78.5	.5	93	30	65	20	10	0	70	80	6.31	.95	2.80	10	12	.0	0	5.7	ENE	--	---	--	5	13	12	6.2	--
Tampa	19	1013.3	1015.7	90	73	81.5	1.0	93	26+	70	17+	18	0	72	80	8.49	2.04	2.37	14	15	.0	0	7.7	ENE	33	SW	15	4	15	11	6.5	56
West Palm Beach	15	1013.9	1014.9	89	74	81.8	.6	93	15+	69	11	13	0	73	81	6.92	-2.20	1.64	21	11	.0	0	8.6	ENE	*35	E	20	2	13	15	7.1	--
GEORGIA																																
Athens	798	989.6	1018.6	81	64	72.5	-2.7	90	4+	53	20	4	0	65	[illegible]	5.54	2.48	3.16	9	4	.0	0	8.2	NE	23	NNE	29	7	8	15	6.6	--
Atlanta	975	977.0	1018.2	82	65	73.3	-1.1	93	1	55	20	3	0	65	79	3.46	.50	1.41	8	3	.0	0	8.6	ENE	*25	NNW	29	8	11	11	5.9	59
Augusta	143	1010.7	1017.5	84	65	74.3	-1.5	92	3	52	20	3	0	67	84	6.77	3.56	2.60	10	4	.0	0	5.4	ENE	*35	NW	29	8	8	14	6.2	--
Columbus	385	1003.6	------	85	67	75.9	-.3	95	3	58	20	8	0	--	--	3.31	.95	2.05	[illegible]	3	.0	0	8.3	---	*20	NE	12	[illegible]	5	16	6.6	--
Macon	356	1003.9	1017.6	86	66	76.0	-1.5	95	3	56	20	12	0	67	79	3.38	.46	2.10	11	5	.0	0	7.7	NE	31	S	1	7	10	13	6.3	62
Rome	637	995.3	------	84	62	73.2	-1.0	91	4+	49	21	5	0	62	75	1.92	-1.06	.90	11	7	.0	0	3.4	---	--	---	--	7	12	11	6.1	--
Savannah	48	1014.4	1017.0	84	68	76.4	-.3	94	2	61	20	5	0	69	83	8.37	1.87	3.94	13	11	.0	0	8.0	NNE	56	NW	29	4	13	13	6.6	43
Thomasville	283	------	------	88	69	78.3	.4	96	8	62	20	15	0	--	--	3.23	-1.72	.73	13	7	.0	0	----	---	--	---	--	--	--	--	---	--
HAWAII																																
Hilo	31	1013.2	1014.5	82	68	75.1	-.2	85	15+	62	21	0	0	69	83	7.27	-3.15	1.39	29	0	.0	0	7.7	WSW	*20	E	24+	1	6	23	8.4	33
Honolulu	7	1014.2	1014.6	87	75	80.9	1.7	92	7	71	6	2	0	68	67	.88	-.26	.86	3	0	.0	0	14.2	ENE	31	NE	1	4	19	7	5.8	70
Lihue	115	1009.5	1014.6	87	74	80.7	2.9	89	20+	71	26+	0	0	70	74	1.34	-.86	.30	15	0	.0	0	12.6	NE	25	NE	24	1	16	13	6.9	70

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days: Partly cloudy	No. of days: Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb	°F	°F	°F	°F	°F		°F				°F	%	In	In	In			In	In	M p. h.		M p h			0–3	4–7	8–10	0–10	%
IDAHO																																
Boise	2842	919.4	1014.8	71	48	59.7	-2.7	95	11	35	29+	2	0	43	39	2.54	2.08	0.87	11	4	0.0	0	7.5	NW	31	SW	11	8	7	15	6.1	70
Idaho Falls 46W (R)	4933	848.3	1014.6	69	40	54.5	-1.5	90	10	20	29	1	5			.74	.38	.57	7	2	.2	1	9.2	SW	a34	SW	8	--	--	--	---	--
Idaho Falls 42NW (R)	4790	------	------	70	39	54.2	-1.2	90	11+	19	29	2	8	-	--	.61	.62	.53	4				9.3	SW	a37	WSW	4	--	--	-	---	--
Lewiston	1413	963.1	1014.3	71	48	59.5	-3.7	92	12	36	29	2	0			.93	97	.66	[illegible]	[illegible]	0	0	-	-				7	8	15	6.6	-
Pocatello	4444	862.5	1014.3	70	45	57.5	-2.3	92	10	26	29	3	2	38	33	1.73	.83	.63	7	1	0	0	12.9	SW	12	SW	8	7	7	16	6.6	64
ILLINOIS																																
Cairo (U)	314	1004.4	------	84	64	73.8	.8	92	8	51	17	3	0			4.68	1.36	3.40	8	4	.0	0	7.9	S	34	SW	2	10	15	5	5.0	75
Chicago (O'Hare)	656	993.6	1018.1	77	58	67.3	---	97	8	40	18	5	0	55	68	1.91	----	.83	7	5	0	0	11.8	SSW	*58	SW	21	10	7	13	5.8	--
Chicago (Midway)	610	995.6	1018.2	78	60	69.0	3.4	96	8+	43	18	8	0	55	64	2.17	-1.06	.93	5	5	.0	0	11.3	SSW	48	SW	26	10	9	11	5.6	58
Moline	589	995.3	1017.6	77	56	66.3	.9	95	7	36	18	5	0	54	69	4.29	.20	2.18	10	6	.0	0	8.0	S	40	SW	26	12	5	13	5.5	61
Peoria	654	995.6	1018.1	79	58	68.1	1.8	93	7	41	18	5	0	55	67	3.51	-.22	1.39	9	3	.0	0	10.9	S	60	W	26	14	4	12	5.0	63
Rockford	728	990.5	1017.9	77	55	65.8	2.2	95	7	35	18	4	0	54	70	4.73	.60	2.24	8	6	0	0	9.3	SSW	*32	WSW	26	12	8	10	5.3	--
Springfield	589	994.2	1017.6	79	59	69.0	2.1	92	7	46	17+	3	0	56	68	6.47	2.57	5.12	9	7	.0	0	11.3	S	47	W	26	14	4	12	4.9	71
INDIANA																																
Evansville	383	1003.1	1019.0	82	60	70.9	.4	91	7	47	17	2	0	60	72	1.88	-1.52	1.07	7	3	0	0	8.0	S	25	NW	28+	13	11	6	4.7	82
Fort Wayne	801	988.2	1019.3	79	55	66.9	2.3	92	8	34	18	3	0	55	67	2.22	-.85	1.13	12	6	.0	0	11.0	SSW	13	W	26	9	12	9	5.1	67
Indianapolis	793	989.2	1019.0	80	57	68.4	1.2	90	8+	39	18	2	0	56	70	2.33	-1.34	1.04	9	3	.0	0	8.7	S	24	SW	26	10	11	9	5.1	72
South Bend	768	990.5	1018.4	80	55	67.4	2.9	95	7	35	17	5	0	54	67	2.90	-.81	1.30	8	6	.0	0	10.8	SSW	*32	W	21	12	6	12	5.2	--
IOWA																																
Burlington	694	991.9	1017.7	77	57	66.9	.2	94	7	43	18	5	0	56	72	5.41	1.28	1.56	14	8	.0	0	10.7	SSW	36	W	22	13	4	13	5.2	67
Des Moines	948	986.1	1017.3	74	54	64.3	-1.5	94	7	40	29	3	0	54	73	3.13	-.51	1.05	10	6	.0	0	10.3	S	52	W	1	12	3	15	5.9	59
Dubuque	1065	992.2	1018.2	73	53	62.8	.5	91	7	38	16	1	0	53	70	3.84	-.34	1.52	10	6	.0	0	----	---	--	---	--	11	4	15	5.7	--
Sioux City	1094	974.6	1015.6	74	52	63.3	-1.1	94	7	38	29	3	0	51	67	1.47	-1.77	.63	7	4	.0	0	11.1	SE	30	NW	9	10	7	13	5.6	58
Waterloo	870	------	------	74	52	63.3	.1	94	7	38	18+	3	0	--	75	4.16	-.36	1.92	12	6	.0	0	10.3	---	--	--	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	965.5	------	79	57	67.7	-1.8	101	7	43	30+	5	0	--	64	3.04	.58	1.33	12	9	.0	0	8.1	S	25	SW	20+	13	8	9	4.5	70
Dodge City	2594	926.9	1013.5	82	56	68.9	-1.0	101	5	39	30	7	0	48	55	3.86	2.15	3.27	8	10	.0	0	16.0	S	66	N	9	19	3	8	3.4	81
Goodland	3645	887.9	1013.6	76	47	61.6	-3.0	101	6	32	30	5	1	42	57	2.97	1.60	.99	8	6	3.1	1	11.9	SSE	*36	S	8	14	6	10	4.9	--
Topeka	877	980.4	1016.2	79	56	67.8	-1.2	93	7+	39	11	4	0	56	71	2.68	-.76	.97	11	11	.0	0	12.0	S	34	E	26+	13	5	12	4.9	66
Wichita	1321	966.1	1014.2	82	60	71.0	-.7	98	7+	42	11	7	0	56	61	2.31	-.92	.95	10	9	.0	0	14.3	S	43	S	22	17	3	10	4.1	71
KENTUCKY																																
Lexington	979	983.7	1019.3	83	60	71.5	2.0	90	8+	44	17	2	0	58	68	.24	-2.59	.13	3	1	.0	0	9.3	S	--	---	--	10	13	7	4.9	--
Louisville	474	999.3	1018.5	86	62	73.7	3.5	95	7	47	17	11	0	60	67	.48	-2.22	.15	5	2	.0	0	9.3	S	29	SE	26	12	10	8	4.9	74
LOUISIANA																																
Baton Rouge	64	1012.9	1015.8	87	69	77.8	.3	93	2	61	17	10	0	71	85	3.21	-1.11	1.21	10	10	0	0	7.6	SE	--	---	--	5	15	10	5.7	--
Lake Charles	12	1013.5	1015.1	88	70	79.2	.6	92	5	63	17	14	0	70	78	1.21	-3.32	.69	7	5	.0	0	8.1	N	*24	SSW	26+	4	17	9	5.9	--
New Orleans (U)	9	------	------	87	74	80.7	.4	94	7+	69	15	10	0	--	78	4.15	-1.67	1.67	12	6	.0	0	6.8	---	22	E	20	7	16	7	5.5	70
New Orleans	3	1013.2	1015.4	87	73	79.9	.4	93	3+	68	15	10	0	72	81	3.47	-1.59	1.22	9	6	.0	0	9.2	ENE	*41	NW	3	7	14	9	5.6	--
Shreveport	252	1006.4	1015.6	88	68	78.2	-.6	94	27+	57	12	12	0	66	74	1.64	-.58	.44	10	6	.0	0	9.7	SE	--	---	--	9	7	14	6.1	66
MAINE																																
Caribou	624	995.1	1018.3	68	45	56.4	3.2	84	8+	28	15	0	6	49	79	3.22	-.28	1.83	9	1	T	T	10.4	WSW	*29	WNW	13	4	12	14	6.6	--
Portland	61	1016.0	------	72	50	60.9	2.3	90	8	32	19	1	1	--	--	3.19	.11	1.52	7	3	T	0	7.9	---	26	W	24	11	6	13	5.6	65
MARYLAND																																
Baltimore (U)	14	------	------	82	66	74.0	3.6	92	24+	48	18+	7	0	--	--	1.39	-2.07	.82	6	--	---	--	----	---	--	---	--	--	--	--	---	--
Baltimore	146	1015.9	1020.7	81	61	70.7	2.8	91	24	42	20+	3	0	59	71	.82	-2.64	.39	7	2	.0	0	10.5	S	30	SE	30	11	12	7	4.8	75
Frederick	294	------	------	81	57	69.0	.5	91	9	36	19+	3	0	--	--	1.38	-2.18	1.00	7		.0	0	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs.	629	996.4	1019.6	76	56	65.7	----	88	8	38	19+	0	0	--	74	.75	----	.45	8	--	.0	0	11.9	S	30	SSW	29	--	--	--	---	64
Boston	15	1015.2	1019.8	77	60	68.1	3.8	92	8	44	19	2	0	56	71	.63	-2.36	.35	6	0	.0	0	9.2	WSW	26	NNW	11	11	8	11	5.2	74
Nantucket	43	1020.2	1020.8	72	58	64.5	2.5	84	5	44	16	0	0	58	80	.42	-2.95	.22	4	3	.0	0	10.6	SW	33	N	11	9	11	10	5.6	67
Pittsfield	1153	------	------	74	50	61.9	3.6	87	9+	31	19	0	4	--	--	2.23	-2.00	1.57	5	--	.0	0	----	---	-	---	--	--	--	--	---	--
Worcester	986	983.9	------	73	56	64.4	3.3	85	8	36	17	0	0	--	--	2.42	-1.19	1.26	6	1	.0	0	7.0	---	*17	SW	29+	10	10	10	5.3	--
MICHIGAN																																
Alpena	689	993.2	1017.7	71	48	59.4	1.4	90	9+	29	17	2	4	52	72	2.97	.84	.73	13	6	.0	0	6.6	W	26	SW	27	7	11	12	6.3	61
Detroit	619	992.9	1019.5	76	58	67.0	2.7	91	9+	36	17	2	0	55	68	4.69	1.91	2.56	12	5	.0	0	9.7	N	36	W	28	9	10	11	5.5	65
Detroit (Willow Run)	722	990.9	1019.1	78	56	66.9	2.6	94	8	36	17	4	0	55	69	2.83	-.19	1.60	10	4	.0	0	10.5	SW	*52	WSW	27	10	9	11	5.4	--
Escanaba (U)	594	994.2	------	67	52	59.2	1.8	79	7	32	17	0	1	--	79	4.40	1.28	1.77	13	7	T	T	9.9	---	33	SE	27	5	15	10	6.3	49
Flint	761	991.5	1019.4	74	53	63.4	1.8	90	7	30	17	1	1	55	77	2.40	-1.08	.90	10	6	.0	0	9.0	SW	*23	S	27+	8	10	12	6.1	--
Grand Rapids	681	993.6	1018.7	77	54	65.4	3.5	94	8+	36	18+	4	0	52	66	1.96	-1.48	.70	8	4	.0	0	10.1	S	40	SW	26	12	5	13	5.8	58
Inkster (Wayne Co.)	630	995.3	1019.2	77	55	66.0	----	92	8	33	17	3	0	55	71	3.39	---	1.50	11	4	.0	0	9.7	NNE	--	---	--	11	7	12	5.5	-
Lansing	852	987.1	1018.9	76	52	63.8	2.0	92	8	31	17	2	2	53	73	2.55	-.50	.77	10	5	.0	0	11.7	SSW	50	SW	26	12	5	13	5.8	72
Marquette (U)	677	989.2	------	67	51	59.3	1.5	86	9+	37	17+	0	0	--	74	3.06	-.37	.77	15	8	.0	0	8.7	W	33	S	6	3	10	17	7.3	54
Muskegon	627	995.3	1018.8	75	54	64.3	3.0	91	8	33	16	1	0	53	66	1.03	-2.31	.50	5	5	.0	0	----	---	--	---	--	12	6	12	5.5	--
Sault Ste. Marie	721	995.3	1018.3	66	50	58.2	3.0	85	9	32	16+	0	2	52	81	6.93	3.44	1.80	13	6	.0	0	9.7	WNW	*32	W	9	6	7	17	7.0	48
MINNESOTA																																
Duluth	1409	973.9	1015.8	65	45	54.9	-.5	83	7	28	17	0	3	48	80	4.83	1.61	.96	12	4	T	0	13.1	E	41	W	9+	6	10	14	6.5	51
Intern'l Falls	1179	972.9	1014.3	64	42	53.2	-.1	82	5	24	17	0	3	46	78	2.69	-.11	1.46	12	5	T	0	9.6	SE	*35	SW	27	6	7	17	6.9	--
Minneapolis	830	982.4	1015.7	73	53	63.1	.9	94	8	40	18+	3	0	52	70	2.29	-.56	.67	9	5	.0	0	10.3	S	34	NW	9	10	8	12	5.8	57
Rochester	1017	979.0	1016.7	71	50	60.6	-.2	90	7	31	18	1	1	52	77	4.26	.21	1.43	9	5	.0	0	10.4	S	--	---	--	9	5	16	6.1	--
St. Cloud	1034	977.3	1015.2	70	48	59.0	.2	92	6	31	18+	2	2	50	75	2.20	-.80	1.10	7	5	.0	0	----	---	--	---	--	7	12	11	5.9	--
MISSISSIPPI																																
Jackson	305	1004.3	1016.2	86	67	76.4	-.3	92	28	58	11	7	0	67	79	3.03	.93	.91	10	5	.0	0	5.4	E	22	SW	2	10	12	8	5.3	62
Meridian	292	1002.9	1016.6	86	66	75.8	-.1	93	8+	59	17	11	0	68	82	5.76	3.15	3.85	12	4	.0	0	5.7	NE	--	---	--	7	15	8	5.4	--
Vicksburg (U)	234	1007.0	------	84	67	75.7	-1.3	91	8	55	11	4	0	--	--	3.48	1.71	1.70	8	6	.0	0	7.1	---	26	NW	4	8	11	11	5.9	52
MISSOURI																																
Columbia	778	988.8	1017.3	82	59	70.4	1.7	97	7+	43	11	6	0	57	67	5.41	.79	2.93	10	6	.0	0	10.9	SSE	30	SW	26	15	4	11	4.7	64
Kansas City	741	981.4	1015.8	80	61	70.8	.2	97	7	47	30	4	0	56	63	2.68	-1.17	.84	11	5	.0	0	9.9	S	38	W	26	13	8	9	4.7	68
St. Joseph	809	981.7	------	78	57	67.5	-2.4	95	7	44	11	4	0	--	--	6.60	2.31	2.65	12	7	.0	0	10.9	S	*32	WSW	26	16	3	11	4.5	--
St. Louis (U)	465	------	------	80	63	71.4	.0	92	7	51	17	3	0	--	--	2.29	-1.09	.88	5	--	.0	0	----	-	--	---	--	--	--	--	---	--
St. Louis	552	997.3	1017.7	81	62	71.3	.9	93	7	50	11	4	0	58	67	2.85	-.69	1.47	6	4	.0	0	9.3	S	34	SE	27	13	4	13	5.2	61
Springfield	1265	969.5	1016.6	82	59	70.4	1.3	92	7	44	11	3	0	58	70	5.04	1.18	1.87	9	7	.0	0	13.5	SSE	54	S	3	13	7	10	5.1	66
MONTANA																																
Billings	3567	889.6	1012.6	71	47	59.0	-1.0	96	11	29	29	5	1	38	53	1.38	.06	1.05	7	0	T	0	10.6	SW	60	NW	8	7	9	14	6.2	67
Butte	5530	829.7	1016.1	62	34	48.0	-2.0	85	10	20	9	0	14	33	--	.86	-.34	.33	10	3	.8	1	9.0	SSE	*35	WNW	8	6	5	19	7.0	--
Glasgow	2277	938.7	1013.1	67	45	55.8	-1.4	91	13	30	29	1	2	-	55	1.26	.04	.90	8	1	T	T	----	---	--	---	--	9	7	14	6.1	--
Great Falls	3664	887.2	1013.4	66	45	55.7	-1.2	89	13	26	30	0	1	35	53	1.55	.11	.74	10	1	.8	T	10.3	SW	51	W	8+	7	6	17	6.8	54
Havre (U)	2488	924.8	1013.5	68	41	54.5	-2.5	92	13	23	29	1	3	--	--	.66	-.49	.27	6	0	T	0	9.9	W	54	W	6	9	7	14	6.0	59
Helena	3893	872.7	1014.3	67	41	53.7	-1.2	92	13	25	9	1	7	35	53	.46	-.70	.19	8	1	T	T	8.7	W	45	S	12+	9	3	18	6.6	58
Kalispell	2965	------	------	64	42	52.9	-1.6	90	12	26	30+	1	5	--	--	3.84	2.54	1.25	16	5	.0	0	-	-	--	---	--	3	8	19	7.4	-
Miles City	2629	929.6	1013.6	71	47	58.7	-1.7	98	11	29	29	5	1	38	--	1.26	.06	.49	8	1	T	0	11.8	WNW	*40	NW	8	8	9	13	6.2	-

See footnotes at end of table.

CLIMATOLOGICAL DATA

SEPTEMBER 1959

Station and State	Elevation	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	Min 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
MONTANA (Cont'd.)																																
Missoula	3200	901.8	1016.0	65	43	54.0	1.8	92	11	32	30+	2	2	41	67	3.11	2.04	0.98	20	2	T	0	6.4	NW	26	NW	8	2	11	17	7.4	42
NEBRASKA																																
Grand Island	1841	949.2	1015.0	76	51	63.7	-3.1	100	7	36	30+	5	0	49	65	2.36	-.21	1.81	9	8	.0	0	12.0	S	--	---	--	12	7	11	5.3	--
Lincoln (U)	1166	-----	-----	76	56	66.0	2.1	98	7	43	29	5	0	--	--	2.94	.02	1.71	9	5	.0	0	10.4	S	48	SW	20	9	6	15	5.7	62
Norfolk	1544	960.0	1015.3	74	51	62.3	-2.2	98	7	35	30	5	0	48	62	1.32	-1.45	.65	8	6	.0	0	----	---	--	---	--	9	9	12	5.5	--
North Platte	2779	915.7	1013.7	75	46	60.6	-3.2	102	7	29	10	5	1	45	61	1.89	.14	.82	7	5	.0	0	9.6	ESE	40	S	8	9	11	10	5.4	65
Omaha	978	976.0	1015.9	75	55	65.0	-2.0	93	6	43	29	3	0	54	71	2.20	-.96	.87	9	6	.0	0	10.9	SSE	36	S	19	9	7	14	5.8	55
Omaha Nebraska AP	1323	967.8	-----	73	54	63.3	-1.9	91	6	38	29	2	0	--	--	2.16	-1.00	.91	10	7	.0	0	----	---	--	---	--	7	9	14	6.1	--
Scottsbluff	3950	878.8	1013.7	72	44	58.2	4.0	97	8	27	30	5	2	40	57	2.77	1.48	2.46	8	2	T	0	11.5	ESE	*46	NW	1	10	7	13	5.7	--
Valentine	2587	923.5	---	74	45	59.6	-2.0	97	8	27	30	5	3	--	60	2.00	.80	.65	10	3	.0	0	11.5	NW	45	W	25	11	9	10	5.0	75
NEVADA																																
Elko	5075	844.9	1014.4	71	39	55.1	-2.7	91	10	22	29	2	6	32	46	1.74	1.35	1.19	9	1	.0	0	6.1	SW	*58	W	14	10	11	9	5.2	--
Ely	6257	809.0	1012.8	70	37	53.5	-4.3	88	6	17	28	0	8	30	46	.99	.31	.42	6	2	.1	T	12.2	S	38	S	14	15	5	10	4.6	73
Las Vegas	2162	944.5	1008.7	92	63	77.8	-2.9	105	3+	51	24	18	0	32	22	.01	-.33	.01	1	2	.0	0	9.7	SW	*35	SSE	10	19	5	6	3.0	87
Reno	4397	861.8	1014.5	76	39	57.4	-3.1	93	7	25	28	6	10	34	44	.04	-.18	.04	1	0	T	0	6.6	WNW	42	S	18	16	9	5	3.8	93
Winnemucca	4299	867.9	1014.9	74	39	56.6	-3.3	93	10	19	28	4	9	34	47	.93	.59	.30	9	4	.0	0	7.5	NE	34	W	19	11	8	11	5.2	51
NEW HAMPSHIRE																																
Concord	339	1009.6	1020.3	76	50	62.6	3.8	94	8	30	19	1	3	54	80	1.66	-1.73	1.04	7	0	.0	0	4.8	NNW	21	N	11	11	9	10	5.3	66
Mt Washington	6262	812.4	------	49	39	43.8	2.7	67	9	15	16	0	9	--	87	5.46	-1.10	1.88	15	1	4.4	4	29.2	W	‡87	W	21	5	8	17	7.0	38
NEW JERSEY																																
Atlantic City (U)	10	----	-----	76	65	70.8	2.5	88	9	46	19+	0	0	--	--	.39	-3.12	.25	5	--	---	--	9.4	---	24	NE	16	--	--	--	----	77
Atlantic City	58	1018.0	1020.8	79	60	69.7	2.3	89	9	39	18	0	0	60	77	1.48	-1.89	.92	5	1	.0	0	10.0	S	--	---	--	10	11	9	5.0	--
Newark	11	1019.4	1020.8	81	62	71.5	4.7	93	23	43	18	6	0	59	67	2.45	-1.44	2.28	5	1	.0	0	8.3	SW	*23	NNW	11	13	10	7	4.7	--
Trenton (U)	56	1013.3	1019.9	80	61	70.6	3.6	93	9	43	18	3	0	--	--	1.28	-2.47	.86	6	3	.0	0	7.3	---	25	N	11	10	16	4	4.5	83
NEW MEXICO																																
Albuquerque	5310	848.3	1010.1	85	56	70.6	.7	95	7	45	30	8	0	34	29	.36	-.69	.36	1	1	.0	0	8.9	SE	45	E	29	21	7	2	2.6	90
Clayton	4969	845.6	1011.9	80	48	63.9	2.0	95	6	33	30	2	0	--	--	.49	-1.38	.28	4	2	.0	0	----	---	--	---	--	16	9	5	3.7	--
Raton	6379	806.0	1011.9	78	42	59.6	-1.2	90	6+	31	30	2	3	--	--	.64	-1.37	.32	5	2	2.5	T	----	---	--	---	--	15	11	4	3.7	--
Roswell	3612	892.0	1010.5	91	55	73.1	1.8	102	5	42	13	21	0	44	39	.16	-1.84	.19	2	2	.0	0	11.3	---	33	SW	23+	24	4	2	2.3	--
NEW YORK																																
Albany	277	1016.4	1020.3	77	54	65.6	4.0	94	9	32	19+	2	2	56	75	1.88	-1.27	.80	9	0	.0	0	7.5	SSE	25	S	29	10	10	10	5.6	66
Binghamton	1590	961.9	1020.9	73	55	64.1	4.6	90	9	35	19+	1	0	54	71	.68	-2.58	.18	8	0	.0	0	7.8	SSW	25	S	27+	9	7	14	5.9	65
Buffalo	693	991.8	1020.9	77	57	66.8	4.4	95	9	33	17	2	0	55	70	2.52	-.49	2.68	7	0	.0	0	8.6	S	30	SW	21	10	13	7	5.1	72
New York (U)	10	1019.9	-----	78	64	70.8	3.5	92	9	45	17	1	0	--	--	.71	-2.96	.50	6	1	.0	0	11.2	S	35	NW	18+	14	9	7	4.4	76
New York	19	1018.7	1020.7	80	65	72.5	4.1	91	5	48	17	2	0	58	65	1.42	-2.13	.47	7	3	.0	0	11.1	S	40	N	11	11	11	8	5.0	--
Rochester	543	1000.5	1019.8	77	56	66.6	4.6	98	9	32	17	7	1	56	73	2.72	.06	2.61	6	1	.0	0	9.8	SSW	32	NW	10	8	15	7	5.3	77
Schenectady	217	-----	-----	78	56	67.1	5.3	94	9	37	17	3	0	--	--	1.42	-1.84	.78	7	1	.0	0	----	---	--	---	--	21	6	3	2.8	--
Syracuse	424	998.2	1020.2	78	57	67.3	3.9	93	8	39	19	6	0	55	69	.93	-1.98	.40	8	2	.0	0	8.6	S	34	S	27	10	11	9	5.0	71
NORTH CAROLINA																																
Asheville (U)	2203	940.8	------	77	58	67.6	-.3	88	3	45	20	0	0	--	--	8.33	5.61	3.54	9	2	.0	0	6.3	---	27	N	3	8	7	15	6.2	46
Cape Hatteras (R)	9	1018.4	1018.9	82	70	75.8	.5	90	3	57	24+	1	0	68	79	3.98	-2.11	3.58	5	1	.0	0	10.6	NE	--	---	--	11	6	13	5.5	--
Charlotte	725	991.0	1019.1	83	63	73.1	.5	93	4+	49	20	6	0	63	77	6.11	2.46	4.74	7	1	.0	0	9.1	NE	38	NE	29	8	7	15	6.4	58
Greensboro	891	988.5	1020.4	80	60	69.7	-1.0	88	3	44	20	0	0	62	80	5.55	1.89	3.35	8	4	.0	0	6.7	NE	34	SSE	30	11	6	13	5.9	66
Raleigh	433	1005.9	1019.8	81	61	71.0	-1.6	89	3+	43	19	0	0	64	82	3.52	-.97	1.31	5	4	.0	0	7.1	NE	*25	SSE	30	8	9	13	6.2	48
Wilmington	30	1016.9	1018.3	83	67	74.8	-.6	93	2	53	20+	2	0	68	85	3.00	-2.95	1.28	11	5	.0	0	11.5	N	43	SE	29	9	9	12	6.0	59
Winston-Salem	967	984.7	1020.0	80	61	70.5	-.4	88	3+	48	20+	0	0	60	76	5.55	2.06	3.09	6	3	.0	0	7.8	NE	*42	E	30	12	7	11	5.4	--
NORTH DAKOTA																																
Bismarck	1650	952.9	1013.7	70	45	57.1	-1.4	105	8	28	16+	2	4	40	58	1.57	.14	.63	7	2	T	0	15.0	W	66	NW	8	5	7	18	7.1	54
Devils Lake (U)	1471	958.7	------	66	43	54.6	-1.7	99	8	24	16	1	5	--	66	2.28	.21	.66	11	1	T	T	9.3	SE	35	NW	9	5	11	14	6.4	58
Fargo	895	979.7	1014.1	70	47	58.9	.0	102	8	28	17	2	3	45	66	.77	-.95	.33	8	5	.0	0	15.9	SSE	47	NW	9	10	7	13	5.9	60
Williston (U)	1877	945.8	1013.5	65	45	55.0	-2.2	88	8	31	30+	0	2	41	62	3.74	2.53	1.77	9	0	.0	0	9.7	W	42	NW	8	6	8	16	6.8	42
OHIO																																
Akron	1210	982.1	1020.2	77	56	66.9	2.3	91	9+	35	17	2	0	56	73	3.98	.35	2.28	7	2	.0	0	8.8	S	--	---	--	11	11	8	5.0	--
Cincinnati Obs.	761	------	------	84	60	71.9	3.0	95	8	42	18+	11	0	--	--	1.40	-1.48	.81	5	1	.0	0	5.1	---	17	W	27+	--	--	--	----	78
Cincinnati	869	987.5	1019.4	82	60	71.0	3.7	93	7	43	17	9	0	56	65	1.88	-1.09	1.36	4	1	.0	0	8.7	SSW	*30	SSW	27	8	12	10	5.7	--
Cleveland	787	991.6	1019.4	79	59	68.9	3.4	94	9	39	18+	5	0	57	68	3.07	-.06	1.44	8	1	.0	0	8.7	S	24	S	26	9	8	13	5.9	60
Columbus (U)	724	------	------	82	60	70.7	2.9	95	8	39	18	7	0	--	--	1.13	-1.45	.74	6	1	.0	0	----	---	--	---	--	--	--	--	----	--
Columbus	815	990.0	1020.0	82	57	69.6	3.1	96	8	34	18	7	0	56	67	1.55	-1.36	1.03	7	1	.0	0	6.5	SSW	29	SE	1	11	10	9	5.1	70
Dayton	1002	983.2	1019.4	80	58	69.0	2.1	92	8	37	18	3	0	55	66	1.61	-1.19	.75	6	0	.0	0	8.6	SSE	29	S	26	11	7	12	5.5	72
Sandusky (U)	603	997.6	-----	79	60	69.4	2.9	97	9	38	18	6	0	--	--	1.70	-1.56	.56	9	2	.0	0	7.1	---	28	NW	28	11	11	8	4.6	68
Toledo	676	994.0	1019.5	78	55	66.7	2.5	94	9	34	17	3	0	56	73	2.04	-.98	.80	14	3	.0	0	7.0	SW	33	NW	26	10	10	10	5.3	71
Youngstown	1178	977.6	1020.1	78	54	66.0	1.3	92	9	30	17	2	1	55	73	3.04	-.54	2.66	6	2	.0	0	9.2	S	*23	NNW	10	11	10	9	5.3	--
OKLAHOMA																																
Oklahoma City	1280	971.2	1014.2	84	62	72.6	-1.4	96	1	46	30	6	0	61	71	7.90	4.47	4.09	7	6	.0	0	14.4	SSE	37	N	24	21	4	5	3.3	79
Tulsa	672	990.5	1014.9	85	63	74.0	.2	95	6	48	12+	9	0	60	66	7.42	3.17	2.96	8	6	.0	0	10.2	SSE	30	E	1	13	10	7	4.4	70
OREGON																																
Astoria	8	1015.2	1015.6	64	49	56.4	-3.9	77	2	40	30	0	0	52	85	5.56	2.52	1.70	16	0	.0	0	9.5	SSW	*35	SSW	4	5	5	20	7.7	--
Burns (U)	4140	873.0	1014.9	69	41	54.9	-3.4	88	11+	28	29	0	1	36	56	1.93	1.50	1.16	9	4	.0	0	----	---	--	---	--	7	12	11	5.7	--
Eugene	361	1002.7	1016.3	70	48	59.3	-1.6	88	2	40	23+	0	0	--	--	.88	-.72	.28	9	0	.0	0	8.8	---	*32	SSW	4	6	7	17	6.8	--
Meacham	4050	-----	----	60	43	51.3	-4.4	85	10	31	30	0	1	--	--	5.80	4.34	1.45	20	3	.0	0	----	---	--	---	--	6	4	20	7.2	--
Medford	1312	968.2	1015.7	77	48	62.4	-2.0	96	9	34	29+	6	0	47	63	.29	-.36	.08	8	2	.0	0	5.3	NW	*28	SE	17	10	9	11	5.1	--
Pendleton	1492	961.1	1014.5	72	50	61.0	-3.6	94	12	41	30	3	0	45	60	2.03	1.32	.58	12	2	.0	0	11.1	SE	*43	WSW	26	9	8	13	5.8	--
Portland	21	1009.8	1015.4	69	51	60.3	-2.0	89	2	43	29	0	0	51	74	2.81	.97	1.01	14	0	.0	0	6.6	SSW	31	S	4	3	7	20	8.0	36
Roseburg	505	997.6	1016.3	73	48	60.4	-1.4	91	9+	37	29	2	0	--	--	1.23	.12	.40	9	1	.0	0	5.2	---	25	N	8	6	8	16	6.4	47
Salem	195	1009.1	1016.4	72	48	60.2	-2.2	91	2	40	29	1	0	51	77	2.10	.61	.99	11	0	.0	0	7.4	S	*29	S	4	4	8	18	7.4	--
Sexton Summit (R)	3836	883.8	1015.6	61	43	52.2	-7.6	85	9	35	28	0	0	--	--	2.81	1.64	1.12	9	0	.0	0	12.1	---	--	---	--	13	3	14	5.5	--
PACIFIC AREA																																
Canton Island	8	1009.1	1009.5	89	78	83.7	-.7	91	28+	75	12+	13	0	72	73	.68	-.01	.44	5	1	.0	0	15.7	E	*24	E	13	7	10	13	6.3	--
Guam (R)	361	------	------	86	72	79.3	.3	89	4	70	21+	0	0	--	--	18.39	3.99	3.30	26	10	.0	0	4.6 ⊛	E	23	SW	23	--	--	--	----	52
Koror (R)	94	1006.1	1009.9	88	76	81.7	.6	90	3	71	19	1	0	76	84	13.12	-.19	3.71	24	5	.0	0	5.3	W	24	NW	9	0	2	28	9.3	60
Majuro	10	1009.1	1009.5	86	76	81.4	----	88	29+	72	2	0	0	75	79	16.36	----	4.35	24	4	.0	0	6.7	E	28	E	29	0	2	28	9.6	57
Ponape (R)	120	1004.1	1009.5	88	73	80.3	.2	91	24	70	8	5	0	75	87	18.42	2.46	3.99	26	5	.0	0	2.6	S	20	S	6+	0	2	28	9.3	45
Truk, Moen Island	5	1009.1	1009.5	88	76	81.6	.9	91	4	72	26	3	0	76	83	14.53	1.92	3.40	23	2	.0	0	6.9	WSW	29	SW	29	0	2	28	9.5	--
Wake Island	11	1010.5	1010.9	89	79	81.0	1.8	91	16	73	18	11	0	75	76	3.37	-2.11	1.44	15	1	.0	0	11.3	ENE	*30	ESE	18	5	13	12	6.7	--
Yap (R)	55	1006.8	1008.8	86	76	80.9	-.9	88	25+	74	26+	0	0	77	87	11.18	-2.98	1.42	26	3	.0	0	4.5	WSW	*17	WSW	24	0	1	29	9.7	--
PENNSYLVANIA																																
Allentown	376	1006.8	1021.1	79	57	68.2	3.5	93	9	37	18	1	0	58	76	4.15	.68	1.45	7	8	.0	0	6.9	SW	*31	NNW	10	14	8	8	4.7	--
Erie	732	----	-----	77	58	67.6	4.4	94	9	35	17	3	0	--	--	5.85	2.46	4.84	8	2	.0	0	8.6	---	*24	NNE	30	6	12	12	5.7	--
Harrisburg	335	1006.8	1020.6	81	59	69.8	3.7	93	9	40	19	2	0	58	71	.91	-1.72	.48	7	3	.0	0	4.7	ESE	19	SE	30+	15	7	8	4.9	73
Philadelphia (U)	35	-----	------	82	64	73.1	3.8	95	9	47	19+	4	0	--	--	----	----	----	--	--	---	--	----	---	--	---	--	--	--	--	----	--

See footnotes at end of table.

State and station	Elevation (ground)	Pressure		Temperature								No. of days				Precipitation			No. of days		Snow, Sleet		Wind		Fastest mile			No. of days (sunrise to sunset)				
		Station ø	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	.01 inch or more	With thunderstorms	Total	Max depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F	°F.	°F.		°F				°F	%	In.	In.	In.			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
PENNSYLVANIA (Cont'd.)																																
Philadelphia	7	1015.9	1020.4	81	61	70.8	3.1	93	9	42	18	1	0	59	72	1.33	-2.13	1.14	4	2	0.0	0	6.3	SW	26	N	16+	9	12	9	5.2	75
Pittsburgh (U)	749	------	------	81	60	70.7	2.8	93	9	39	17	1	0	-	--	1.80	-.97	1.68	3		.0	-	---	-		---	--	-	--	-	---	76
Pittsburgh	1151	989.9	1020.6	82	55	68.3	3.4	95	9	31	19	4	1	53	64	1.34	-1.63	1.18	3	0	.0	0	7.6	SE	*23	NNW	10	10	14	6	5.0	88
Reading (U)	266	1008.3	1019.9	81	61	70.9	3.8	94	9	41	18	1	0		--	2.25	-1.03	1.65	4	3	.0	0	8.2	---	31	N	18	11	11	8	4.8	71
Scranton	940	987.0	1021.4	79	56	67.4	4.2	95	9	34	19	2	0	57	74	1.09	-2.13	[illegible]	8	3	.0	0	7.5	SSW	20	NW	11+	11	9	10	4.9	71
Williamsport	527	1002.1	-----	79	56	67.3	2.7	93	9	35	17	2	0	-	--	4.09	.76	1.91	10		.0	0	----	---			--	4	15	11	6.2	--
RHODE ISLAND																																
Block Island	110	------	-----	73	59	66.2	2.7	82	9+	44	18	0	0	--		.38	-2.60	.23	4	0	.0	0	----	---	-	--		10	12	8	4.7	--
Providence	55	1014.4	1020.5	77	57	66.8	4.1	88	5	39	19+	0	0	57	75	.77	-2.42	.46	7	2	.0	0	9.4	S	*29	SW	15	13	6	11	4.9	77
SOUTH CAROLINA																																
Charleston (U)	9	------	------	82	71	76.2	-1.5	93	2	61	20+	2	0	-	--	9.94	4.63	4.19	16		.0	0	----	---	--	--	--	--	--	--	---	--
Charleston	41	1015.7	1017.7	82	66	73.8	-2.5	90	2	56	20	1	0	69	91	9.60	4.13	4.16	14	7	.0	0	9.1	NNE	71	SE	29	1	16	13	7.0	67
Columbia	217	1005.7	1018.1	84	65	74.2	-1.7	94	3	49	20	6	0	65	81	7.12	2.70	4.95	9	5	.0	0	6.5	NE	38	ESE	29	8	7	15	6.2	57
Florence	146	1012.0	1017.8	84	66	74.7	-.6	93	3	49	20	4	0	67	81	7.20	2.92	4.35	12	8	.0	0	7.4	N	*29	E	29	7	11	12	6.1	--
Greenville	1018	982.5	1019.0	80	63	71.7	-1.4	91	3	52	20	2	0	63	78	8.20	4.61	3.37	10	2	.0	0	6.8	NE	29	N	29	8	7	15	6.5	49
Spartanburg	801	------	------	80	63	71.6	-1.6	90	3	50	20	1	0	-		9.17	5.49	4.76	9	4	.0	0	6.0	-	*25	N	29	-	--	--	---	--
SOUTH DAKOTA																																
Huron	1282	967.5	1014.4	73	49	61.1	-1.7	97	8	34	30	4	0	46	64	2.27	.54	1.45	7	3	T	T	14.2	SSE	44	W	25	10	8	12	5.8	65
Rapid City	3165	900.4	1014.0	72	46	58.8	-1.7	103	8	25	30	7	2	34	51	2.37	1.19	1.06	6	3	T	0	12.0	NNW	47	NW	8	12	4	14	5.4	59
Sioux Falls	1420	963.8	1015.3	72	50	61.2	-1.2	95	7	35	30	3	0	47	64	4.62	1.69	2.90	10	5	.0	0	10.1	S	*31	NW	9	12	4	14	5.6	--
TENNESSEE																																
Bristol	1519	965.6	------	82	58	69.9	1.4	89	28+	49	20+	0	0	-	--	2.56	-.23	1.40	5	4	.0	0	----	---	--	---	--	10	8	12	5.6	--
Chattanooga	670	990.7	1018.2	83	63	73.1	.6	90	28+	51	21	2	0	64	79	3.33	.64	1.84	10	5	.0	0	5.2	S	35	SW	1	7	8	15	6.6	63
Knoxville	950	983.7	1018.8	84	63	73.2	1.1	91	28	54	16	3	0	62	73	.93	-1.60	.65	7	2	.0	0	5.0	NE	36	SW	1	8	7	15	6.7	51
Memphis (U)	271	------	------	84	67	75.5	.7	91	8	54	11	3	0	--	--	2.10	-.40	1.00	7	-	.0	0	----	---	--	---	--	-	--	--	---	--
Memphis	263	1002.6	1017.3	86	66	75.7	1.4	92	8+	56	11	6	0	64	73	2.73	.18	1.65	6	5	.0	0	7.3	S	34	NW	29	8	13	9	5.8	69
Nashville	577	997.5	1018.2	85	63	74.0	.8	91	7	54	17+	5	0	64	76	3.73	.99	2.01	5	5	.0	0	6.5	S	28	S	5	8	11	11	5.6	--
Oak Ridge	905	986.1	------	83	63	72.7	1.9	89	5	52	22	0	0		-	.56	-1.99	.22	5	3	.0	0	4.0	---	‡38	---	1	6	9	15	6.5	--
TEXAS																																
Abilene	1759	952.6	1012.4	91	66	78.3	2.8	104	1	48	30	20	0	62	62	.77	-1.83	.51	4	4	.0	0	12.4	S	29	SE	3	18	7	5	3.3	78
Amarillo	3590	888.3	1011.5	84	57	70.2	.9	97	5	39	30	7	0	45	45	2.29	.01	1.61	3	4	.0	0	13.8	SSW	36	NE	9	22	4	4	2.6	87
Austin	615	990.9	1014.0	90	70	80.1	.8	98	1	58	12	20	0	69	74	4.37	.31	2.56	8	5	.0	0	8.9	SSE	34	N	29	8	14	8	5.6	61
Brownsville	16	1008.8	1013.1	93	75	83.9	2.5	97	15	66	13+	28	0	72	73	.07	-5.06	.06	2	0	.0	0	11.1	SSE	26	S	28+	15	11	4	4.4	84
Corpus Christi	41	1012.5	1014.0	89	74	81.9	1.2	93	26	62	12	16	0	73	78	2.41	-2.29	1.07	9	4	.0	0	11.0	SE	26	SE	27+	13	10	7	4.8	73
Dallas	487	995.9	1014.4	89	69	79.3	.4	98	1	56	12	15	0	65	65	3.51	.80	1.96	7	4	.0	0	11.7	S	36	S	22	11	12	7	4.9	67
Del Rio (U)	957	------	------	93	71	82.0	2.2	104	1	59	13+	23	0	--	--	.69	-1.82	.51	4	2	.0	0	----	---	--	---	--	--	--	--	---	--
El Paso	3920	885.2	1010.2	91	65	77.9	3.0	101	3	51	14	15	0	41	28	T	-1.13	T	0	0	.0	0	11.6	WSW	33	E	9	24	3	3	2.0	90
Fort Worth	544	993.6	1014.1	90	69	79.7	1.5	99	26	55	12	18	0	64	64	2.40	-.29	1.09	6	7	.0	0	13.1	S	*53	SE	1	11	11	8	4.5	--
Galveston (U)	7	------	------	85	77	81.1	.8	88	29+	65	12	0	0	--	--	3.62	-1.82	3.08	7		.0	0	12.1		30	S	22	--	--	--	---	71
Galveston	5	1012.9	1015.1	86	75	80.5	.1	90	6+	67	12	4	0	69	74	3.90	-1.92	2.84	9	6	.0	0	10.4	S	--	---	--	8	15	7	5.4	--
Houston (U)	41	1009.5	------	88	73	80.6	.6	95	3	60	12	13	0	--	--	4.24	.59	2.04	11	10	.0	0	8.7	S	32	SE	22	8	14	8	5.5	71
Houston	50	1011.9	1014.5	88	72	80.1	1.4	95	5+	60	12	12	0	72	80	4.76	.41	2.60	10	9	.0	0	9.9	SSE	--	---	--	8	12	10	6.0	--
Laredo	500	997.0	1012.0	98	74	86.0	2.5	106	1	60	13	28	0	66	58	.07	-3.09	.03	3	3	.0	0	13.6	SE	*30	ENE	10	14	14	2	3.8	--
Lubbock	3243	902.8	1012.1	87	59	72.9	1.7	97	6+	43	30+	16	0	51	51	.89	-1.96	.47	3	4	.0	0	14.0	S	*32	ENE	28	18	9	3	2.8	--
Midland	2854	914.7	1011.7	90	63	76.3	1.0	104	1	49	13	19	0	53	50	2.48	.34	1.38	4	6	.0	0	10.6	SSE	*40	N	3	21	5	4	2.8	--
Port Arthur	16	1013.2	1014.7	88	72	79.8	1.9	94	3	60	12	9	0	73	83	2.49	-2.39	.58	14	7	.0	0	10.0	S	29	S	27	1	13	16	7.1	61
San Angelo	1903	946.2	1012.2	90	67	78.5	2.0	104	1	50	12	19	0	58	55	9.20	6.90	6.03	4	5	.0	0	12.4	S	*44	E	29	20	6	4	2.9	--
San Antonio	792	988.8	1013.6	91	72	81.4	2.0	101	1	57	12	22	0	68	71	1.72	-1.65	.50	10	6	.0	0	10.1	SE	40	SE	7	7	19	4	5.2	69
Victoria	110	1009.1	1013.8	89	71	79.9	-.9	93	5+	57	12	19	0	71	77	3.31	-.38	1.35	7	5	.0	0	8.5	SE	‡41	NNE	10	9	13	8	5.3	--
Waco	500	993.2	1014.2	89	70	79.4	.5	96	26	54	12	15	0	68	71	3.49	.52	1.50	9	5	.0	0	13.1	SSE	*35	N	3	10	10	10	5.3	--
Wichita Falls	1020	976.6	1013.0	89	65	76.8	.4	102	27	49	30+	19	0	59	59	1.49	-1.23	1.40	4	4	.0	0	11.6	SSE	*32	NW	3	20	5	5	2.8	--
UTAH																																
Milford	5028	843.9	1013.5	77	44	60.4	-2.2	94	10+	24	28	8	3	--	--	.33	-.07	.14	6	2	.0	0	----	---	--	---	--	16	3	11	4.7	--
Salt Lake City	4220	866.9	1012.1	74	50	62.0	-2.2	94	3	33	30	4	0	40	50	1.66	.92	.54	13	5	.0	0	7.5	SSE	29	S	14+	9	6	15	5.8	74
VERMONT																																
Burlington	331	1005.1	1019.9	73	54	63.3	3.4	90	9	32	19	1	1	54	73	2.03	-1.11	.97	9	2	.0	0	7.0	SSW	29	N	10	7	11	12	6.0	60
VIRGINIA																																
Lynchburg	947	986.5	------	79	59	69.4	.6	90	3	44	20+	1	0	-	-	4.91	1.81	2.56	5	0	.0	0	6.8	---	30	SE	30	11	9	10	5.4	65
Norfolk	26	1019.0	1020.3	81	66	73.6	1.6	90	2	48	20	1	0	66	81	10.73	6.87	6.79	9	4	.0	0	8.5	ENE	36	SE	30	9	6	15	6.1	60
Richmond	162	1014.5	1020.8	81	61	70.8	.5	90	3+	43	20	3	0	62	81	3.30	-.35	2.17	6	4	.0	0	6.4	E	30	SE	30	8	6	16	6.0	64
Roanoke	1174	978.9	1020.6	82	59	70.3	1.2	91	9	41	19	4	0	59	73	4.95	1.56	3.45	6	0	.0	0	5.6	SE	--	---	--	11	10	9	5.3	--
WASHINGTON																																
Olympia	190	1008.1	1015.3	67	47	56.9	-1.2	80	2	38	30	0	0	49	76	4.26	2.46	1.32	13	0	.0	0	8.1	SW	*31	NW	26	4	5	21	7.7	--
Seattle (U)	14	------	------	65	54	59.3	-1.7	78	2	50	29+	0	0	--	--	2.33	.77	.64	14	--	.0	0	----	---	38	SW	6	--	--	--	---	22
Seattle	14	1013.9	1014.7	--	--	----	---	--	--	--	--	--	--	49	72	----	----	----	--	--	---	-	7.4	S	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	1001.0	1015.0	64	50	57.4	-1.3	77	2	44	23	0	0	50	80	4.60	2.95	.92	16	3	.0	0	10.4	S	*31	SSW	24	4	5	21	7.9	--
Spokane	2357	945.5	1014.5	65	45	55.1	-4.1	90	12	32	30	1	1	45	73	2.05	1.12	.53	16	2	.0	0	9.1	SSW	34	NW	26	6	6	18	7.1	41
Stampede Pass (R)	3958	880.1	1018.7	53	40	46.4	-4.8	73	12	33	28	0	0	--	--	15.24	11.20	4.47	20	0	.0	0	----	---	--	---	--	5	6	19	7.5	
Tatoosh (R)	101	1011.5	1014.3	59	51	55.0	.5	65	12	47	30	0	0	52	88	5.21	1.57	1.28	12	0	.0	0	12.7	ENE	36	S	13	3	8	19	7.9	43
Walla Walla (U)	949	978.0	1013.5	72	53	62.3	-3.0	93	12	43	9	3	0	--	--	2.41	1.55	.86	13	3	.0	0	5.8	⊛ SE	31	NW	26	7	10	13	6.1	62
Yakima	1061	975.3	1014.1	72	44	58.3	-2.8	89	12	34	9	0	0	43	61	.52	.13	.31	7	2	.0	0	7.3	NW	*38	SSW	4	7	8	15	6.3	--
WEST INDIES																																
San Juan, P.R. (U)	47	------	------	87	77	81.7	1.2	91	22+	75	30+	4	0	--	--	4.46	-1.54	1.19	17	5	.0	0	----	---	--	---	--	--	--	--	---	--
San Juan, P.R.	15	1011.5	1014.5	89	74	81.6	1.3	92	22+	70	6+	13	0	73	79	4.29	-3.15	1.76	16	6	.0	0	6.6	ENE	26	NE	8	1	22	7	6.0	72
Swan Island	31	1010.6	------	89	79	83.8	1.1	90	30+	76	28+	12	0	-	--	.76	-5.32	.34	6	4	.0	0	----	---	-	--		5	20	5	5.0	-
WEST VIRGINIA																																
Charleston	950	984.0	1019.3	84	57	70.4	1.8	93	9	37	19	5	0	56	65	.65	-2.29	.54	6	1	.0	0	5.5	ESE	*20	SSE	26	7	15	8	5.5	--
Elkins	1970	------	------	77	49	63.3	.3	86	9	31	19	0	1	53	--	.89	-2.39	.47	4	0	.0	0	4.1	NW	*20	NW	10	5	19	6	5.7	
Huntington (U)	565	------	------	85	59	72.0	1.5	96	9	42	19	9	0	--	--	3.96	1.08	1.81	5	--	.0	0	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	------	84	58	70.9	2.5	94	9	38	19	7	0	--	--	1.19	-1.80	.94	4	1	.0	0	5.3	---	19	NW	10	16	8	6	3.9	76
WISCONSIN																																
Green Bay	689	994.6	1017.5	72	50	61.0	.8	94	8	32	17	3	1	54	79	5.17	2.30	2.04	8	5	.0	0	11.9	SW	42	W	9	7	12	11	5.6	62
La Crosse	652	991.5	1016.4	72	54	63.1	.8	92	8	36	18	3	0	54	72	5.97	2.15	2.01	9	8	.0	0	9.8	S	*32	NE	26	8	8	14	6.3	-
Madison	857	982.4	1018.0	75	52	63.7	1.6	93	7	33	18	4	0	53	71	3.44	-.55	1.29	9	8	.0	0	8.4	SSW	36	SW	27+	7	9	14	6.1	60
Milwaukee	672	993.6	1018.5	74	55	64.7	2.1	94	7	39	18	4	0	55	73	2.31	-1.02	1.05	8	4	.0	0	10.8	S	46	SW	26	9	11	10	5.6	73
WYOMING																																
Casper	5319	836.4	1011.9	69	43	56.2	-1.9	92	7	24	30	2	3	32	49	1.99	.77	.61	10	2	1.2	1	12.8	WSW	*37	W	8	8	6	16	6.2	--
Cheyenne	6131	812.1	1013.5	69	43	55.7	-1.7	90	8+	22	30	3	4	34	51	1.61	.41	.70	7	4	3.7	2	11.9	WNW	37	W	25	10	7	13	6.0	56
Lander	5563	834.7	1012.4	69	44	56.6	-.9	92	7	26	30	1	5	34	48	1.21	-.02	.57	9	2	2.3	1	6.9	⊛ SW	52	SW	4	8	5	17	6.3	58
Sheridan	3942	883.2	1013.4	71	43	57.0	-.9	96	8	23	30	5	3	36	52	.60	-.85	.52	6	2	T	0	8.7	NW	42	NW	8+	9	8	13	5.7	48

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
+ And also on an earlier date or dates.
a Maximum hourly average.
ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
Number of days maximum 70° or above for Alaskan Stations.

¢ City Office Data
† Airport Data
‡ Peak Gust
⊛ Wind direction to 8 compass points only.

HEATING DEGREE DAYS

(Base 65°F.)

SEPTEMBER 1959

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ALABAMA			
Birmingham	1	1	13
Mobile	0	0	0
Montgomery	0	0	0
ALASKA			
Anchorage	514	1076	1040
Annette	371	902	836
Barrow	1037	2770	2641
Barter Island	1059	2769	
Bethel	597	1360	1298
Cold Bay	519	1461	
Cordova	542	1306	1233
Fairbanks	637	1242	1057
Juneau	498	1242	1134
King Salmon	546	1313	
Kotzebue	747	1658	1550
McGrath	693	1332	1193
Nome	686	1714	1660
St. Paul	594	1721	1710
Yakutat	503	1248	1257
ARIZONA			
Flagstaff	251	326	370
Phoenix (U)	0	0	0
Phoenix	0	0	0
Prescott	43	43	34
Tucson	0	0	0
Winslow	19	19	20
Yuma	0	0	0
ARKANSAS			
Ft. Smith	0	0	9
Little Rock	0	0	10
Texarkana	0	0	0
CALIFORNIA			
Bakersfield	3	3	0
Bishop	68	77	55
Blue Canyon	227	299	182
Burbank	1	1	11
Eureka (U)	209	752	779
Fresno	6	6	0
Los Angeles (U)	0	0	17
Los Angeles	0	0	109
Mt. Shasta (R)	226	286	248
Oakland	25	84	237
Red Bluff	14	17	0
Sacramento (U)	10	12	17
Sacramento	12	15	22
Sandberg (R)	134	165	26
San Diego	0	0	42
San Francisco (U)	72	356	476
San Francisco	31	118	381
San Jose (U)	8	14	44
Santa Maria	83	177	303
COLORADO			
Alamosa	325	405	494
Colorado Springs	224	234	153
Denver	191	197	136
Grand Junction	138	138	36
Pueblo	134	134	74
CONNECTICUT			
Bridgeport	57	60	66
Hartford	115	123	115
New Haven	71	74	111
DELAWARE			
Wilmington	44	44	47
DIST. OF COLUMBIA			
Washington (U)	33	33	32
Washington	28	28	37
FLORIDA			
Apalachicola (U)	0	0	0
Daytona Beach	0	0	0
Fort Myers	0	0	0
Jacksonville	0	0	0
Key West	0	0	0
Miami	0	0	0
Miami Beach	0	0	0
Orlando	0	0	0
Pensacola (U)	0	0	0
Tallahassee	0	0	0
Tampa	0	0	0
West Palm Beach	0	0	0
GEORGIA			
Athens	8	8	5
Atlanta	8	8	8
Augusta	1	1	0
Columbus	2	2	0
Macon	4	4	0
Rome	3	3	8
Savannah	0	0	0
IDAHO			
Boise	212	239	135
Lewiston	194	232	133
Pocatello	260	293	183
ILLINOIS			
Cairo (U)	2	2	28
Chicago	62	62	90
Chicago University	63	63	
Moline	100	105	104

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ILLINOIS (Cont'd.)			
Peoria	66	67	97
Springfield	56	56	89
Evansville	22	22	59
Ft. Wayne	83	83	124
Indianapolis	54	54	79
South Bend	87	88	119
IOWA			
Burlington	82	87	83
Des Moines	131	139	116
Dubuque	148	162	185
Keokuk (U)	70	73	
Sioux City	142	146	153
KANSAS			
Concordia (U)	85	87	55
Dodge City	56	56	40
Goodland	176	181	95
Topeka	63	63	67
Wichita	41	41	32
KENTUCKY			
Lexington	24	24	56
Louisville	11	11	51
LOUISIANA			
Baton Rouge	0	0	0
Lake Charles	0	0	0
New Orleans (U)	0	0	0
New Orleans	0	0	0
Shreveport	0	0	0
MAINE			
Caribou	281	394	572
Greenville (U)	257	367	
Portland	181	221	270
MARYLAND			
Baltimore (U)	28	28	29
Baltimore	46	46	50
Frederick	70	70	47
MASSACHUSETTS			
Blue Hill Obs. (R)	118	139	
Boston	79	87	84
Nantucket	94	128	167
Pittsfield	180	221	301
MICHIGAN			
Alpena	228	258	350
Detroit	92	92	104
Detroit (Willow Run)	86	86	106
Escanaba (U)	200	263	404
Grand Rapids	109	113	187
Lansing	136	149	
Marquette (U)	204	284	392
Muskegon	125	137	226
S. Ste. Marie	231	334	533
MINNESOTA			
Duluth (U)	270	393	434
Duluth	311	420	445
Internat. Falls	359	473	544
Minneapolis	152	161	182
Rochester	202	218	244
St. Cloud	221	238	310
MISSISSIPPI			
Jackson	0	0	0
Meridian	0	0	0
Vicksburg (U)	0	0	0
MISSOURI			
Columbia	45	45	68
Kansas City	44	44	44
St. Joseph	73	75	54
St. Louis (U)	25	25	38
St. Louis	30	30	45
Springfield	32	32	69
MONTANA			
Billings	251	277	222
Glasgow	295	334	288
Great Falls	310	403	347
Havre (U)	320	377	328
Helena	351	461	422
Kalispell	365	628	456
Miles City	259	264	204
Missoula	337	505	371
NEBRASKA			
Grand Island	147	151	90
Lincoln (U)	109	111	86
Norfolk	170	173	139
North Platte	198	205	138
Omaha	115	118	93
Scottsbluff	250	263	137
Valentine	235	249	166
NEVADA			
Elko	303	374	263
Ely	342	404	294
Las Vegas	2	2	0
Reno	244	294	253
Tonopah	153	168	101
Winnemucca	276	326	197

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
NEW HAMPSHIRE			
Concord	174	202	260
Mt. Washington Obs.	632	1469	
NEW JERSEY			
Atlantic City (U)	39	39	29
Newark	39	39	47
Trenton (U)	48	48	55
NEW MEXICO			
Albuquerque	20	20	10
Clayton	98	98	68
Roswell	14	14	8
NEW YORK			
Albany	143	151	163
Binghamton	143	160	271
Buffalo	111	113	168
New York (U)	40	40	39
New York	32	32	28
Rochester	126	129	176
Schenectady	110	111	156
Syracuse	115	119	146
NORTH CAROLINA			
Asheville (U)	21	21	50
Cape Hatteras (R)	0	0	0
Charlotte	2	2	7
Greensboro	26	26	29
Raleigh	23	23	16
Wilmington	1	1	0
Winston-Salem	17	17	28
NORTH DAKOTA			
Bismarck	273	290	293
Devils Lake (U)	331	376	384
Fargo	226	242	281
Grand Forks	267	302	
Pembina	249	275	
Williston (U)	312	340	332
OHIO			
Akron	91	91	100
Cincinnati (U)	29	29	42
Cincinnati	37	37	83
Cleveland	78	78	85
Columbus	62	62	77
Dayton	62	62	79
Sandusky (U)	61	61	66
Toledo	98	98	114
Youngstown	107	114	102
OKLAHOMA			
Oklahoma City	24	24	14
Tulsa	14	14	18
OREGON			
Astoria	253	590	395
Burns (U)	307	400	266
Eugene	167	230	211
Meacham	420	710	484
Medford	134	155	77
Pendleton	149	173	104
Portland (U)	114	148	112
Portland	142	200	163
Roseburg	152	190	
Salem	147	211	157
Sexton Summit (R)	389	637	326
PENNSYLVANIA			
Allentown	67	67	98
Harrisburg	59	59	69
Philadelphia (U)	28	28	33
Philadelphia	46	46	47
Pittsburgh (U)	55	55	56
Pittsburgh	73	74	114
Reading (U)	43	43	62
Scranton	94	98	133
Williamsport	88	89	117
RHODE ISLAND			
Block Island	72	84	115
Providence	101	107	133
SOUTH CAROLINA			
Charleston (U)	0	0	0
Charleston	0	0	0
Columbia	1	1	0
Florence	2	2	0
Greenville	3	3	10
Spartanburg	4	4	7
SOUTH DAKOTA			
Huron	186	189	175
Pierre	205	207	
Rapid City	260	269	249
Sioux Falls	192	195	192
TENNESSEE			
Bristol	7	7	58
Chattanooga	1	1	24
Knoxville	0	0	33
Memphis	0	0	17
Nashville	0	0	22
TEXAS			
Abilene	8	8	5
Amarillo	46	46	37
Austin	0	0	0

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
TEXAS (Cont'd.)			
Brownsville	0	0	0
Corpus Christi	0	0	0
Dallas	0	0	0
Del Rio (U)	0	0	
El Paso	0	0	0
Ft. Worth	0	0	0
Galveston (U)	0	0	0
Galveston	0	0	0
Houston (U)	0	0	0
Houston	0	0	0
Laredo	0	0	0
Lubbock	31	31	23
Midland	9	9	
Port Arthur	0	0	0
San Angelo	4	4	0
San Antonio	0	0	0
Victoria	0	0	0
Waco	0	0	0
Wichita Falls	9	9	5
UTAH			
Milford	182	182	114
Salt Lake City	170	171	88
VERMONT			
Burlington	177	198	238
VIRGINIA			
Lynchburg	37	37	49
Norfolk	10	10	9
Richmond	36	36	33
Roanoke	28	28	50
WASHINGTON			
Olympia	236	444	381
Seattle (U)	167	232	228
Seattle-Tacoma	217	363	337
Spokane	311	450	250
Stampede Pass (R)	553	1201	925
Tatoosh Island (R)	294	859	898
Walla Walla (U)	126	143	93
Yakima	207	281	157
WEST VIRGINIA			
Charleston	32	32	60
Elkins	115	116	162
Huntington (U)	23	23	35
Parkersburg (U)	44	44	56
WISCONSIN			
Green Bay	187	217	273
La Crosse	156	161	183
Madison	137	143	194
Milwaukee	117	130	186
WYOMING			
Casper	312	347	268
Cheyenne	309	339	313
Lander	297	320	274
Sheridan	296	333	307

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

SEPTEMBER 1959

STATE	TORNADOES Number	TORNADOES Days	TORNADOES Deaths	TORNADOES Injuries	TORNADOES †Damage	HAILSTORMS Deaths	HAILSTORMS Injuries	HAILSTORMS †Damage Property	HAILSTORMS †Damage Crops	WINDSTORMS Deaths	WINDSTORMS Injuries	WINDSTORMS †Damage Property	WINDSTORMS †Damage Crops	LIGHTNING Deaths	LIGHTNING Injuries	LIGHTNING †Damage Property	LIGHTNING †Damage Crops	‡ HEAVY SNOWSTORMS AND BLIZZARDS Deaths	‡ HEAVY SNOWSTORMS AND BLIZZARDS Injuries	‡ HEAVY SNOWSTORMS AND BLIZZARDS †Damage Property	‡ HEAVY SNOWSTORMS AND BLIZZARDS †Damage Crops	# ICE STORMS Deaths	# ICE STORMS Injuries	# ICE STORMS †Damage Property	# ICE STORMS †Damage Crops	ø ALL OTHER Deaths	ø ALL OTHER Injuries	ø ALL OTHER †Damage Property	ø ALL OTHER †Damage Crops
Alabama										0	0	4	0																
Alaska																						0	0	1	0				
Arkansas	1	1	0	15	5	0	0	0	3	0	0	0	3	0	0	5	0												
California						0	0	3	5	2	0	4	0	0	0	3	0									2	0	5	6
Colorado																		5	few	°6	C								
Connecticut														0	0	4	0									0	0	4	0
Florida	1	1	0	0	0	0	0	2	0	3	0	2	0	2	7	3	0												
Georgia										2	8	6	3	0	0	0	3												
Idaho	1	1	0	0	4					0	0	3	0	0	0	3	0									0	0	5	5
Illinois	12	2	2	D	6	0	0	U4	U4	0	D	6	D	1	0	D	0												
Indiana	4	3	0	0	4									0	0	4	0												
Iowa						0	0	4	4	0	3	6	6	0	0	4	0												
Kansas	7	5	1	3	4	0	0	8	4					0	3	4	0												
Kentucky						0	0	2	4	0	1	4	3																
Louisiana										0	3	3	0	1	0	0	0												
Maryland														0	0	4	0												
Massachusetts														0	0	4	0									0	0	5	0
Michigan										0	0	5	C	1	2	4	0												
Minnesota	1	1	0	0	5	0	0	3	0																				
Missouri	3	3	0	6	5	0	0	4	0	2	4	5	0																
Montana										0	0	4	0																
Nebraska	P1	1	0	0	3	0	0	3	2	0	0	3	2	0	0	4	4												
Nevada										0	1	6	0																
New Jersey														1	8	0	0												
New York										0	0	3	0													0	0	5	0
North Carolina	2	1	0	0	4					0	0	5	5	0	1	4	0									0	0	4	4
North Dakota	1	1	0	0	2					1	12	4	0																
Oklahoma	F2	2	0	0	0	0	0	5	5	0	1	4	0	2	0	5	0									0	0	6	5
Oregon						0	0	3	4	2	2	5	5	0	0	5	2									0	0	1	1
Pennsylvania										0	0	5	0																
Puerto Rico														1	0	0	0												
South Carolina	2	2	0	0	3					7	2	7	6																
South Dakota										0	6	4	C																
Tennessee	1	1	0	7	5									3	0	0	0												
Texas	W7	5	0	0	3	0	0	4	6	0	0	H	H	1	1	4	0												
Utah														0	1	5	0												
Virginia	3	1	12	13	6																								
Washington						0	0	0	3	0	0	5	5	0	0	4	0												
Wisconsin	4	3	0	3	5					0	0	5	5	0	0	4	0												
Wyoming						0	0	4	0																				

° Includes crop damage.
C Crop damage.
P Possible
F 6 funnels aloft occurred on 3 days.
W Includes 3 waterspouts.
H Included in hail, September 29-30.
D Occurred; not estimated.
U Additional probable; not estimated.
‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

HURRICANE GRACIE

September 20 - October 2, 1959

Compiled by George W. Cry
Marine area Section, Office of Climatology
U. S. Weather Bureau

Hurricane Gracie, the most intense tropical cyclone to enter the southeastern United States since hurricane Hazel in 1954, passed inland near Beaufort, S. C., late in the morning of September 29 with winds estimated at well over 100 m.p.h., near the center. The most severe damage occurred in Charleston County, S. C., with an estimated property loss of $7 million, while the rest of the State had a property loss of about $6 million. Damage in Georgia, North Carolina, and Virginia is estimated to total more than $1 million. Latest reports indicate 21 deaths attributed to Gracie -- 7 in South Carolina, 3 in Georgia, and 11 in Virginia in a tornado associated with the storm.

The easterly wave in which hurricane Gracie developed was detected on September 18 some 400 miles east of the Lesser Antilles. It was under continuous observation by reconnaissance aircraft as it moved westward at 15 to 20 m.p.h., passing north of the Lesser Antilles and Puerto Rico on the 19th. On the 20th a tropical depression developed in the wave and moved westward just north of Hispanola. The disturbance slowed and turned northward on the 21st, moving to near San Salvador in the southeastern Bahamas, where the circulation developed rapidly, reaching tropical storm intensity by 7 p.m., e.s.t. on September 21 and hurricane force by 7 p.m., e.s.t. on September 22. During the next 4 days the storm meandered slowly northward, then northwestward and northward again. It remained almost stationary for several hours late on the 24th and then drifted slowly eastward on the 25th and 26th. Maximum winds up to 100 m.p.h., in squalls very near the center were reported briefly on the 23d. Maximum winds decreased to 85 m.p.h., and later to near 75 m.p.h., on the succeeding 2 days. By early on the 26th, highest winds had decreased to an estimated 70 to 75 m.p.h. Late on the 26th, after looping briefly to the south, movement toward the west began, and during the next 36 hours continued to be slow. Maximum winds increased to near 90 m.p.h., during this time, and a sea-level pressure of 981 mb. (28.97 in.) was reported by reconnaissance aircraft in the eye of the storm on the afternoon of the 27th.

The unusually slow movement during the first week of this storm is without parallel and resulted from a conbination of generally high pressures at the surface on three sides of the storm, and the absence of any well-defined steering current in the area surrounding the storm. In general, winds at all levels in the southwestern Atlantic during the entire week were extremely light and variable. On the 28th, the rate of motion of the storm center toward the west-northwest increased to near 12 m.p.h. Reconnaissance aircraft reported steadily increasing maximum winds, estimated at 105 m.p.h., and later at 125 m.p.h., and an expanding area of hurricane winds.

A hurricane watch for the coastal sections between Savannah, Ga., and Wilmington, N. C., was initiated at 11 a.m., e.s.t. and hurricane emergency warnings were issued for the same area at 2 p.m., e.s.t. as it became apparent that Gracie would strike the coast. Heavy rain and squalls began along the Carolina and Georgia coasts during the night, and gale force winds started during the early morning hours of the 29th.

As the storm neared the coast, moving toward the northwest, reconnaissance aircraft reported a minimum pressure of 951 mb. (28.08 in.) just offshore at 10:30 a.m., e.s.t. A slight veering of the center toward the left for a few hours was observed by shore-based radar from the time the storm reached the continental shelf near 32°N., 80°W. until it passed to the south of Walterboro, about 30 miles inland. The center crossed the coast over St. Helena Sound and Edisto Island, about 10 miles east of Beaufort, S. C., and some 35 miles southwest of Charleston, between 11 a.m., and 12 noon e.s.t., and hurricane force winds were experienced along the immediate coast for about 125 miles, from northeast of Charleston to near Savannah.

At the Marine Corps Auxiliary Air Station near Beaufort the lowest observed surface pressure over land, 28.35 in. (960 mb.), maximum 5-minute wind speed of 97 m.p.h., and wind gusts of 138 m.p.h., were observed. Maximum estimated wind gusts of 130 m.p.h., at the Municipal Yacht Basin, Charleston and 125 m.p.h. along Kiawah Island were reported.

The storm center became diffuse after passing inland, moved west of Walterboro to near Bamberg, then turned north-northwestward and northward toward Columbia, passing some 10 miles west of that place about 10 p.m., e.s.t. Maximum winds decreased rapidly as the storm seemed to fill immediately after passing inland. Hurricane winds were estimated to extend inland near the storm center to the Orangeburg-Bamberg area, and gale force winds to near Columbia.

Wind damage in the Beaufort area was the worst in history. Thousands of trees were broken off or brown down and while only a few buildings were completely blown down, virtually all suffered some damage. In other coastal areas damage was extensive. Electrical power and telephone services were disrupted from several hours to several days in central and southern South Carolina and southeastern Georgia.

Continuing northward with diminishing intensity, the storm passed a short distance west of Charlotte, N. C., about 5 a.m., e.s.t. September 30 and into southwestern Virginia. In this area, cold air from the west entered the circulation and the storm assumed extratropical characteristics. Passing northward through West Virginia, northeastward across western Pennsylvania and southern New York, and eastward through extreme southern Vermont and New Hampshire into the Atlantic, the storm dissipated on October 2 southeast of Nova Scotia. Winds ranged up to 35 m.p.h., in Virginia and West Virginia and speeds were generally lower along the remainder of the path.

Rainfall ranged from 3 to 8 inches over all of South Carolina, almost 4 inches in the Savannah area, and over 3 inches in the eastern border counties of Georgia to near Augusta. In North Carolina and Virginia 2 to 4 inches fell generally in central and western sections and totals of 8 to 10 inches were reported in local areas. Totals ranged from 1-1/2 to 3 inches in Pennsylvania, western New York, and the Adirondacks, to 2 inches in the Catskills, and 1/2 to 1 inch in other sections of New York and New England.

Widespread moderate flooding developed along streams in many low sections of eastern, southern, and central South Carolina, and some flash floods occurred on small streams in North Carolina, Virginia, and West Virginia. Rainfall from North Carolina northward was beneficial, however, in relieving very dry conditions which were reaching serious proportions in many areas. Heavy crop damage resulted from wind and rain in South Carolina and southeastern Georgia. Cotton and corn, ready for harvest, were severely damaged, and the pecan crop also suffered heavily.

An intense squall line developed in southwestern Virginia on the afternoon of the 30th, and spawned a series of destructive tornadoes, one of which caused the deaths of 11 persons at Ivy, near Charlottesville. Two other small tornadoes were observed in western North Carolina on the afternoon of the 29th but caused only minor damage.

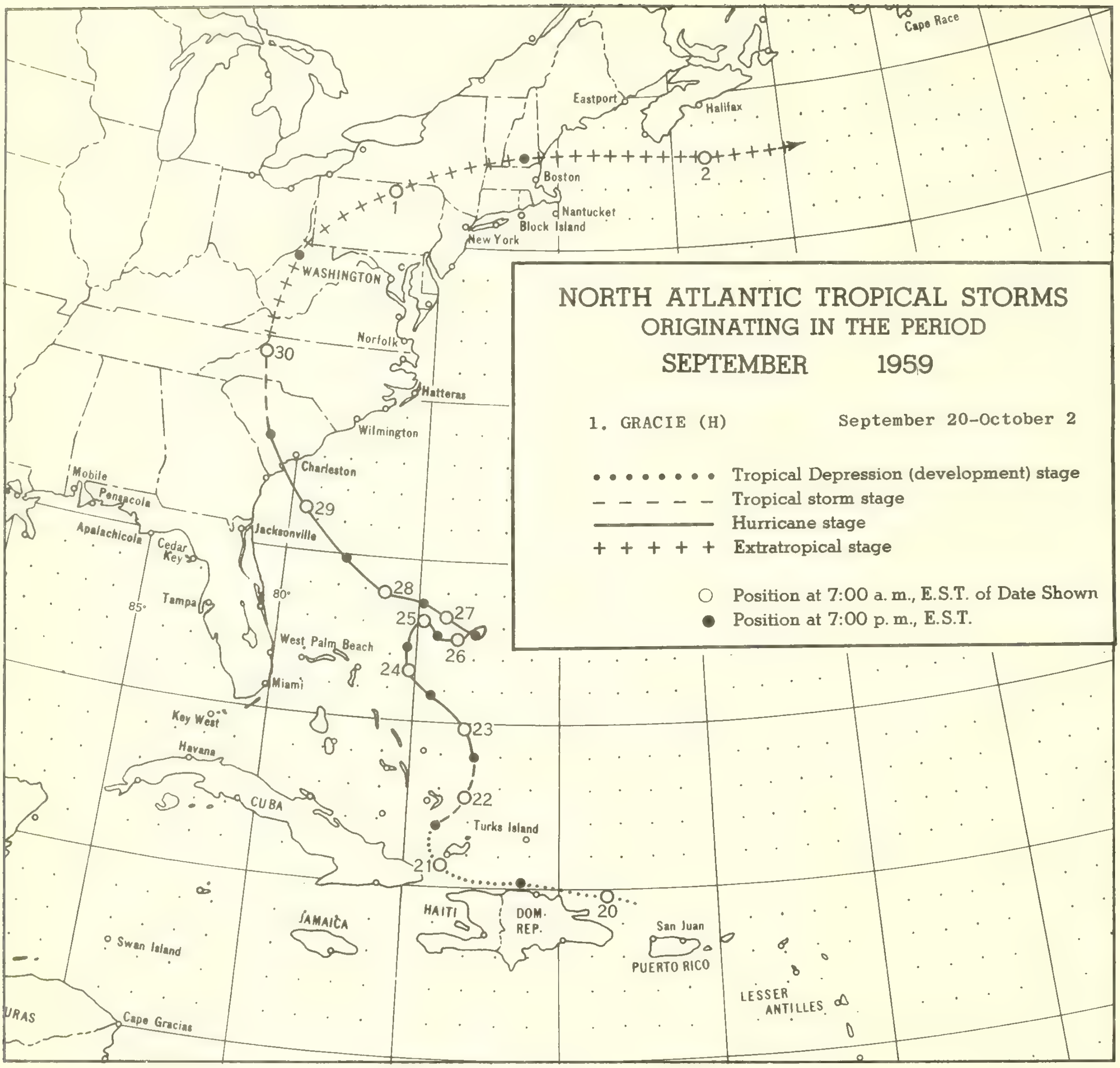
HURRICANE GRACIE STORM SURGE

D. Lee Harris
Office of Meteorological Research
U. S. Weather Bureau

Figure 2 shows a collection of high water marks established by engineers in South Carolina, mostly by the district office of the U. S. Army Corps of Engineers. All elevations in this figure have been referred to mean sea level. Wherever available, the time of the peak water level is shown in brackets beneath the high water elevation. The value of 5.9 feet in downtown Charleston was obtained from the Coast and Geodetic Survey tide gage. The higher areas in the downtown area resulted from water thrown over the sea wall by the breaking of waves. The crests of these waves were above the top of the sea wall, although the mean water level in the harbor was not as high as the top of the sea wall. Most of the high water marks in this figure were obtained from exposed beaches and consequently show some local effects of waves breaking against the shore and wave runup along the beaches; thus, they are upper estimates of the general flooding which would have been expected even a few hundred yards from the coast. The lower values reported are believed to be the most representative.

Figure 3 shows the continuous tide record at several stations affected by this storm. The hourly predicted tides are shown for the Coast and Geodetic Survey tide stations at Charleston and Savannah, and the storm surge curve (the difference between the observed and predicted tides) is shown for Charleston. It is seen that the peak difference coincided within an hour of low tide. The high water marks shown in figure 2 would undoubtedly have been much higher if the storm had come inland either a few hours earlier or later than it actually did.

It is interesting to note that the tide at Charleston was about 0.5 foot above normal for the entire month of September and was a foot above normal for 2 days before landfall of the hurricane.



NORTH ATLANTIC TROPICAL STORMS
ORIGINATING IN THE PERIOD
SEPTEMBER 1959
1. GRACIE (H) September 20-October 2
Tropical Depression (development) stage
Tropical storm stage
Hurricane stage
Extratropical stage
Position at 7:00 a. m., E.S.T. of Date Shown
Position at 7:00 p. m., E.S.T.
Cape Race
Eastport
Halifax
Boston
Nantucket
Block Island
New York
WASHINGTON
Norfolk
Hatteras
Wilmington
Charleston
Jacksonville
Mobile
Pensacola
Apalachicola
Cedar Key
Tampa
West Palm Beach
Miami
Key West
Havana
CUBA
Turks Island
HAITI
DOM. REP.
JAMAICA
San Juan
PUERTO RICO
LESSER ANTILLES
Swan Island
Cape Gracias
URAS
80°
85°

FIGURE I

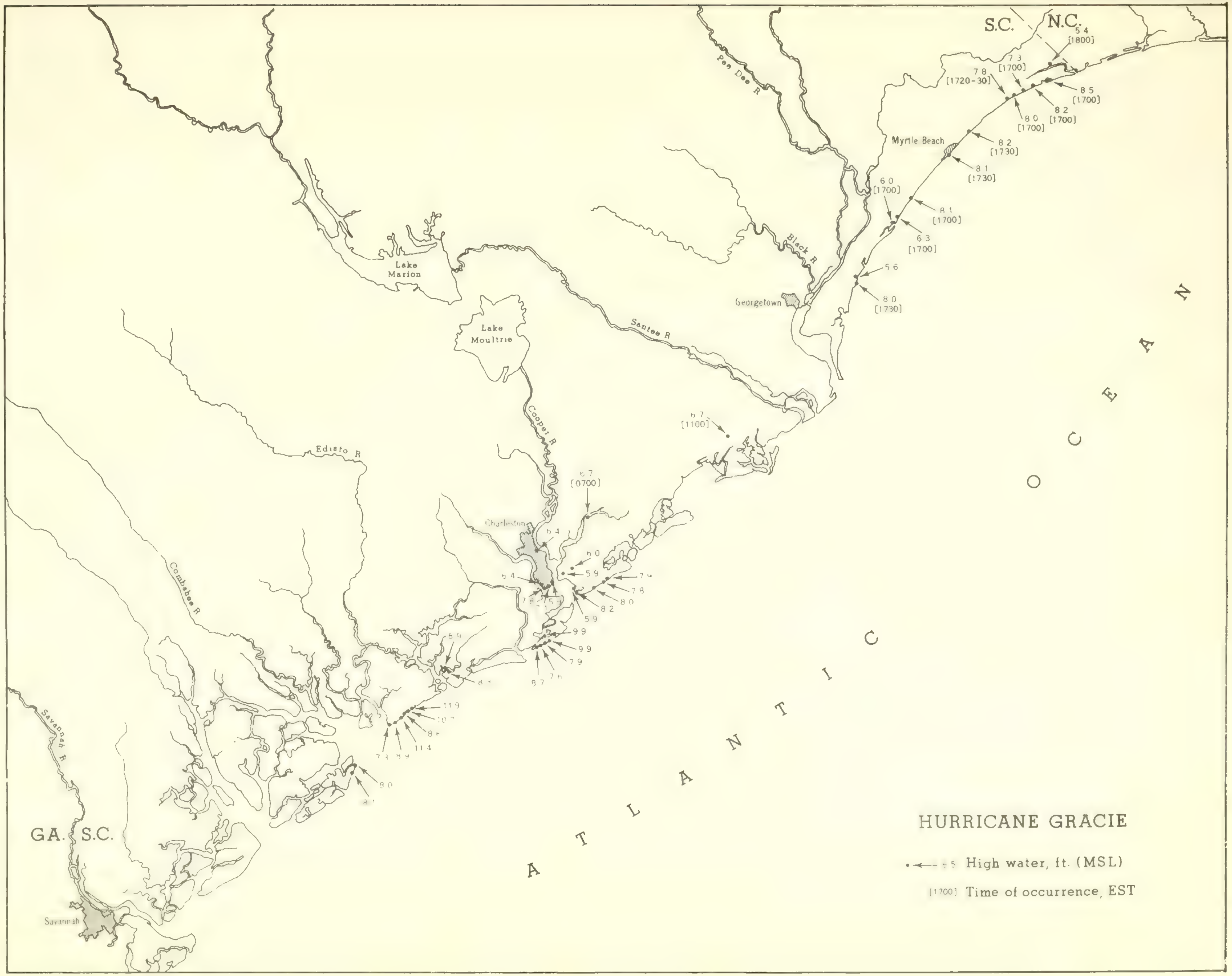

HURRICANE GRACIE
High water, ft. (MSL)
[1700] Time of occurrence, EST
ATLANTIC OCEAN
S.C.
N.C.
GA.
S.C.
Myrtle Beach
Georgetown
Charleston
Savannah
Lake Marion
Lake Moultrie
Pee Dee R
Black R
Santee R
Cooper R
Edisto R
Combahee R
Savannah R

FIGURE 2

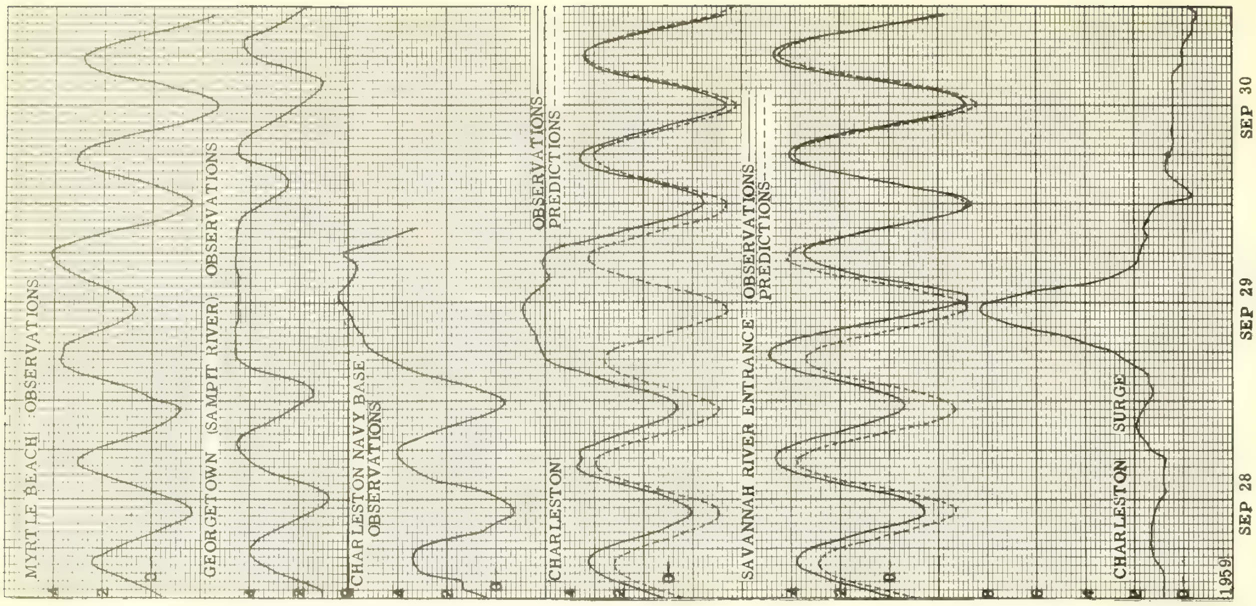


FIGURE 3

TROPICAL CYCLONE DATA

HURRICANE GRACIE

SEPTEMBER 20-OCTOBER 2. 1959

Station	Date	Pressure		Wind (miles per hour)				Rainfall	Remarks
		Low	Time	Fastest Mile	Time	Gusts	Time		
South Carolina									
Charleston (WBAS)	29	29.16	1316 E	48†	1230-1245E	71 SSE	1348 E	4.29	Record low pressure for September at Charleston
Charleston Customs House	29			48 NE	0647 E*				
Columbia (WBAS)	29	29.11	2150 E	38 ESE#	2200 E	57 SE	1700&2200E	5.03	3d lowest pressure of record at Columbia
Orangeburg	29	28.74	1740 E	Est.60-70	1600-1700E	Est.80-90	1600-1700E	7.30	
Spartanburg (WBAS)	29	29.30	0230E-30	25 N#		40 N	1800-2200E	4.76	
Folly Island	29								
Beaufort MCAAS	29	28.35	1230 E	°97 WSW	1245 E	138 WSW			
Walterboro	29					Est.100			
Bamberg	29					Est.75			
Georgia									
Savannah (WBAS)	29	29.27	1200 E	56 NW	--	75	1200 E	3.94	Winds equalled previous September record which occurred in 1928
Augusta (WBAS)	29	29.35		35 NW#	--	48		2.60	
North Carolina									
Wilmington (WBAS)	29	29.76	1600 E	43 SE#	1401 E	67 SE	1359 E	1.39	
Charlotte (WBAS)	29	29.48	0300E-30	38 NE#	1915E	48 NE	1915E	4.89	
Raleigh-Durham (WBAS)	30	29.75	1501 E	25 SSE#	1000E	37 SSE	1000 E	2.01	No damage
Winston-Salem (WBAS)	30	29.66	0700 E	42 E#	--	71 E	0343 E	3.34	
Greensboro	30	29.71	0315 E	34 SSE	0839 E	51 SSE	0839 E	3.74	
Virginia									
Richmond (WBAS)	30			30 SE	--			2.78	
Roanoke (WBAS)	30	29.71						3.85	Rain 8.77 inches at Lafayette (just to west), and over 9 inches at Copper Hill to southwest
Lynchburg (WBAS)	30	29.71		30 SE	--	38	--	3.27	

* Current failed
\# Highest 1 minute wind
† Highest sustained
° Highest 5-minute wind

Table 1

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

SEPTEMBER 1959

The most damaging flood within the memory of residents occurred over the Walnut Creek Basin in Kansas during September. Flash floods were reported in Virginia, Texas, California, and Idaho. Flooding reported elsewhere was mostly minor.

ST. LAWRENCE DRAINAGE

Lake Ontario.--The Genesee River reached a record low stage of 0.10 foot at Scio, N. Y., on September 15.

ATLANTIC SLOPE DRAINAGE

Low flows were prevalent in the Potomac River. According to the U. S. Geological Survey, both monthly and minimum daily discharge were record low for September at Paw Paw, W. Va.

Flash flooding occurred on tributaries of the James River in Virginia from heavy precipitation accompanying hurricane Gracie on the 30th. The rainfall was heaviest over the upper basin with most of the damage occurring in the upper Rivanna Basin. Two bridges and approaches to two bridges were washed out.

Daily light to moderate showers the first few days of September and spotty heavier rains on the 6th and 7th produced sufficient runoff to cause minor flooding on the Neuse and Cape Fear Rivers in eastern North Carolina. No damage or serious inconvenience was reported from the flooding.

Heavy rains on the 29th and 30th accompanying hurricane Gracie caused considerable flooding in streams in South Carolina. The rains ranged from 4 to 7 inches along the middle South Carolina coast to 9.3 inches at Glendale Springs in the Yadkin Basin. The streams rose rapidly to above flood stage. The Yadkin River crested at Wilkesboro, N. C., during the evening of the 30th, 4-1/2 feet above flood stage. This was the same height as the April 1957 flood and produced considerable flooding. Downstream at Yadkin College, the crest occurred during the evening of October 1, about 5 feet above flood stage. Only low farmlands and uninhabited areas were flooded. The Rocky River crested about 6 feet above flood stage at Norwood, N. C., on October 1. Moderate flooding occurred on the Edisto River and shallow flooding on the Pee Dee River. Hurricane Gracie caused considerable flooding by sea water along the coast and tidal streams of middle and lower South Carolina. The maximum effect of the storm was at low water but still there was considerable loss due to tidal flooding.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--Minor flooding occurred on the Wisconsin River in Wisconsin towards the end of the month due to 2- to 3-inch rainfall during the morning of the 27th. Heavy rainfall of 2 to 4 inches preceded this storm on the 21st and 22d, causing streams to rise to one-half to two-thirds bankfull. Numerous basements were flooded at Merrill, Wis., along the Prairie River which empties into the Wisconsin River. Downstream at Portage, Wis., damage was nil as the town is protected by levees. However, a combination trailer park and summer cottage area that had been developed in recent years, 3 miles south of Portage did flood with generally 1 to 5 feet of water over the ground level. Several summer cottages and trailers were inundated.

Missouri Basin.--Minor flooding occurred on the Little Blue River at Deweese, Nebr., on the 19th and light to moderate flooding on the Black Vermillion at Frankfort, Kans., on the 18th, 19th, 26th, and 27th. The most pronounced overflow occurred on the Black Vermillion at Frankfort, Kans., on the 26th and 27th, following rains of 1.5 to 2 inches. About 7 inches of rain had fallen in that area the preceding week so runoff was high. Damages were relatively light since flooding in fields was generally not sufficient to affect standing row crops.

Light to moderate flooding occurred on the Grand River on two separate occasions during the latter part of the month. The first overflow began on the 24th and the second on the 27th. There was little or no loss of surface moisture from evaporation between the rains and the soil stayed wet between rains, causing increased runoff from subsequent rains. The heavy rains on the 26th caused the second overflow on the Grand and light flooding on the Platte at Agency, Mo. The principal damage resulting was to farm crops in the lowlands.

Ohio Basin.--The remnants of hurricane Gracie moved across the upper Ohio Basin on the 30th, causing minor flooding on the New River at Radford, Va., beginning late on the 30th and continuing into October 1. Damages were light.

Arkansas Basin.--Heavy rain fell over the Walnut Creek Basin during the night of the 20th and the morning of the 21st, causing heavy flooding at Albert, Kans., through the 26th. The previous high of 25.2 feet recorded at this point in July 1958 was exceeded by 0.6 foot. This was the most damaging flood within the memory of residents of the valley.

The minor flooding on the Chikaskia and the Cimarron Rivers in Oklahoma between the 24th and 26th was due to heavy rain between the 22d and 25th. The heaviest rainfall occurred on the 24th and 25th. The greatest 24-hour amount was 6.05 inches at Stillwater, Okla., on the 24th. No damages were reported.

WEST GULF OF MEXICO DRAINAGE

Heavy rains from the 23d to the 26th caused flash flooding on the upper branches of the Nueces and Frio Rivers in Texas. Several local roads were closed as low water crossings were covered. One car was reported washed downstream while attempting to cross a section of flooded road on the Frio about 20 miles north of Uvalde, Tex. Most of the other damage was to fences across stream beds.

The flooding of the Rio Grande at Presidio, Tex., on the 2d was due to heavy flow from the Conchos River in Mexico.

PACIFIC SLOPE DRAINAGE

Sacramento Basin.--Flash flooding occurred in creeks draining southward into the northern part of Redding, Calif., from heavy rain on the 18th. Rainfall amounts in the northern and central Sierra were mostly between 2 and 4 inches, but several stations reported more than 5 inches. A thunderstorm developed during the afternoon of the 18th between Shasta Lake and Redding, Calif., which resulted in a 2-day total of 14 inches of precipitation at Tayon and 15 inches at Turntable Creek (on the south shore of Shasta Lake). About half of this rain occurred in a 6-hour period.

Columbia Basin.--It was one of the wettest Septembers of record for the Columbia Basin, as a

SEPTEMBER 1959

whole, with rainfall varying from near average in southwest Oregon to over 600 percent of average in southern Idaho. The September total of 2.54 inches at Boise, Idaho, is the greatest since records began in 1864. Other stations, all with 50 years or more record, which also had the wettest September of record, were Gooding, Idaho, and Missoula and Kalispell, Mont. Flash floods occurred on the 22d and 26th in the southeastern part of Boise, Idaho, as Cottonwood Creek overflowed. Considerable damage resulted.

Puget Sound Drainage.--Heavy rains (3 to 4 inches) on the 25th and 26th caused the Green River to crest within 1 foot of flood stage at Auburn, Wash. Crests on the Snohomish River at Snohomish, Wash., and the Snoqualmie at Carnation, Wash., were estimated to be from 1 to 2 feet above flood stage. These undoubtedly were the highest September stages in 20 years.

FLOOD STAGE DATA

(All dates in September unless otherwise specified)

SEPTEMBER 1959

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	Ft			Ft	
Neuse: Smithfield, N. C.	13	7	10	#16.2	8
Goldsboro, N. C.	14	12	14	15.0	13
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	9	9	#20.9	9
Yadkin: Wilkesboro, N. C.	14	30	30	18.4	30
Rocky: Norwood, N. C.	16	30	Oct. 2	23.6	Oct. 1
Pee Dee: Peedee, S. C.	19	11	12	19.1	12
Saluda: Pelzer, S. C.	6	8	9	7.5	8
Gafney, S. C.	10	30	Oct. [illegible]	11.0	30
Broad: Blair, S. C.	14	30	Oct. 3	23.2	Oct. 1
Congaree: Columbia, S. C.	14	Oct. 1	Oct. [illegible]	19.7	Oct. 1
Catawba: Catawba, N. C.	8	30	Oct. 1	12.2	Oct. 1
Wateree: Camden, S. C.	23	Oct. 2	Oct. 2	#26.2	Oct. 2
North Fork Edisto: Orangeburg, S. C.	8	30	Oct. 9	10.3	Oct. 5
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Wisconsin: Merrill, Wis.	11	27	28	11.9	27
Portage, Wis.	17	29	Oct. 2	17.65	Oct. 1
Missouri Basin					
Little Blue: Deweese, Nebr.	6	19	19	7.35	19
Black Vermillion: Frankfort, Kans.	19	18 19 26	18 19 27	19.7 20.3 23.55	18 19 27
Platte: Agency, Mo.	20	27	28	20.5	27
MISSISSIPPI SYSTEM (Cont'd.) Missouri Basin (Cont'd.)	Ft.			Ft.	
Grand: Pattonsburg, Mo.	25	24 27	25 29	29.7 27.8	24 27
Gallatin, Mo.	21	28	29	22.2	28
Chillicothe, Mo.	24	24 27	25 30	25.3 27.6	24 28
Sumner, Mo.	26	24 27	26 Oct. 2	28.9 31.0	25 30
Ohio Basin					
New River: Radford, Va.	14	30	Oct. 1	16.3	30
Arkansas Basin					
Walnut Creek: Albert, Kans.	24	21	26	25.8	23
Chikaskia: Blackwell, Okla.	26	25	26	28.0	26
Cimarron: Waynoka, Okla.	8	24	25	9.4	24
Guthrie, Okla.	10	25	25	#10.6	25
Perkins, Okla.	12	25	26	13.0	26
Mannford, Okla.	18	25	25	#18.8	25
North Canadian: Watonga, Okla.	7	24	25	7.1	24
Canadian: Union City, Okla.	7	24	25	8.0	25
WEST GULF OF MEXICO DRAINAGE					
Nueces: Tilden, Tex.	11	28	1/	17.1	Oct. 1
Rio Grande: Presidio, Tex.	10	2	3	13.5	2

1/ Continued at end of month
* Tentative
# Highest stage observed

RAWINSONDE DATA

Average monthly values

SEPTEMBER 1959

ALBANY, N. Y. (1011 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	86	13.4	93	199	1.7
1,000	30	175	14.8	86	227	2.1
950	30	608	15.3	73	269	4.5
900	30	1,069	13.1	71	284	9.3
850	30	1,549	11.2	63	282	11.7
800	30	2,053	8.9	56	286	13.0
750	30	2,582	6.8	49	283	15.7
700	30	3,151	4.1	46	278	18.5
650	30	3,747	.9	44	274	20.4
600	30	4,390	- 2.4	39	272	21.4
550	30	5,069	- 6.6	36	270	24.1
500	30	5,814	-11.3		270	26.2
450	30	6,612	-16.6		269	29.3
400	30	7,490	-22.8		270	30.9
350	30	8,456	-29.8		268	33.0
300	30	9,537	-37.7		267	34.0
250	30	10,770	-46.5		268	38.9
200	30	12,219	-56.2		271	41.4
175	30	13,059	-60.0		269	39.4
150	30	14,017	-62.1		272	37.7
125	30	15,141	-63.1		271	29.3
100	30	16,517	-61.7		272	21.6
80	29	17,911	-58.5		273	14.2
60	29	19,737	-54.8		285	3.7
50	29	20,910	-52.3		310	2.7
40	28	22,364	-50.3		288	3.3
30	27	24,249	-47.8		85	3.5
25	26	25,456	-46.3		73	2.7
20	23	26,938	-44.9		70	3.1
15	20	28,868	-42.6		108	2.5
10	8	31,609	-38.6			

ALBUQUERQUE, N. MEX. (839 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,619	15.0	39	113	3.9
1,000	30	[illegible]				
950	30	538				
900	30	1,012				
850	30	1,506				
800	30	2,023	16.8	33	235	2.9
750	30	2,567	13.4	34	273	7.2
700	30	3,147	9.1	38	273	13.8
650	30	3,752	4.3	40	264	14.6
600	30	4,403	- .6	39	259	14.6
550	30	5,086	- 5.2	[illegible]	248	16.9
500	30	5,836	- 9.6		243	15.2
450	30	6,640	-15.1		260	17.3
400	30	7,523	-21.4		266	18.3
350	30	8,493	-29.1		270	15.7
300	30	9,575	-38.0		280	18.3
250	30	10,805	-47.6		293	22.3
200	30	12,247	-56.8		296	29.7
175	30	13,085	-60.7		300	32.6
150	29	14,041	-64.5		298	30.7
125	29	15,145	-67.7		297	20.4
100	28	16,479	-68.2		315	8.5
80	27	17,835	-62.8			.0
60	27	19,632	-58.1		89	6.4
50	27	20,785	-56.5		89	9.9
40	27	22,210	-54.0		92	13.8
30	26	24,070	-51.3		88	15.3
25	25	25,263	-49.2		86	16.7
20	24	26,736	-46.8		84	15.0
15	19	28,652	-44.2			
10	8	31,357	-41.7			

AMARILLO, TEX. (891 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,095	15.4	63	190	6.4
1,000	30	104				
950	30	546				
900	30	1,014				
850	30	1,501	17.6	49	217	16.1
800	30	2,019	17.0	37	235	15.0
750	30	2,559	13.9	37	241	14.8
700	30	3,144	10.1	36	252	14.2
650	30	3,750	5.6	39	260	13.8
600	30	4,404	.4	40	[illegible]	11.9
550	30	[illegible]	- 4.7	37	256	12.6
500	30	5,839	- 9.6		251	12.4
450	30	6,636	-15.1		257	14.8
400	30	7,525	-21.6		267	18.1
350	30	8,495	-28.8		267	19.6
300	30	9,579	-37.4		266	22.7
250	30	10,815	-46.4		269	27.4
200	29	12,265	-55.7		277	31.3
175	29	13,107	-60.0		277	33.2
150	29	14,061	-63.6		277	33.4
125	25	15,175	-66.3		273	30.9
100	15	16,536	-67.4		272	11.9
80	14	17,899	-63.4		268	5.6
60	13	19,684	-58.6		122	1.7
50	13	20,838	-56.1		107	5.4
40	13	22,265	-53.8		110	4.7
30	10	24,117	-50.8		87	7.8
25	10	25,311	-48.8		83	10.1
20	8	26,770	-46.9			
15	5	28,681	-44.1			
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ANCHORAGE, ALASKA ([illegible] MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	30	7.2	[illegible]	36	1.0
1,000	30	60			[illegible]	2.3
950	30	480	7.4	69	56	2.5
900	30	928	4.9	[illegible]	124	3.5
850	30	1,392	1.8	[illegible]	133	3.3
800	30	1,878	- 1.6	75	[illegible]	3.3
750	30	2,386	- 4.9	78	176	5.1
700	30	2,930	- 7.9	74	175	6.8
650	30	3,497	-11.3	66	179	6.8
600	30	4,113	-15.0	60	193	9.1
550	30	4,759	-19.1	52	201	8.4
500	30	5,469	-23.8	48	202	9.1
450	30	6,222	-29.4	[illegible]	212	8.4
400	30	7,062	-35.2	44	227	9.5
350	30	7,980	-41.6		233	12.2
300	30	9,010	-47.9		249	14.6
250	30	10,202	-50.8		257	18.7
200	30	11,663	-48.8		264	20.6
175	30	12,540	-48.9		257	18.3
150	30	13,552	-49.2		261	17.7
125	30	14,746	-49.7		260	15.2
100	30	16,206	-50.2		261	13.8
80	30	17,665	-49.9		255	14.2
60	29	19,546	-50.3		262	12.2
50	29	20,736	-50.5		255	12.4
40	29	22,190	-51.1		252	14.4
30	26	24,062	-50.3		250	12.8
25	25	25,257	-49.2		247	15.2
20	21	26,713	-48.5		257	17.7
15	17	28,600	-47.7		257	20.2
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ANNETTE, ALASKA (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	37	10.3	90	[illegible]	3.1
1,000	30	101			[illegible]	2.7
950	30	523	8.9	83	183	3.7
900	30	974	6.2	81	191	5.8
850	[illegible]	1,441	3.1	81	200	6.6
800	[illegible]	1,930	.4	76	215	7.2
750	30	2,445	- 2.1	69	232	9.5
700	30	2,991	- 5.3	65	247	8.5
650	30	3,564	- 8.5	[illegible]	270	10.1
600	30	4,188	-12.0	58	270	8.7
550	30	4,843	-16.2	54	278	15.3
500	30	5,560	-20.8	51	260	14.4
450	30	6,325	-26.3	48	263	16.9
400	30	7,174	-32.3	46	264	19.2
350	[illegible]	8,104	-38.9		259	19.2
300	29	9,143	-45.4		234	14.6
250	29	10,344	-50.7		255	[illegible]
200	29	11,793	-51.8			
175	[illegible]	12,659	-51.4			
150	29	13,660	-51.8			
125	26	14,834	-51.6			
100	[illegible]	16,283	-51.6			
80	25	17,734	-51.1			
60	25	19,605	-51.4			
50	25	20,789	-51.8			
40	23	22,238	-51.7			
30	23	24,111	-50.6			
25	23	25,301	-49.8			
20	19	26,778	-49.2			
15	16	28,692	-48.1			
10	11	31,350	-46.7			

ATHENS, GA. (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	246	18.6	92	47	4.7
1,000	29	157				
950	29	599	19.0	78	77	7.4
900	29	1,064	16.8	76	83	7.4
850	29	1,550	14.7	74	95	3.7
800	29	2,062	12.3	69	132	2.1
750	29	2,599	9.8	62	164	1.6
700	29	3,172	6.8	54	224	1.6
650	29	3,775	3.7	53	250	2.3
600	29	4,425	.2	50	256	3.3
550	29	5,112	- 3.6	42	268	4.5
500	29	5,866	- 8.1		252	6.0
450	29	6,673	-13.1		252	6.8
400	29	7,567	-19.0		243	9.5
350	29	8,546	-26.3		245	11.5
300	29	9,642	-34.8		245	14.8
250	29	10,888	-44.7		243	19.0
200	29	12,345	-55.9		245	22.3
175	29	13,184	-61.4		252	24.5
150	29	14,131	-65.8		264	18.3
125	27	15,222	-69.2		255	15.3
100	25	16,556	-68.0		261	7.4
80	22	17,896	-64.8		269	2.7
60	20	19,669	-58.8		64	3.3
50	20	20,823	-55.7		76	8.0
40	19	22,256	-52.8		90	10.3
30	19	24,127	-49.5		92	11.5
25	19	25,324	-47.5		100	12.6
20	17	26,796	-46.1		97	12.4
15	5	28,780	-43.2			
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BARROW, ALASKA (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	8	- 1.5	91	84	6.4
1,000	30	134	- 1.5	88	81	6.4
950	30	539	- 2.1	80	91	6.6
900	30	971	- 3.0	69	85	6.2
850	30	1,424	- 4.0	62	71	5.6
800	30	1,901	- 5.8	58	75	5.2
750	30	2,406	- 8.0	55	83	5.1
700	30	2,940	-10.8	53	69	4.9
650	30	3,504	-13.6	49	58	5.1
600	30	4,112	-17.1	46	55	5.1
550	30	4,757	-21.0	44	62	3.1
500	30	5,459	-25.5	41	69	3.9
450	30	6,208	-30.9	37	69	4.1
400	30	7,042	-37.1		22	6.0
350	30	7,953	-43.5		14	5.6
300	29	8,978	-50.3		347	5.1
250	29	10,153	-54.9		306	8.4
200	29	11,586	-51.7		283	9.1
175	29	12,454	-51.0		272	5.6
150	29	13,459	-50.5		280	6.8
125	29	14,648	-50.4		293	4.7
100	29	16,105	-50.2		279	6.2
80	27	17,554	-50.3		261	6.0
60	26	19,429	-50.8		291	6.6
50	26	20,615	-51.2		286	7.6
40	24	22,060	-51.6		274	6.4
30	20	23,920	-51.4		274	10.5
25	18	25,099	-51.4		278	8.5
20	16	26,566	-50.2		271	10.7
15	14	28,443	-49.2			
10	5	31,199	-45.1			
7						

BARTER IS., ALASKA (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	- 1.6	93	122	0.8
1,000	30	120	- 1.5	88	173	1.0
950	30	530	- 1.0	77	73	1.4
900	30	960	- 1.6	68	135	1.0
850	30	1,414	- 3.1	60	185	1.2
800	30	1,893	- 5.2	59	276	1.9
750	30	2,392	- 7.9	55	261	2.1
700	30	2,931	-10.3	47	260	2.5
650	29	3,493	-13.3	44	255	3.5
600	29	4,104	-16.6	39	244	2.7
550	29	4,745	-20.7	37	243	1.4
500	29	5,452	-25.3	39	264	.8
450	29	6,198	-30.6	39	293	2.3
400	29	7,036	-36.5	36	273	3.1
350	29	7,949	-43.0		269	3.9
300	29	8,971	-49.7		285	3.9
250	29	10,151	-53.7		305	6.6
200	29	11,594	-50.3		289	6.8
175	29	12,467	-49.7		284	7.0
150	28	13,481	-49.3		274	7.2
125	28	14,677	-49.2		273	6.8
100	27	16,149	-49.5		261	6.4
80	27	17,612	-49.8		260	7.4
60	25	19,490	-50.2		266	7.8
50	25	20,682	-50.8		270	7.4
40	22	22,146	-51.0		255	6.8
30	22	24,020	-50.6		263	8.2
25	21	25,223	-49.7		258	6.2
20	19	26,683	-49.2		254	7.8
15	16	28,584	-48.1		251	11.1
10	12	31,266	-46.3		251	12.6
7	8	33,658	-43.8			

BETHEL, ALASKA (1002 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	4	5.0	88	14	3.1
1,000	29	56			17	4.3
950	29	478	5.4	71	63	3.1
900	29	917	2.5	70	53	2.3
850	29	1,377	- .3	69	46	1.7
800	29	1,861	- 2.9	63	54	1.6
750	29	2,375	- 5.5	57	50	2.1
700	29	2,909	- 8.3	52	43	1.7
650	29	3,483	-11.6	50	12	2.1
600	29	4,091	-15.2	47	326	3.3
550	29	4,748	-19.2	42	307	4.1
500	29	5,448	-23.8	41	313	6.8
450	29	6,208	-29.1	42	298	9.3
400	29	7,043	-34.8		292	11.5
350	29	7,963	-41.3		296	11.9
300	29	8,995	-47.7		259	15.0
250	28	10,192	-52.0		261	17.9
200	28	11,641	-50.9		252	22.9
175	28	12,511	-50.7		256	20.4
150	28	13,515	-50.7		261	24.1
125	28	14,704	-50.6		264	16.5
100	28	16,159	-50.7		243	9.7
80	28	17,614	-50.7		227	7.6
60	28	19,487	-51.1		214	11.7
50	27	20,670	-51.4			
40	26	22,117	-51.4			
30	23	23,988	-50.4			
25	13	25,189	-49.2			
20						
15						
10						
7						

BISMARCK, N. DAK. (954 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	505	8.6	72	325	1.0
1,000	29	113				
950	29	[illegible]			101	2.9
900	29	993	11.2	62	227	3.7
850	29	1,469	9.6	58	240	6.4
800	29	1,970	7.2	[illegible]	243	9.1
750	29	2,496	5.0	49	254	9.9
700	29	3,059	2.1	47	255	12.2
650	29	3,648	- 1.5	45	251	11.9
600	29	4,286	- 5.7	44	259	15.0
550	29	4,954	-10.2	43	264	16.3
500	29	5,691	-15.3	44	265	19.2
450	29	6,470	-21.0	42	269	23.5
400	29	7,339	-27.0	39	273	25.8
350	29	8,288	-34.2		269	29.7
300	28	9,344	-42.3		272	33.2
250	28	10,556	-50.1		267	36.7
200	28	11,996	-54.9		281	37.3
175	28	12,849	-55.4		277	37.3
150	26	13,821	-55.6		285	31.9
125	26	14,983	-55.8		283	29.1
100	26	16,402	-56.7		282	18.8
80	26	17,818	-56.1		271	10.3
60	26	19,655	-54.2		263	7.2
50	26	20,827	-53.1		250	5.8
40	25	22,271	-52.0			
30	25	24,140	-50.1			
25	24	25,329	-48.6			
20	12	26,842	-46.4			
15						
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BOISE, IDAHO (916 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	868	11.4	71	145	3.3
1,000	30	126				
950	30	559				
900	30	1,016	13.2	62	152	1.7
850	30	1,497	12.0	55	300	4.1
800	30	2,003	8.7	57	288	6.0
750	30	2,532	5.0	60	280	9.5
700	30	3,094	1.3	59	271	12.8
650	30	3,687	- 2.5	57	261	13.8
600	30	4,320	- 6.1	50	254	16.5
550	30	4,989	-10.5	46	249	17.3
500	30	5,724	-15.3	42	248	15.7
450	30	6,510	-20.5	39	249	17.9
400	30	7,376	-26.7	38	265	18.8
350	30	8,326	-33.7		263	20.4
300	30	9,391	-41.3			
250	30	10,608	-48.7			
200	30	12,056	-54.4			
175	29	12,911	-55.7			
150	28	13,886	-57.0			
125	28	15,038	-58.2			
100	28	16,442	-58.5			
80	27	17,850	-58.2			
60	26	19,672	-55.2			
50	25	20,840	-53.9			
40	25	22,275	-53.1			
30	24	24,139	-51.7			
25	22	25,328	-50.4			
20	17	26,780	-48.7			
15	5	28,668	-47.6			
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BROWNSVILLE, TEX. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	7	24.5	88	163	2.9
1,000	30	114	25.3	82	163	7.8
950	30	562	23.3	77	164	16.9
900	30	1,036	20.7	72	169	16.9
850	30	1,529	18.3	63	166	13.2
800	30	2,047	15.3	55	160	9.5
750	30	2,588	12.3	50	150	6.0
700	30	3,167	8.8	49	146	4.3
650	30	3,769	5.4	42	135	2.1
600	30	4,428	1.6	38	72	1.6
550	30	5,110	- 2.7	36	303	1.2
500	30	5,874	- 7.2		267	1.7
450	30	6,678	-12.6	32	281	4.7
400	30	7,578	-18.6	30	286	6.6
350	30	8,561	-25.5		284	10.1
300	30	9,661	-33.8		285	13.0
250	30	10,915	-43.4		281	14.4
200	30	12,381	-54.2		305	17.1
175	30	13,226	-60.1		304	17.1
150	28	14,172	-66.0		304	17.1
125	27	15,262	-71.2		306	8.5
100	21	16,580	-71.0		353	7.0
80	21	17,915	-67.2		71	14.8
60	19	19,672	-61.2		92	19.4
50	19	20,817	-57.5		91	20.4
40	19	22,238	-54.0		87	22.5
30	18	24,105	-50.6		84	22.3
25	17	25,304	-47.8		84	23.1
20	16	26,778	-45.3		85	26.2
15	14	28,711	-42.0			
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7						

BUFFALO, N. Y. (998 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	182	15.8	86	196	2.9
1,000	30	161				
950	30	597	16.1	75	236	9.9
900	30	1,057	13.9	71	250	12.8
850	30	1,538	11.5	68	254	14.4
800	30	2,043	8.8	65	255	16.3
750	30	2,574	6.5	56	259	17.5
700	30	3,140	3.7	50	265	19.2
650	30	3,736	.3	48	265	20.4
600	30	4,376	- 3.3	43	264	22.7
550	30	5,057	- 6.9	34	262	25.8
500	30	5,798	-11.4		263	27.0
450	30	6,593	-16.7		262	30.1
400	30	7,474	-22.7		261	33.8
350	30	8,440	-29.8		263	36.7
300	30	9,522	-37.5		265	41.4
250	30	10,756	-46.6		268	41.8
200	30	12,204	-56.3		270	44.3
175	30	13,044	-59.8		270	41.8
150	30	14,002	-61.9		270	39.2
125	30	15,127	-62.7		266	29.5
100	29	16,507	-60.8		272	21.8
80	29	17,903	-58.3		273	13.6
60	29	19,729	-54.9		285	7.2
50	29	20,900	-53.0		293	3.1
40	28	22,342	-50.5		281	1.9
30	27	24,226	-48.0		301	1.7
25	27	25,433	-46.4		301	1.0
20	23	26,912	-45.0		257	2.1
15	21	28,846	-42.6		252	3.3
10	17	31,582	-40.0		253	6.4
7	6	34,053	-39.1			

BURRWOOD, LA. (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	3	26.0	85	131	1.4
1,000	30	130	25.3	84	129	2.3
950	30	578	22.7	82	145	2.7
900	30	1,051	18.6	79	144	4.5
850	30	1,542	17.1	75	138	4.1
800	30	2,059	14.3	67	139	2.9
750	30	2,597	11.6	61	152	1.9
700	30	3,177	8.4	57	182	.8
650	30	3,784	4.7	56	266	.6
600	30	4,435	1.0	47	280	1.4
550	30	5,123	- 3.2	44	255	2.3
500	30	5,878	- 7.9	39	236	3.5
450	30	6,686	-13.1	38	243	4.7
400	30	7,579	-19.0	34	239	6.0
350	30	8,559	-26.2	34	231	8.7
300	30	9,656	-34.5		240	11.5
250	30	10,905	-44.3		252	10.7
200	30	12,364	-55.3		242	14.4
175	30	13,205	-61.0		251	14.4
150	30	14,152	-66.2		260	13.2
125	30	15,246	-70.0		263	8.7
100	29	16,571	-69.9		310	2.7
80	29	17,908	-66.7		83	6.0
60	29	19,675	-59.9		87	13.6
50	28	20,816	-57.5		79	16.1
40	27	22,233	-54.3		83	19.4
30	24	24,092	-50.2		87	22.3
25	21	25,278	-48.3		89	21.2
20	19	26,757	-46.0		87	18.5
15	10	28,644	-43.6			
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CAPE HATTERAS, N. C. (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	4	22.2	84	54	5.2
1,000	30	158	22.6	79	66	7.0
950	30	599	19.6	80	79	7.2
900	30	1,068	16.8	77	77	4.9
850	30	1,555	14.5	65	97	3.3
800	30	2,065	12.2	51	57	1.2
750	30	2,601	9.8	47	300	1.0
700	30	3,175	7.1	44	265	2.1
650	30	3,778	3.8	40	253	2.7
600	30	4,428	.3	40	244	3.5
550	30	5,112	- 3.7	41	255	4.7
500	30	5,868	- 8.3	37	241	5.2
450	30	6,673	-13.5	34	241	7.0
400	30	7,566	-19.7		251	6.6
350	30	8,543	-26.7	37	271	8.7
300	30	9,638	-35.1		275	9.5
250	30	10,884	-44.8		278	10.9
200	27	12,339	-55.9		299	16.1
175	27	13,179	-60.7		299	17.5
150	26	14,129	-64.4		292	16.1
125	26	15,236	-67.3		281	13.4
100	25	16,578	-66.8		287	7.8
80	25	17,936	-63.5		296	1.7
60	23	19,730	-57.5		52	5.2
50	23	20,888	-55.1		81	8.9
40	21	22,329	-52.1		77	10.9
30	18	24,208	-48.7		81	13.2
25	14	25,413	-46.5		85	12.4
20	11	26,904	-44.1		87	9.9
15	7	28,852	-42.7			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

CARIBOU, ME. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	191	9.4	94	243	3.1
1,000--	30	156				
950----	30	583	11.2	71	275	9.5
900----	30	1,035	9.1	68	290	14.0
850----	30	1,507	6.9	63	289	17.1
800----	30	2,004	4.9	57	284	18.8
750----	30	2,527	2.7	52	282	21.0
700----	30	3,084	.0	49	280	23.9
650----	30	3,670	- 3.1	47	282	26.2
600----	30	4,305	- 6.3	42	282	27.8
550----	30	4,977	-10.3	42	282	30.3
500----	30	5,709	-14.7	36	279	35.2
450----	30	6,493	-19.8		279	39.6
400----	29	7,364	-25.6		279	43.7
350----	29	8,319	-31.9		280	47.6
300----	29	9,389	-39.8		281	52.3
250----	29	10,614	-47.4		280	55.6
200----	28	12,065	-54.4		280	53.2
175----	28	12,914	-57.3		276	46.4
150----	26	13,887	-58.0		274	40.0
125----	25	15,039	-58.2		272	32.4
100----	24	16,453	-56.9		270	23.5
80-----	24	17,872	-55.8		277	15.7
60-----	24	19,721	-52.4		280	3.7
50-----	24	20,905	-50.6		276	7.6
40-----	23	22,369	-48.8		268	6.0
30-----	22	24,268	-47.0		8	1.4
25-----	20	25,494	-46.0		287	1.2
20-----	17	26,976	-43.7		262	5.8
15-----	15	28,915	-42.0		253	6.4
10-----	6	31,612	-40.6			

CHARLESTON, S. C. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	13	19.4	99	20	5.2
1,000--	28	162	21.4	90	44	8.5
950----	28	606	20.7	82	70	10.1
900----	28	1,075	18.1	78	78	8.7
850----	28	1,563	15.4	73	81	6.2
800----	28	2,076	12.9	65	77	3.1
750----	28	2,615	10.4	56	98	2.1
700----	28	3,188	7.4	51	124	1.6
650----	28	3,791	4.0	47	167	1.6
600----	28	4,442	.7	41	187	2.1
550----	28	5,132	- 3.2		206	1.9
500----	27	5,885	- 7.6		242	2.5
450----	27	6,691	-13.0		254	3.5
400----	27	7,585	-19.2		261	4.9
350----	27	8,565	-26.2		260	7.2
300----	27	9,661	-34.7		258	8.5
250----	27	10,908	-44.7		270	10.3
200----	27	12,364	-55.9		267	16.7
175----	27	13,204	-61.3		270	16.3
150----	27	14,149	-66.0		273	17.3
125----	27	15,247	-68.6		275	14.2
100----	26	16,582	-68.3		287	4.9
80-----	26	17,937	-64.4		75	1.0
60-----	26	19,727	-57.7		76	8.2
50-----	25	20,882	-54.7		82	11.3
40-----	25	22,321	-52.0		87	15.7
30-----	24	24,197	-49.4		90	16.1
25-----	22	25,398	-47.7		87	16.3
20-----	22	26,878	-46.2		87	15.5
15-----	15	28,783	-43.8		90	15.9
10-----	6	31,533	-39.1			

COLD BAY, ALASKA (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	27	7.7	87	141	3.3
1,000--	30	48			235	1.6
950----	30	465	5.5	81	256	2.5
900----	30	910	3.1	79	283	5.2
850----	30	1,371	1.0	77	273	8.4
800----	30	1,858	- 1.0	70	279	9.7
750----	30	2,368	- 2.9	63	281	12.0
700----	29	2,919	- 5.6	56	279	15.7
650----	29	3,489	- 8.1	50	271	16.7
600----	28	4,119	-11.7	47	267	20.0
550----	28	4,769	-15.8	48	267	22.3
500----	28	5,494	-20.5	48	266	24.7
450----	28	6,252	-25.7	44	265	25.3
400----	28	7,110	-31.8		264	27.4
350----	28	8,041	-38.0		251	31.9
300----	27	9,102	-44.7		245	39.2
250----	27	10,306	-50.1		246	29.3
200----	26	11,761	-51.4			
175----	24	12,617	-51.9			
150----	23	13,607	-51.8			
125----	22	14,790	-52.6			
100----	21	16,226	-51.8			
80-----	21	17,673	-52.1			
60-----	21	19,535	-52.2			
50-----	21	20,716	-52.3			
40-----	21	22,160	-51.1			
30-----	20	24,035	-49.5			
25-----	20	25,234	-48.4			
20-----	17	26,710	-47.5			
15-----	11	28,643	-45.9			
10-----	5	31,354	-44.7			

COLUMBIA, MO. (990 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	238	15.9	87	118	3.9
1,000--	30	149				
950----	30	586	18.0	68	176	8.7
900----	30	1,051	16.9	62	211	10.7
850----	30	1,537	14.9	57	226	11.1
800----	30	2,049	12.5	54	230	9.9
750----	30	2,586	9.8	49	226	8.7
700----	30	3,158	6.4	49	231	9.7
650----	30	3,760	2.6	49	238	10.1
600----	30	4,406	- 1.2	46	244	12.4
550----	30	5,089	- 5.7	44	247	15.0
500----	30	5,835	-10.2		249	18.5
450----	30	6,637	-15.6		253	18.1
400----	30	7,519	-21.9		256	19.6
350----	30	8,488	-29.0		250	22.3
300----	30	9,571	-37.4		250	24.9
250----	30	10,804	-47.0		252	29.3
200----	30	12,250	-56.4		257	30.1
175----	30	13,090	-60.4		255	33.0
150----	29	14,050	-62.5		255	30.7
125----	29	15,170	-64.0		256	24.9
100----	29	16,536	-63.8		257	16.3
80-----	29	17,914	-60.5		246	7.8
60-----	27	19,719	-57.2		182	1.0
50-----	26	20,878	-55.1		71	2.5
40-----	25	22,307	-52.6		88	4.5
30-----	23	24,175	-49.7		80	6.4
25-----	20	25,367	-47.9		72	6.2
20-----	12	26,818	-46.1		92	4.7
15-----						
10-----						

DAYTON, OHIO (985 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	297	14.8	80	46	1.2
1,000--	30	166				
950----	30	606	17.8	66	208	2.5
900----	30	1,067	15.7	65	240	6.0
850----	30	1,551	13.4	60	253	6.6
800----	30	2,060	11.4	51	258	7.6
750----	30	2,595	8.6	50	251	8.4
700----	30	3,165	5.4	48	251	9.5
650----	30	3,764	2.0	44	250	10.9
600----	30	4,410	- 1.6	40	253	13.0
550----	30	5,091	- 5.6	34	252	14.2
500----	30	5,841	- 9.9	31	253	17.1
450----	30	6,639	-15.5		252	19.0
400----	30	7,525	-21.8		254	20.0
350----	30	8,496	-28.6		256	22.0
300----	30	9,582	-36.7		255	24.3
250----	30	10,820	-46.1		251	29.9
200----	29	12,265	-56.8		252	36.9
175----	29	13,101	-61.6		252	37.5
150----	29	14,051	-63.7		258	32.6
125----	28	15,162	-64.9		261	26.2
100----	28	16,526	-63.5		263	17.5
80-----	28	17,906	-60.6		267	9.3
60-----	28	19,714	-56.4		319	2.1
50-----	28	20,877	-54.2		17	1.4
40-----	28	22,316	-51.5		66	1.4
30-----	27	24,195	-48.8		75	4.9
25-----	24	25,393	-47.0		85	5.2
20-----	23	26,878	-45.2		64	5.1
15-----	19	28,801	-43.4		88	10.1
10-----						

DENVER, COLO. (839 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,611	8.6	64	210	2.1
1,000--	30	124				
950----	30	555				
900----	30	1,018				
850----	30	1,498				
800----	30	2,006	12.9	45	246	3.3
750----	30	2,541	10.6	44	266	3.9
700----	30	3,117	7.2	43	269	6.6
650----	30	3,718	3.2	43	267	11.7
600----	30	4,366	- 1.6	44	271	16.7
550----	30	5,044	- 6.7	44	266	21.6
500----	30	5,789	-11.7	37	260	23.9
450----	30	6,578	-17.3	34	258	27.4
400----	30	7,461	-23.7		256	29.1
350----	30	8,422	-31.4		262	32.3
300----	30	9,495	-39.6		263	37.3
250----	30	10,719	-48.7		264	40.0
200----	30	12,160	-56.1		265	43.5
175----	30	13,004	-58.3		264	42.7
150----	30	13,971	-60.4		269	36.7
125----	29	15,106	-61.7		269	27.6
100----	28	16,485	-62.2		266	16.7
80-----	27	17,871	-60.4		257	8.9
60-----	27	19,686	-56.3		207	2.3
50-----	26	20,847	-54.8		220	1.7
40-----	26	22,282	-53.0		79	2.1
30-----	25	24,151	-50.6		105	4.5
25-----	24	25,343	-49.3		101	5.2
20-----	21	26,822	-47.1		110	3.5
15-----	21	28,739	-44.4		85	4.1
10-----	11	31,515	-40.2			

DODGE CITY, KANS. (925 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	792	14.7	76	155	4.1
1,000--	30	118				
950----	30	561				
900----	30	1,020	16.8	66	167	9.9
850----	30	1,508	17.2	47	206	8.2
800----	30	2,024	15.2	41	217	6.2
750----	30	2,569	12.2	40	203	8.9
700----	30	3,143	8.6	42	243	8.2
650----	30	3,750	4.5	42	251	12.2
600----	30	4,398	- .4	46	257	15.5
550----	30	5,085	- 5.3	43	264	14.8
500----	30	5,830	-10.3	35	258	17.9
450----	30	6,629	-15.7		259	16.5
400----	30	7,514	-22.2		256	19.0
350----	30	8,481	-29.5		272	16.5
300----	30	9,562	-38.1		271	20.8
250----	30	10,791	-47.6		273	22.9
200----	29	12,234	-56.3		276	27.0
175----	28	13,070	-59.8		279	31.7
150----	27	14,024	-62.6		281	30.3
125----	27	15,142	-64.5		275	24.3
100----	26	16,508	-64.2		283	17.3
80-----	26	17,885	-60.3		181	1.0
60-----	26	19,699	-56.3		155	2.1
50-----	26	20,862	-54.5		113	3.5
40-----	25	22,299	-52.2		107	7.8
30-----	24	24,172	-49.5			
25-----	22	25,367	-47.9			
20-----	14	26,849	-46.5			
15-----	5	28,832	-43.4			
10-----						

EL PASO, TEX. (881 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,197	20.6	37	195	1.6
1,000--	30	84				
950----	30	530				
900----	30	1,010				
850----	30	1,508	21.9	31	272	4.1
800----	30	2,031	18.9	35	279	10.1
750----	30	2,575	14.8	38	275	10.9
700----	30	3,162	10.2	42	253	8.4
650----	30	3,766	5.5	47	227	7.8
600----	30	4,421	.6	45	246	7.8
550----	30	5,107	- 3.5		264	8.2
500----	30	5,861	- 8.4		277	9.1
450----	30	6,667	-13.7		280	10.3
400----	30	7,556	-20.3		283	11.9
350----	30	8,531	-27.6		282	14.4
300----	30	9,621	-35.9		282	20.2
250----	30	10,864	-45.5		287	25.5
200----	30	12,320	-55.2		291	28.4
175----	30	13,162	-60.5		292	29.1
150----	30	14,111	-65.5		294	25.1
125----	30	15,207	-70.2		287	22.0
100----	27	16,531	-70.7		291	9.3
80-----	25	17,868	-65.5		101	.6
60-----	25	19,648	-58.9		95	13.2
50-----	25	20,797	-56.9		88	13.0
40-----	24	22,215	-54.5		93	15.9
30-----	23	24,070	-51.4		84	19.6
25-----	23	25,262	-49.2		92	22.7
20-----	22	26,730	-46.7		96	22.7
15-----	20	28,653	-43.7		84	16.9
10-----	8	31,395	-39.1			

ELY, NEV. (810 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,908	5.0	63	191	6.6
1,000--	30	143				
950----	30	574				
900----	30	1,030				
850----	30	1,506				
800----	30	2,006	9.4	52	192	4.9
750----	30	2,542	8.8	46	203	2.5
700----	30	3,110	5.0	48	247	7.0
650----	30	3,708	1.1	47	259	13.4
600----	30	4,350	- 3.5	49	261	15.7
550----	30	5,028	- 8.0	43	267	19.4
500----	30	5,767	-12.2	37	266	22.0
450----	30	6,559	-17.3		263	25.1
400----	30	7,439	-23.8		259	23.9
350----	30	8,401	-31.1		252	22.9
300----	30	9,476	-39.6		248	26.2
250----	30	10,698	-48.6		244	21.6
200----	29	12,146	-55.4		244	28.6
175----	29	12,992	-58.0		245	33.6
150----	29	13,957	-61.0			
125----	29	15,085	-62.6			
100----	29	16,459	-63.3			
80-----	28	17,840	-60.5			
60-----	27	19,649	-56.6			
50-----	27	20,810	-55.0			
40-----	24	22,241	-53.8			
30-----	22	24,103	-51.2			
25-----	20	25,286	-50.2			
20-----	19	26,754	-47.8			
15-----	14	28,670	-44.9			
10-----						

FAIRBANKS, ALASKA (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	135	4.0	85	359	2.5
1,000--	30	75				
950----	30	491	5.1	66	72	4.7
900----	30	934	3.1	67	89	5.1
850----	30	1,395	.5	67	120	2.7
800----	30	1,880	- 2.3	69	159	2.3
750----	30	2,389	- 5.4	70	175	3.3
700----	30	2,929	- 8.6	67	199	2.5
650----	30	3,497	-12.4	68	199	3.3
600----	30	4,108	-15.9	62	205	4.1
550----	30	4,754	-20.0	56	219	5.2
500----	30	5,460	-24.7	52	222	6.8
450----	30	6,211	-30.3	50	212	8.4
400----	30	7,048	-36.6	48	216	7.8
350----	30	7,960	-43.1		199	6.6
300----	30	8,983	-50.3		190	7.6
250----	30	10,160	-54.1		225	8.9
200----	30	11,605	-50.3		248	7.8
175----	30	12,477	-50.2		254	8.7
150----	30	13,484	-50.1		257	11.1
125----	29	14,667	-49.7		258	8.4
100----	29	16,127	-50.0		253	8.2
80-----	28	17,585	-50.3		248	9.3
60-----	27	19,464	-51.3		258	10.1
50-----	26	20,650	-51.3		248	9.1
40-----	17	22,098	-51.5		249	8.7
30-----	10	23,959	-50.7			
25-----	5	25,115	-52.1			
20-----						
15-----						
10-----						

FLINT, MICH. (992 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	234	13.5	88	222	2.7
1,000--	30	164				
950----	30	599	15.5	70	245	6.8
900----	30	1,057	13.0	65	258	11.1
850----	30	1,536	10.9	60	260	13.8
800----	30	2,041	9.0	54	258	16.7
750----	30	2,573	6.8	48	254	18.5
700----	30	3,138	4.1	44	255	20.2
650----	30	3,734	.9	43	256	22.9
600----	30	4,376	- 2.7	40	256	24.5
550----	30	5,052	- 6.7	35	255	25.5
500----	30	5,799	-11.4		256	27.8
450----	30	6,590	-16.8	35	257	30.7
400----	30	7,474	-22.9		259	34.4
350----	30	8,439	-29.9	38	261	35.0
300----	30	9,519	-38.0	42	258	39.8
250----	30	10,751	-47.1		257	43.3
200----	30	12,195	-57.1		260	45.5
175----	30	13,033	-60.4		261	44.1
150----	30	13,990	-61.8		261	39.1
125----	30	15,119	-61.6		260	33.8
100----	30	16,502	-60.9		269	23.7
80-----	29	17,895	-58.4		266	14.4
60-----	29	19,718	-55.5		284	7.4
50-----	29	20,886	-53.2		290	3.9
40-----	28	22,329	-51.1		285	1.7
30-----	28	24,213	-48.6		305	3.1
25-----	28	25,417	-46.8		329	3.1
20-----	26	26,902	-45.1		307	1.7
15-----	23	28,840	-42.9		148	1.9
10-----	18	31,630	-38.6		169	4.5
7------	6	34,066	-37.8			

FORT WORTH, TEX. (994 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	180	21.9	83	180	3.7
1,000--	30	125				
950----	30	575	21.4	79	183	15.3
900----	30	1,040	19.7	72	192	15.3
850----	30	1,531	17.4	64	203	11.7
800----	30	2,048	15.2	52	220	7.0
750----	30	2,591	12.1	48	227	5.1
700----	30	3,168	8.5	48	235	1.7
650----	30	3,772	4.3	46	246	.6
600----	30	4,423	.2	37	279	1.2
550----	30	5,109	- 4.2		277	1.4
500----	30	5,861	- 9.1		285	3.1
450----	30	6,662	-14.3		286	5.8
400----	30	7,552	-20.7		282	10.3
350----	30	8,526	-27.9		279	12.4
300----	30	9,615	-36.4		279	15.3
250----	30	10,856	-45.6		276	18.7
200----	30	12,313	-54.9		276	24.5
175----	30	13,158	-59.7		275	25.3
150----	30	14,111	-64.5		273	23.7
125----	30	15,216	-67.7		270	22.2
100----	29	16,558	-68.1		274	12.6
80-----	29	17,909	-64.3		247	3.9
60-----	28	19,693	-58.6		102	7.0
50-----	25	20,841	-55.9		97	10.1
40-----	25	22,269	-53.8		88	13.8
30-----	24	24,131	-50.3		90	14.6
25-----	23	25,328	-48.3		90	13.8
20-----	21	26,803	-45.8		83	14.6
15-----	18	28,730	-42.8		86	15.0
10-----	11	31,478	-39.1			
7------	6	33,895	-36.6			

GLASGOW, MONT. (932 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	696	8.8	67	95	2.3
1,000--	30	108				
950----	30	536				
900----	30	988	10.8	59	155	4.1
850----	30	1,463	9.0	57	243	4.7
800----	30	1,963	6.7	59	251	6.8
750----	30	2,489	3.7	56	264	10.1
700----	30	3,048	.5	53	256	11.7
650----	30	3,634	- 3.2	54	262	12.2
600----	30	4,268	- 7.3	55	270	12.0
550----	30	4,934	-11.9	53	264	14.0
500----	30	5,663	-16.7	50	258	12.6
450----	30	6,444	-22.1	46	256	11.9
400----	30	7,303	-28.5	44	250	13.6
350----	30	8,245	-36.2		248	14.6
300----	30	9,296	-44.4		246	15.5
250----	30	10,497	-51.9		259	16.9
200----	30	11,930	-54.8		257	22.0
175----	30	12,784	-55.0		253	22.9
150----	29	13,764	-55.3		260	23.3
125----	29	14,925	-55.9		263	18.3
100----	26	16,337	-55.6		261	16.3
80-----	25	17,765	-55.6		264	12.2
60-----	25	19,605	-53.8		300	6.8
50-----	23	20,778	-53.3		244	5.4
40-----	21	22,217	-52.9		261	7.0
30-----	21	24,080	-50.8		267	7.8
25-----	20	25,265	-50.2		264	7.2
20-----	18	26,729	-48.5			
15-----	9	28,672	-45.3			
10-----						
7------						

GRAND JUNCTION, COLO. (852 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,474	13.3	47	118	7.8
1,000--	30	91				
950----	30	530				
900----	30	1,000				
850----	30	1,490			118	7.8
800----	30	2,004	15.1	38	165	6.6
750----	30	2,541	11.6	39	231	6.4
700----	30	3,121	7.4	42	259	10.1
650----	30	3,721	2.4	47	257	14.2
600----	30	4,368	- 2.5	50	250	19.6
550----	30	5,045	- 7.7	51	249	23.7
500----	30	5,788	-12.5	45	248	25.1
450----	30	6,582	-17.5	38	256	25.6
400----	30	7,459	-23.7	36	262	26.0
350----	30	8,422	-30.7		267	23.3
300----	30	9,497	-39.3		271	22.5
250----	30	10,720	-48.9		271	25.1
200----	30	12,158	-56.3		277	28.0
175----	30	13,003	-58.2		284	29.9
150----	30	13,969	-60.3		279	30.7
125----	30	15,099	-62.7		276	23.9
100----	30	16,471	-63.3		281	12.2
80-----	27	17,851	-60.4		288	2.9
60-----	26	19,662	-56.6		60	4.9
50-----	24	20,825	-55.2			
40-----	20	22,254	-53.6			
30-----	12	24,118	-51.4			
25-----	9	25,320	-49.7			
20-----	9	26,785	-48.0			
15-----	6	28,674	-45.9			
10-----						
7------						

GREAT FALLS, MONT. (886 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,123	9.1	68	226	4.5
1,000--	30	107				
950----	30	540				
900----	30	997				
850----	30	1,473	10.4	56	249	11.9
800----	30	1,975	7.6	57	270	11.9
750----	30	2,500	4.2	59	266	12.6
700----	29	3,062	.7	60	264	14.0
650----	29	3,645	- 2.9	58	262	14.8
600----	29	4,283	- 6.6	55	263	17.3
550----	29	4,949	-11.1	52	265	18.7
500----	29	5,683	-15.9	46	261	18.5
450----	29	6,462	-21.2	40	263	21.8
400----	29	7,328	-27.7	38	262	21.4
350----	28	8,269	-35.2		257	20.6
300----	28	9,325	-43.4		253	20.8
250----	28	10,531	-51.3		252	21.0
200----	28	11,968	-54.8		258	26.6
175----	28	12,820	-55.5		261	28.0
150----	27	13,811	-55.5		264	27.4
125----	27	14,972	-56.2		264	21.8
100----	27	16,390	-56.4		262	18.5
80-----	27	17,807	-56.0		268	13.6
60-----	27	19,642	-54.4		279	7.4
50-----	27	20,811	-53.7		264	5.2
40-----	27	22,246	-53.1		267	5.1
30-----	27	24,103	-52.0		280	3.1
25-----	26	25,293	-51.0		275	2.7
20-----	24	26,742	-49.8		282	2.9
15-----	21	28,624	-48.2		318	8.2
10-----	5	31,262	-46.0			
7------						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

Standard pressure surface (mb.)	GREEN BAY, WIS. (992 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	210	12.1	92	258	4.3
1,000--	30	140				
950----	30	576	13.8	76	245	12.0
900----	30	1,028	12.0	68	252	15.0
850----	30	1,506	10.0	61	263	16.1
800----	30	2,009	7.9	55	259	15.7
750----	30	2,537	5.5	51	265	16.1
700----	30	3,101	2.4	49	263	18.7
650----	30	3,692	- .8	45	264	19.6
600----	30	4,332	- 4.9	44	263	21.8
550----	30	5,004	- 9.0	38	274	22.2
500----	30	5,745	-13.6	38	270	25.6
450----	30	6,534	-18.9		273	27.6
400----	30	7,407	-24.8	34	275	31.5
350----	30	8,365	-31.7		270	32.3
300----	30	9,437	-39.6		266	33.2
250----	30	10,661	-48.2		274	38.9
200----	30	12,103	-56.3		265	38.7
175----	30	12,945	-59.3		273	36.5
150----	30	13,910	-59.5		268	30.3
125----	30	15,048	-60.3		259	21.6
100----	30	16,440	-59.6		274	17.1
80-----	29	17,845	-57.2		278	10.9
60-----	29	19,674	-55.0		260	4.1
50-----	28	20,843	-53.8		3	2.5
40-----	27	22,280	-52.0		341	2.9
30-----	27	24,154	-49.4		6	2.9
25-----	25	25,354	-48.0		79	3.9
20-----	18	26,842	-46.1			
15-----	5	28,750	-44.7			
10-----						
7------						

Standard pressure surface (mb.)	GREENSBORO, N. C. (989 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	273	16.4	95	51	2.3
1,000--	30	175				
950----	30	612	18.4	78	44	3.5
900----	30	1,080	16.2	76	59	3.9
850----	30	1,566	14.3	64	70	2.9
800----	30	2,077	12.6	49	126	1.0
750----	30	2,611	10.0	43	216	1.2
700----	30	3,187	6.9	40	235	2.5
650----	30	3,788	3.5	41	242	3.7
600----	30	4,439	.0	37	248	5.4
550----	30	5,125	- 3.9	38	245	5.6
500----	30	5,878	- 8.5	36	235	5.8
450----	30	6,678	-13.5	34	242	9.1
400----	30	7,575	-19.7	36	248	11.5
350----	30	8,552	-27.0	33	255	15.2
300----	29	9,644	-35.8		258	16.5
250----	29	10,885	-45.7		265	17.3
200----	29	12,335	-56.8		275	20.8
175----	29	13,170	-61.9		276	17.5
150----	29	14,116	-65.5		270	15.9
125----	29	15,217	-67.8		264	12.4
100----	29	16,563	-66.2		250	3.5
80-----	28	17,934	-62.0		61	2.7
60-----	28	19,735	-57.0		68	7.8
50-----	28	20,896	-54.3		80	10.5
40-----	28	22,333	-52.2		83	11.9
30-----	27	24,211	-49.5		89	13.0
25-----	26	25,403	-47.7		88	13.4
20-----	26	26,875	-45.9		79	13.2
15-----	16	28,797	-42.9			
10-----						
7------						

Standard pressure surface (mb.)	HILO, T. H. (1014 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	11	21.6	88	236	4.5
1,000--	30	130	23.2	79	239	2.9
950----	30	580	20.6	81	95	4.1
900----	30	1,043	17.6	83	80	5.6
850----	30	1,530	14.7	86	84	7.0
800----	30	2,042	12.6	75	91	7.4
750----	30	2,585	11.7	45	98	9.1
700----	30	3,158	9.0	39	98	9.5
650----	30	3,767	5.5	33	98	8.4
600----	30	4,419	1.9	33	94	6.4
550----	30	5,108	- 1.8		80	6.2
500----	30	5,868	- 6.1		74	3.1
450----	30	6,682	-11.1		301	.6
400----	30	7,581	-17.0		252	4.7
350----	30	8,569	-24.3		248	9.1
300----	30	9,673	-33.1		257	14.6
250----	30	10,929	-43.2		262	20.2
200----	30	12,394	-55.0		264	24.7
175----	30	13,235	-61.5		258	26.0
150----	29	14,177	-67.7		256	21.4
125----	29	15,260	-72.4		252	12.0
100----	29	16,569	-72.5		100	3.9
80-----	29	17,886	-70.0		78	13.6
60-----	29	19,621	-63.6		86	20.6
50-----	28	20,749	-59.7		86	21.4
40-----	28	22,155	-56.3		83	21.2
30-----	22	23,998	-52.4		85	17.9
25-----	13	25,171	-49.9			
20-----	3	26,614	-48.4			
15-----						
10-----						
7------						

Standard pressure surface (mb.)	INTERNAT. FALLS, MINN. (971 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	360	8.6	85	181	2.3
1,000--	30	[illegible]				
950----	30	539	10.4	76	190	3.9
900----	30	988	9.1	70	233	8.9
850----	30	1,460	7.0	62	255	11.3
800----	30	1,957	5.1	59	263	12.6
750----	30	2,482	2.9	54	264	15.0
700----	30	3,039	.4	53	265	17.7
650----	30	3,625	- 2.6	48	272	19.4
600----	30	4,261	- 6.3	46	272	22.5
550----	30	4,926	-10.3	41	273	24.7
500----	30	5,664	-15.4	39	270	27.0
450----	30	6,446	-20.9	36	273	27.4
400----	30	7,313	-27.2	34	275	27.4
350----	30	8,261	-34.5		274	29.0
300----	30	9,321	-42.1		272	34.2
250----	30	10,535	-49.2		267	40.2
200----	29	11,980	-54.1		261	42.7
175----	28	12,834	-55.2		264	38.7
150----	28	13,818	-55.0		266	33.8
125----	28	14,983	-55.4		266	29.1
100----	28	16,405	-56.0		270	22.7
80-----	28	17,828	-54.3		265	16.7
60-----	28	19,676	-53.4		267	11.7
50-----	28	20,852	-52.4		268	8.2
40-----	25	22,302	-51.3		264	4.9
30-----	24	24,175	-49.4		256	4.7
25-----	21	25,374	-48.3		257	5.2
20-----	17	26,833	-47.0		292	4.1
15-----	7	28,759	-45.0			
10-----						
7------						

Standard pressure surface (mb.)	JACKSON, MISS. (1005 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	101	19.9	94	68	1.2
1,000--	30	141	20.6	91	96	2.3
950----	30	589	21.1	79	148	5.2
900----	30	1,055	18.9	74	164	5.8
850----	30	1,544	16.0	73	168	4.1
800----	30	2,058	13.1	69	189	1.6
750----	30	2,595	9.9	62	211	1.4
700----	30	3,169	7.4	52	190	1.6
650----	30	3,772	4.0	45	164	1.4
600----	30	4,422	.1	42	216	[illegible]
550----	30	5,110	- 3.8	38	238	2.3
500----	30	5,861	- 8.3		242	5.2
450----	30	6,665	-13.5		239	7.0
400----	30	7,557	-19.5		244	8.9
350----	30	8,535	-26.8		243	12.0
300----	30	9,629	-35.0		236	14.2
250----	30	10,877	-44.3		238	16.5
200----	30	12,338	-54.8		244	19.6
175----	30	13,183	-59.9		250	21.2
150----	30	14,135	-64.6		253	19.8
125----	30	15,240	-67.8		259	16.3
100----	30	16,579	-67.7		269	8.4
80-----	29	17,934	-64.6		76	1.2
60-----	29	19,719	-57.8		89	7.6
50-----	29	20,874	-55.5		89	12.0
40-----	29	22,307	-52.2		85	15.2
30-----	28	24,182	-48.4		86	17.5
25-----	26	25,387	-46.9		93	19.4
20-----	25	26,874	-44.6		89	18.5
15-----	21	28,805	-42.0		84	18.1
10-----	15	31,584	-37.7		89	16.9
7------	10	34,015	-34.5			

Standard pressure surface (mb.)	JACKSONVILLE, FLA. (1016 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	22.5	96	344	3.5
1,000--	30	144	23.6	88	26	4.5
950----	30	589	22.0	83	62	5.8
900----	30	1,063	19.1	82	69	5.1
850----	30	1,553	16.4	78	71	4.7
800----	30	2,068	13.8	70	69	3.5
750----	30	2,606	11.1	60	57	2.3
700----	30	3,184	7.9	55	46	1.4
650----	30	3,786	4.7	51	288	1.4
600----	30	4,442	1.5	45	276	.8
550----	30	5,132	- 2.5	44		.0
500----	30	5,889	- 6.9	40	52	.8
450----	30	6,697	-12.2	38	234	1.9
400----	30	7,596	-18.3	34	227	2.5
350----	30	8,579	-25.4		252	5.2
300----	30	9,679	-33.7		250	6.2
250----	30	10,932	-43.5		263	9.7
200----	30	12,396	-55.0		265	11.5
175----	30	13,238	-61.0		262	12.4
150----	30	14,184	-66.2		260	14.6
125----	29	15,278	-69.6		266	9.5
100----	29	16,605	-69.8		293	3.5
80-----	29	17,944	-66.1		53	4.9
60-----	28	19,710	-60.6		75	13.8
50-----	27	20,852	-57.5		84	17.5
40-----	26	22,271	-54.8		86	19.6
30-----	25	24,123	-51.4		91	21.0
25-----	24	25,313	-50.1		90	19.6
20-----	23	26,779	-48.1		82	21.0
15-----	20	28,683	-45.4		85	21.4
10-----	12	31,419	-42.4			
7------	6	33,832	-40.5			

Standard pressure surface (mb.)	KING SALMON, ALASKA (1005 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	5.5	89	127	0.6
1,000--	30	52			343	2.1
950----	30	476	6.4	71	149	2.5
900----	30	916	3.6	70	161	4.5
850----	30	1,378	.6	72	166	6.8
800----	30	1,862	- 2.4	70	181	6.0
750----	30	2,373	- 5.0	66	195	6.4
700----	30	2,912	- 7.8	58	208	5.6
650----	30	3,484	-11.0	51	228	6.4
600----	30	4,097	-14.4	42	226	10.3
550----	30	4,747	-18.4	36	243	10.5
500----	30	5,458	-22.8		248	13.8
450----	30	6,217	-27.8		264	15.2
400----	30	7,062	-33.2	40	276	21.8
350----	30	7,988	-39.4		285	27.0
300----	30	9,029	-46.1		282	31.5
250----	30	10,227	-50.5		279	34.4
200----	30	11,683	-50.6		273	31.9
175----	30	12,554	-50.5		272	32.1
150----	30	13,560	-50.5		271	25.1
125----	30	14,749	-50.4		265	21.4
100----	30	16,204	-50.6		269	19.0
80-----	28	17,654	-51.1		263	18.3
60-----	25	19,529	-51.0		252	13.6
50-----	24	20,716	-51.4		249	13.2
40-----	23	22,166	-51.0		252	12.6
30-----	22	24,042	-50.4		247	12.8
25-----	21	25,236	-49.1		246	15.9
20-----	17	26,689	-48.5		248	16.3
15-----	11	28,580	-47.8		261	19.8
10-----						
7------						

Standard pressure surface (mb.)	KOTZEBUE, ALASKA (1010 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	2.1	86	56	5.4
1,000--	30	87	3.5	73	68	3.9
950----	30	501	2.8	60	111	3.7
900----	30	941	.8	59	165	1.2
850----	30	1,398	- 1.9	59	188	1.9
800----	30	1,879	- 4.0	52	205	.8
750----	30	2,384	- 6.4	49	196	1.2
700----	30	2,924	- 9.3	46		.0
650----	30	3,489	-12.2	40	33	1.4
600----	30	4,103	-15.9	38	47	1.9
550----	30	4,750	-19.9	39	33	1.7
500----	30	5,456	-24.5		33	2.1
450----	30	6,207	-29.8		349	2.1
400----	30	7,047	-35.9		360	5.1
350----	30	7,963	-42.3		5	8.2
300----	30	8,990	-49.0		351	11.1
250----	30	10,174	-52.8		345	8.9
200----	30	11,619	-51.3		345	10.5
175----	30	12,479	-50.7		347	11.7
150----	29	13,495	-50.4		321	8.2
125----	29	14,684	-50.5		308	8.0
100----	28	16,140	-50.6		286	7.0
80-----	28	17,597	-50.4		271	7.8
60-----	28	19,473	-51.3		305	4.5
50-----	28	20,656	-51.6		261	6.2
40-----	28	22,105	-51.9		258	7.2
30-----	28	23,972	-51.5		262	10.3
25-----	27	25,159	-50.6		254	12.0
20-----	25	26,618	-49.9		257	11.9
15-----	23	28,503	-48.6			
10-----	10	31,274	-44.4			
7------						

Standard pressure surface (mb.)	LAKE CHARLES, LA. (1015 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	21.7	92	54	3.1
1,000--	30	134	22.9	87	94	3.3
950----	30	583	21.8	81	158	5.6
900----	30	1,052	19.2	77	170	5.6
850----	30	1,543	16.6	68	161	5.2
800----	30	2,058	13.7	65	164	4.1
750----	30	2,594	10.6	61	144	1.7
700----	30	3,174	7.3	58		.0
650----	30	3,775	4.1	50	278	1.0
600----	30	4,429	.3	43	311	1.9
550----	30	5,114	- 4.0	41	320	2.1
500----	30	5,868	- 8.6		247	2.3
450----	30	6,673	-13.8		249	4.3
400----	30	7,565	-20.1		267	6.8
350----	30	8,541	-26.8		262	9.5
300----	30	9,636	-34.9		258	13.6
250----	30	10,883	-44.3		259	17.3
200----	29	12,343	-54.7		261	21.0
175----	29	13,187	-59.9		262	21.6
150----	28	14,137	-64.9		272	23.3
125----	28	15,237	-69.3		272	22.2
100----	28	16,566	-69.2		277	11.3
80-----	27	17,909	-65.7		63	1.9
60-----	22	19,670	-60.1		84	12.2
50-----	21	20,817	-56.5		85	16.3
40-----	17	22,228	-52.9		90	17.3
30-----	16	24,097	-49.3		82	20.0
25-----	15	25,301	-47.4		82	19.0
20-----	13	26,775	-45.2			
15-----						
10-----						
7------						

Standard pressure surface (mb.)	LANDER, WYO. (829 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,696	8.9	59	265	1.9
1,000--	30	108				
950----	30	542				
900----	30	1,000				
850----	30	1,484				
800----	30	1,990	10.9	48	239	2.5
750----	30	2,521	7.8	48	285	4.1
700----	30	3,091	4.3	48	274	7.6
650----	30	3,685	.1	48	274	12.2
600----	30	4,326	- 4.2	47	272	16.9
550----	30	4,999	- 9.0	47	270	19.0
500----	30	5,737	-14.1	46	269	23.9
450----	30	6,519	-19.6	45	265	24.7
400----	30	7,393	-26.1	44	264	26.2
350----	30	8,345	-33.7		266	26.4
300----	30	9,408	-41.7		258	27.2
250----	30	10,621	-50.0		246	30.5
200----	30	12,059	-54.9		244	25.5
175----	29	12,910	-56.6		239	27.4
150----	29	13,884	-58.2		257	30.5
125----	27	15,031	-59.3		255	26.0
100----	24	16,429	-60.0			
80-----	22	17,826	-58.3			
60-----	22	19,647	-55.6			
50-----	21	20,808	-54.4			
40-----	20	22,240	-53.0			
30-----	15	24,118	-51.0			
25-----	11	25,329	-49.5			
20-----	9	26,782	-47.3			
15-----	8	28,674	-45.0			
10-----	6	31,416	-40.9			
7------						

Standard pressure surface (mb.)	LAS VEGAS, NEV. (935 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	660	20.6	30	243	3.7
1,000--	30	73				
950----	30	519				
900----	30	993	23.0	26	240	3.9
850----	30	1,488	20.3	27	263	5.1
800----	30	2,008	16.6	30	249	4.3
750----	30	2,550	12.6	32	232	5.2
700----	30	3,127	8.4	33	236	7.0
650----	30	3,729	4.8	31	246	9.3
600----	30	4,383	.7	32	257	13.4
550----	30	5,066	- 3.6		263	18.5
500----	30	5,822	- 8.4		270	22.2
450----	30	6,622	-14.3		269	25.3
400----	30	7,513	-21.3		272	29.1
350----	30	8,486	-28.6		270	33.8
300----	30	9,570	-37.1		272	36.7
250----	30	10,806	-46.6		272	42.0
200----	30	12,255	-55.7		269	47.2
175----	30	13,099	-59.4		270	47.6
150----	30	14,056	-62.7		270	42.7
125----	29	15,172	-66.1		271	34.6
100----	28	16,524	-66.6		275	20.6
80-----	28	17,880	-63.4		275	9.3
60-----	28	19,670	-58.2		184	1.7
50-----	28	20,822	-56.1		107	4.1
40-----	28	22,245	-54.4		92	6.8
30-----	27	24,094	-52.4		91	9.5
25-----	26	25,272	-51.1		91	8.7
20-----	25	26,730	-49.7		98	8.9
15-----	12	28,639	-47.9		92	12.0
10-----						

Standard pressure surface (mb.)	LITTLE ROCK, ARK. (1008 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	79	19.3	92	73	1.4
1,000--	30	146	19.4	88	86	2.7
950----	30	590	20.1	75	177	6.0
900----	30	1,055	17.5	73	190	6.0
850----	30	1,542	14.7	72	201	5.8
800----	30	2,054	12.5	61	211	4.9
750----	30	2,591	9.8	55	192	2.9
700----	30	3,164	6.5	49	165	1.0
650----	30	3,766	2.6	49	186	1.4
600----	30	4,412	- 1.1	42	242	1.4
550----	30	5,096	- 5.1	39	275	3.1
500----	30	5,845	- 9.5		266	5.4
450----	30	6,647	-14.9	38	262	8.0
400----	30	7,534	-21.1		252	9.7
350----	30	8,506	-28.1		266	10.7
300----	29	9,594	-36.3		261	13.4
250----	29	10,835	-45.4		246	17.1
200----	[illegible]	12,291	-55.5		250	21.0
175----	29	13,132	-60.3		251	19.6
150----	27	14,085	-64.5		247	17.7
125----	26	15,194	-67.1		257	15.3
100----	26	16,538	-67.1		254	10.7
80-----	25	17,903	-63.3		271	1.4
60-----	25	19,694	-57.9		59	4.1
50-----	25	20,848	-55.6		77	5.4
40-----	23	22,274	-53.2		89	10.3
30-----	21	24,132	-50.2		80	11.9
25-----	20	25,325	-48.5		75	12.8
20-----	16	26,796	-46.8		83	12.6
15-----	14	28,722	-43.9		73	15.9
10-----	10	31,440	-40.2			

Standard pressure surface (mb.)	McGRATH, ALASKA (996 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	103	3.4	87	327	2.5
1,000--	30	66				
950----	30	483	4.6	70	50	6.2
900----	30	924	2.4	70	68	4.1
850----	30	1,384	- .3	73	79	1.9
800----	30	1,867	- 3.3	72	146	1.7
750----	30	2,370	- 6.3	69	74	.8
700----	30	2,912	- 9.3	62	180	1.2
650----	30	3,474	-12.6	56	165	2.7
600----	30	4,088	-16.4	53	154	2.9
550----	30	4,731	-20.5	48	170	3.7
500----	30	5,436	-25.0	45	186	3.5
450----	30	6,184	-30.2	43	201	2.3
400----	30	7,022	-36.0	40	274	1.4
350----	30	7,936	-42.5		293	3.9
300----	30	8,963	-48.9		282	5.6
250----	30	10,150	-51.5		271	12.4
200----	30	11,605	-49.8		276	12.2
175----	30	12,479	-49.7		269	13.2
150----	29	13,479	-49.3		262	13.6
125----	29	14,674	-49.7		256	12.4
100----	29	16,133	-50.2		260	9.9
80-----	29	17,592	-50.2		253	12.6
60-----	29	19,468	-50.9		260	11.1
50-----	29	20,655	-51.3		261	10.7
40-----	29	22,106	-51.4		252	11.9
30-----	27	23,981	-50.6		252	13.6
25-----	26	25,175	-49.9		249	13.2
20-----	24	26,643	-48.3		250	15.3
15-----	22	28,552	-47.1		251	13.8
10-----	13	31,238	-45.9			

Standard pressure surface (mb.)	MEDFORD, OREG. (969 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	401	11.0	81	154	0.6
1,000--	30	138				
950----	30	572	13.0	71	282	1.9
900----	30	1,023	12.1	67	272	1.0
850----	30	1,501	10.1	64	212	1.7
800----	30	2,003	7.3	61	242	5.6
750----	30	2,531	4.8	55	249	8.5
700----	30	3,092	2.5	47	261	13.2
650----	30	3,686	- .4	36	262	15.3
600----	30	4,326	- 3.5	35	270	17.3
550----	30	5,007	- 7.0		267	17.3
500----	30	5,746	-11.8		273	15.9
450----	30	6,538	-17.5		268	19.0
400----	30	7,417	-23.9	33	264	22.0
350----	30	8,379	-31.1		269	27.8
300----	30	9,454	-39.6		275	28.6
250----	30	10,677	-48.9			
200----	30	12,115	-56.9			
175----	30	12,958	-58.2			
150----	30	13,926	-59.6			
125----	30	15,064	-60.7			
100----	30	16,456	-59.7			
80-----	30	17,855	-58.7			
60-----	30	19,675	-55.9			
50-----	30	20,839	-54.7			
40-----	30	22,274	-53.3			
30-----	30	24,136	-51.5			
25-----	30	25,323	-50.4			
20-----	30	26,785	-49.1			
15-----	23	28,678	-47.2			
10-----						

Standard pressure surface (mb.)	MIAMI, FLA. (1014 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	4	24.3	92	47	1.6
1,000--	30	128	25.1	82	60	2.5
950----	30	580	22.9	79	67	4.1
900----	30	1,050	20.1	78	84	2.9
850----	30	1,542	17.2	78	118	1.6
800----	30	2,059	14.4	75	154	.8
750----	30	2,598	11.5	70		.0
700----	30	3,178	8.5	65	204	.6
650----	30	3,784	5.4	61	250	1.2
600----	30	4,439	1.8	59	256	1.2
550----	30	5,124	- 2.1	56	274	1.2
500----	30	5,889	- 6.6	53	271	1.0
450----	30	6,698	-11.8	53	300	1.9
400----	30	7,598	-17.7	47	284	2.1
350----	30	8,584	-24.8	44	258	2.7
300----	30	9,686	-33.3	40	270	2.7
250----	29	10,939	-43.5		243	4.1
200----	29	12,400	-55.6		257	5.1
175----	29	13,239	-61.6		254	4.7
150----	29	14,181	-66.9		282	3.3
125----	28	15,272	-71.4		350	2.7
100----	28	16,591	-71.0		29	5.4
80-----	27	17,924	-66.7		74	11.7
60-----	27	19,685	-61.3		79	19.4
50-----	27	20,824	-58.4		82	22.0
40-----	27	22,239	-54.9		87	25.3
30-----	25	24,096	-50.7		90	23.7
25-----	23	25,288	-48.4		85	21.8
20-----	10	26,759	-45.8			
10-----						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

MIDLAND, TEX. (915 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	871	18.9	69	149	2.7
1,000	30	101				
950	30	550				
900	30	1,017	19.9	65	160	6.6
850	30	1,510	19.6	55	199	15.7
800	30	2,031	18.2	42	216	9.1
750	30	2,580	14.7	37	257	5.8
700	30	3,161	10.3	42	283	3.7
650	30	3,770	5.5	46	323	2.7
600	30	4,422	.5	46	333	2.7
550	30	5,108	- 3.8	36	294	2.3
500	30	5,862	- 8.6		284	5.8
450	30	6,669	-14.0		288	7.2
400	30	7,557	-20.4		289	11.5
350	30	8,532	-27.7		284	18.5
300	30	9,622	-36.0		292	22.5
250	30	10,864	-45.5		291	27.8
200	30	12,319	-55.2		296	35.2
175	29	13,162	-60.0		295	37.9
150	29	14,113	-64.8		296	34.0
125	28	15,214	-69.0		283	23.9
100	26	16,547	-70.0		292	11.7
80	22	17,894	-65.2		286	3.3
60	20	19,677	-59.3		97	6.2
50	19	20,824	-56.7		94	15.0
40	19	22,247	-54.4		94	17.7
30	19	24,109	-50.3		97	21.0
25	17	25,313	-48.6		92	22.2
20	13	26,784	-46.1		89	21.8
15						
10						
7						

MONTGOMERY, ALA. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	61	20.5	92	56	3.5
1,000	30	147	20.8	90	79	5.8
950	30	594	21.1	81	118	8.5
900	30	1,061	18.8	79	133	6.4
850	30	1,551	15.9	78	133	4.5
800	30	2,064	12.8	75	146	3.1
750	30	2,601	10.1	64	173	2.3
700	30	3,177	7.2	57	189	2.5
650	30	3,780	4.0	56	193	2.3
600	30	4,431	.5	49	207	3.1
550	30	5,120	- 3.4	39	221	3.7
500	30	5,873	- 7.8	35	223	4.7
450	30	6,678	-13.0		225	7.0
400	30	7,574	-19.2		223	9.1
350	29	8,553	-26.1		229	11.5
300	29	9,650	-34.5		230	14.6
250	29	10,899	-44.2		228	18.5
200	29	12,358	-55.3		229	19.8
175	29	13,200	-60.6		238	21.2
150	29	14,148	-65.6		249	17.7
125	29	15,247	-69.0		244	15.2
100	28	16,581	-68.4		237	5.2
80	28	17,934	-64.7		110	1.9
60	27	19,717	-59.1		81	7.2
50	27	20,870	-55.9		81	11.5
40	26	22,301	-53.2		86	14.4
30	26	24,169	-49.8		87	16.9
25	24	25,366	-48.3		89	15.5
20	23	26,849	-45.7		85	15.9
15	18	28,782	-42.9		89	12.4
10	7	31,558	-39.8			
7						

NANTUCKET, MASS. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	14	17.1	86	278	1.9
1,000	30	178	18.0	75	279	4.9
950	30	615	16.1	68	289	6.4
900	30	1,076	13.7	64	285	7.0
850	30	1,556	11.3	60	284	8.4
800	30	2,061	9.3	50	282	11.3
750	30	2,592	6.8	46	285	12.4
700	30	3,158	4.0	41	281	13.8
650	30	3,753	1.4	38	281	16.3
600	30	4,399	- 2.0	33	276	19.4
550	30	5,077	- 6.1		279	19.6
500	30	5,825	-10.7		277	20.6
450	30	6,616	-16.6		275	21.4
400	30	7,502	-22.7		286	20.4
350	30	8,469	-29.8		280	21.2
300	30	9,550	-37.8		278	18.8
250	30	10,782	-47.4		280	18.5
200	30	12,225	-57.3		294	19.4
175	30	13,061	-61.3		302	21.8
150	29	14,012	-64.0		303	22.3
125	29	15,127	-64.5		297	17.9
100	29	16,495	-63.0		298	7.4
80	29	17,877	-60.0		315	4.5
60	29	19,692	-55.8		29	3.5
50	29	20,858	-53.7		59	4.3
40	29	22,297	-52.0		79	5.6
30	28	24,172	-49.6		79	6.8
25	28	25,370	-47.9		84	8.0
20	25	26,844	-46.3		81	7.8
15	14	28,735	-44.7			
10	5	31,459	-41.3			
7						

NASHVILLE, TENN. (998 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	177	17.9	92	119	0.8
1,000	30	159			112	1.9
950	30	601	19.6	76	190	5.8
900	30	1,067	17.7	71	214	5.6
850	30	1,555	15.1	66	249	3.7
800	30	2,067	12.0	63	262	3.3
750	30	2,604	9.5	51	268	1.9
700	30	3,176	6.5	48	237	.8
650	30	3,777	3.0	46	242	1.4
600	30	4,425	- .7	43	214	2.9
550	30	5,108	- 4.8	40	231	4.9
500	30	5,859	- 9.2		248	6.6
450	30	6,661	-14.5	37	248	9.7
400	30	7,550	-20.6	39	245	12.6
350	30	8,525	-27.7	41	240	15.5
300	30	9,616	-35.9		236	18.8
250	30	10,857	-46.0		240	22.9
200	30	12,306	-56.9		241	26.0
175	30	13,143	-61.8		248	27.4
150	30	14,089	-65.2		255	21.4
125	30	15,193	-67.5		251	15.2
100	30	16,538	-66.3		260	8.7
80	30	17,901	-63.0		220	1.4
60	30	19,698	-57.5		67	6.2
50	30	20,856	-55.6		90	7.4
40	29	22,287	-53.1		84	10.1
30	28	24,152	-50.5		87	12.2
25	25	25,353	-48.4		86	12.2
20	22	26,835	-46.3		88	11.1
15	16	28,741	-44.3		89	9.3
10						
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N. Y. INT. AP, IDLEWILD (1021 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	17.9	84	308	3.7
1,000	30	180	18.1	74	308	4.7
950	30	616	16.4	64	304	3.7
900	30	1,077	13.9	61	278	4.3
850	30	1,558	11.7	60	273	6.4
800	30	2,064	9.4	54	278	8.7
750	30	2,596	7.0	42	282	10.9
700	30	3,162	4.6	38	279	12.8
650	30	3,760	1.8	34	280	14.4
600	30	4,404	- 1.7	35	274	15.2
550	30	5,086	- 5.8		273	17.9
500	30	5,832	-10.5		268	20.0
450	30	6,628	-16.1		272	23.5
400	30	7,512	-22.1		269	26.0
350	30	8,480	-29.0		274	28.2
300	30	9,565	-37.1		275	31.7
250	30	10,801	-46.5		272	34.4
200	30	12,250	-56.5		275	35.6
175	30	13,089	-60.8		273	35.9
150	30	14,040	-63.6		278	30.3
125	30	15,155	-65.0		275	27.0
100	30	16,520	-63.3		280	18.1
80	30	17,901	-60.4		277	9.9
60	30	19,711	-56.0		305	5.2
50	30	20,877	-53.8		22	.8
40	29	22,321	-51.4		63	2.7
30	29	24,203	-48.5		73	4.1
25	29	25,407	-47.0		60	3.7
20	29	26,891	-45.1		68	4.1
15	28	28,826	-43.0		81	5.6
10	20	31,564	-39.9		73	4.9
7	10	33,967	-38.7			

NOME, ALASKA (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	7	4.1	80	37	5.4
1,000	30	70			40	4.5
950	30	488	4.3	67	78	4.5
900	30	927	1.5	68	94	5.1
850	30	1,386	- .9	63	97	3.7
800	30	1,868	- 3.4	59	76	2.5
750	30	2,373	- 6.0	57	69	2.7
700	30	2,914	- 8.9	54	35	4.3
650	30	3,478	-12.1	57	19	3.5
600	30	4,093	-15.3	55	13	2.9
550	30	4,739	-19.4	46	358	3.1
500	30	5,449	-24.0	44	349	3.7
450	30	6,198	-29.5	44	353	4.1
400	30	7,041	-35.8		328	4.5
350	30	7,956	-42.2		324	8.7
300	30	8,984	-48.8		325	6.6
250	30	10,172	-52.0		315	9.7
200	30	11,619	-51.2		276	7.8
175	30	12,489	-50.5		269	9.1
150	30	13,496	-50.1		251	9.5
125	30	14,688	-50.1		247	8.9
100	29	16,143	-50.0		231	9.7
80	29	17,601	-50.2		243	10.5
60	28	19,476	-50.8		240	10.1
50	28	20,663	-51.2		249	9.7
40	26	22,117	-51.5		250	9.9
30	25	23,987	-50.3		254	12.6
25	21	25,185	-49.3		244	10.3
20	17	26,652	-48.2		238	16.5
15	9	28,569	-47.1			
10						

NORFOLK, VA. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	9	19.8	90	48	2.3
1,000	30	174	21.1	81	50	2.7
950	30	616	18.5	77	63	2.9
900	30	1,080	15.9	70	71	2.3
850	30	1,565	14.1	51	115	1.9
800	30	2,076	12.3	46	174	1.4
750	30	2,614	9.6	45	236	2.1
700	30	3,185	6.7	42	260	4.1
650	30	3,788	3.4	40	254	6.4
600	30	4,436	.2	37	257	7.0
550	30	5,125	- 3.7	37	258	8.5
500	30	5,875	- 8.5	39	257	10.7
450	30	6,681	-13.7		248	11.1
400	30	7,572	-19.9		261	12.6
350	30	8,548	-27.0		263	15.2
300	30	9,642	-35.4		263	18.1
250	30	10,885	-45.4		262	18.8
200	30	12,337	-56.2		270	23.3
175	30	13,176	-61.3		275	23.3
150	30	14,124	-64.8		270	21.8
125	30	15,230	-67.0		270	19.4
100	30	16,578	-66.2		271	12.2
80	30	17,943	-62.4		275	4.1
60	30	19,743	-57.1		46	4.1
50	28	20,900	-53.9		67	5.6
40	28	22,342	-51.5		84	8.2
30	27	24,216	-48.7		87	9.7
25	27	25,420	-46.9		82	10.1
20	25	26,898	-45.1		95	10.7
15	25	28,832	-42.8		87	12.4
10	18	31,573	-39.9		83	12.0

NORTH PLATTE, NEBR. (917 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	848	10.5	79	35	1.4
1,000	30	117				
950	30	551				
900	30	1,005	13.0	70	109	1.9
850	30	1,488	14.1	52	215	3.3
800	30	1,998	12.4	47	241	6.4
750	30	2,533	9.8	44	240	10.3
700	30	3,108	6.5	44	244	12.6
650	30	3,707	2.5	43	253	15.3
600	30	4,355	- 2.0	45	258	19.8
550	30	5,033	- 7.1	47	256	23.7
500	30	5,778	-12.1	46	252	26.4
450	30	6,570	-17.7	41	252	30.9
400	30	7,448	-24.0	37	248	28.0
350	30	8,408	-31.2		255	26.4
300	30	9,481	-39.9		256	20.6
250	30	10,701	-49.3		254	22.7
200	30	12,139	-56.4		266	29.5
175	30	12,981	-59.1		269	30.5
150	30	13,944	-60.5		272	29.0
125	30	15,076	-61.9		276	20.2
100	29	16,455	-62.1		275	12.4
80	28	17,839	-59.5		269	10.1
60	28	19,656	-56.2		299	1.7
50	28	20,819	-54.7		37	2.5
40	27	22,256	-52.5		65	2.5
30	27	24,126	-50.2		101	3.7
25	26	25,323	-48.9		98	2.5
20	22	26,761	-47.3		247	2.9
15	15	28,653	-45.6			
10	6	31,330	-42.2			

OAKLAND, CALIF. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	14.6	85	295	1.4
1,000	30	114	14.8	81	291	2.1
950	30	552	15.3	67	298	3.3
900	30	1,010	17.2	41	302	4.9
850	30	1,496	15.3	34	274	4.7
800	30	2,007	12.8	28	272	4.9
750	30	2,544	10.2	28	288	7.8
700	30	3,118	7.3	25	284	8.7
650	30	3,720	4.0		280	10.7
600	30	4,372	.3		285	13.4
550	30	5,053	- 4.3		287	17.7
500	30	5,809	- 9.4		281	20.4
450	30	6,610	-15.4		282	21.0
400	30	7,495	-22.1		280	22.9
350	29	8,466	-29.6		281	25.1
300	29	9,547	-38.1		283	29.0
250	29	10,778	-47.3		279	29.9
200	29	12,225	-55.7		280	35.8
175	29	13,070	-58.7		274	37.1
150	29	14,032	-61.4		272	35.9
125	29	15,156	-64.1		272	29.5
100	29	16,521	-64.1		279	19.0
80	29	17,891	-62.3		291	10.1
60	29	19,683	-58.0		315	3.1
50	29	20,837	-55.9		36	2.9
40	29	22,262	-54.3		74	3.3
30	28	24,119	-52.0		80	6.4
25	26	25,304	-50.9		83	6.8
20	25	26,762	-49.6		73	6.6
15	19	28,652	-48.1		64	5.6
10						

OKLAHOMA CITY, OKLA. (969 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	392	17.8	88	155	4.9
1,000	30	123				
950	30	567	19.3	77	166	11.1
900	30	1,031	19.1	65	197	14.8
850	30	1,521	17.6	55	217	12.2
800	30	2,038	15.1	48	227	8.0
750	30	2,578	12.3	40	234	6.0
700	30	3,157	8.6	36	251	5.2
650	29	3,764	4.6	31	298	2.1
600	29	4,414	- .1	34	320	3.5
550	29	5,097	- 4.8	34	280	4.3
500	28	5,850	- 9.7		283	5.4
450	28	6,649	-15.3		283	9.1
400	28	7,536	-21.6		295	9.7
350	28	8,505	-28.9		295	11.3
300	28	9,590	-37.3		289	14.8
250	28	10,824	-46.9		281	17.9
200	28	12,271	-56.3		276	21.6
175	28	13,111	-60.3		273	24.3
150	26	14,064	-63.4		278	24.5
125	24	15,175	-65.7		285	16.3
100	24	16,527	-66.3		285	7.2
80	23	17,892	-62.4		320	.6
60	23	19,693	-57.5		80	5.8
50	23	20,851	-55.2		92	8.5
40	23	22,286	-52.3		90	9.9
30	22	24,158	-49.5		88	13.8
25	20	25,354	-47.1		86	13.2
20	19	26,849	-44.9		92	15.3
15	14	28,772	-42.9		90	14.2
10						

OMAHA, NEBR. (968 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	403	13.9	85	163	4.9
1,000	30	128				
950	30	562	15.8	71	184	7.4
900	30	1,023	15.5	57	215	14.8
850	30	1,508	13.8	52	230	13.8
800	30	2,017	11.6	50	239	13.0
750	30	2,552	9.0	50	248	13.4
700	30	3,125	5.7	48	252	13.8
650	30	3,725	1.8	49	246	14.6
600	30	4,369	- 2.2	45	252	17.3
550	30	5,050	- 6.8	45	254	19.4
500	30	5,795	-11.2	39	253	21.6
450	30	6,591	-16.7	36	252	23.9
400	30	7,473	-23.0		252	26.6
350	30	8,437	-30.3		255	29.7
300	30	9,514	-39.0		253	31.5
250	30	10,740	-48.2		250	34.4
200	30	12,178	-57.3		247	36.9
175	30	13,017	-59.7		253	38.5
150	29	13,984	-60.7		258	32.4
125	29	15,115	-61.8		260	25.5
100	28	16,493	-61.6		253	19.8
80	28	17,882	-59.4		256	13.0
60	28	19,701	-56.0		243	6.8
50	27	20,869	-54.3		273	2.3
40	27	22,303	-52.9		69	1.6
30	22	24,182	-50.0		78	1.9
25	21	25,383	-48.5		85	1.6
20	17	26,847	-46.6		63	1.4
15	7	28,726	-45.3			
10						
7						

PEORIA, ILL. (995 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	201	14.9	85	127	1.6
1,000	30	154				
950	30	591	16.8	68	202	7.0
900	30	1,051	14.8	64	244	8.5
850	30	1,534	13.3	54	253	10.3
800	30	2,043	11.0	53	248	11.1
750	30	2,573	8.5	49	251	12.8
700	30	3,146	5.0	54	262	13.8
650	30	3,744	1.5	50	259	14.6
600	30	4,388	- 2.3	46	259	16.3
550	30	5,068	- 6.5	42	260	17.5
500	30	5,813	-10.8	38	262	20.0
450	30	6,610	-16.1		260	22.3
400	30	7,491	-22.3		262	24.5
350	30	8,458	-29.5		259	27.2
300	30	9,540	-38.1		257	28.8
250	30	10,770	-47.5		256	34.0
200	30	12,211	-57.4		257	37.3
175	28	13,049	-60.5		259	38.3
150	27	14,009	-61.9		259	31.7
125	27	15,133	-63.5		257	27.6
100	27	16,505	-62.6		257	20.6
80	26	17,889	-59.5		256	10.3
60	25	19,706	-56.2		273	1.4
50	25	20,870	-54.1		30	1.0
40	24	22,315	-52.0		71	3.3
30	24	24,192	-49.3		84	4.1
25	23	25,391	-47.6		89	4.7
20	22	26,877	-45.3		74	5.2
15	17	28,791	-43.5		101	4.1
10	[illegible]	31,544	-39.8			
7						

PITTSBURGH, PA. (980 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	353	13.7	81	87	1.4
1,000	30	181				
950	30	615	17.2	71	207	4.1
900	30	1,078	15.3	67	247	7.6
850	30	1,561	12.9	62	253	7.4
800	30	2,069	10.7	57	249	7.4
750	30	2,602	7.8	55	248	9.5
700	30	3,172	4.8	52	255	10.5
650	30	3,771	1.4	43	256	14.4
600	30	4,414	- 2.0	37	250	15.9
550	30	5,096	- 5.9		254	18.1
500	30	5,843	-10.5		255	20.4
450	30	6,641	-15.7		254	22.3
400	30	7,527	-21.9		258	23.5
350	30	8,496	-29.1		260	27.4
300	30	9,580	-37.4		260	29.9
250	30	10,815	-47.0		260	34.0
200	30	12,258	-57.4		263	35.2
175	30	13,094	-61.5		264	37.7
150	30	14,043	-64.1		264	33.2
125	30	15,158	-64.7		262	25.5
100	30	16,522	-63.7		264	16.7
80	30	17,906	-60.9		272	8.0
60	28	19,712	-56.7		330	2.1
50	28	20,873	-55.3		37	4.5
40	28	22,305	-52.9		76	3.3
30	28	24,178	-49.4		74	5.2
25	28	25,377	-48.2		77	6.4
20	26	26,855	-46.1		82	7.2
15	23	28,773	-43.9		85	7.8
10	11	31,518	-40.2			
7						

POINT ARGUELLO, CALIF. (1000 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	113	13.0	97	307	1.9
1,000	30	113			308	1.7
950	30	556	15.8	72	355	5.2
900	30	1,009	18.2	46	16	6.8
850	30	1,497	16.3	40	345	6.8
800	30	2,011	14.3	31	318	7.0
750	30	2,553	12.3	26	299	8.2
700	30	3,129	9.5		287	11.7
650	30	3,737	5.7	26	281	12.4
600	30	4,389	1.6		281	14.4
550	30	5,080	- 2.9		274	14.8
500	30	5,833	- 8.1		274	17.5
450	30	6,638	-13.8		270	20.4
400	30	7,528	-20.6		270	22.0
350	30	8,501	-28.2		269	26.0
300	30	9,588	-36.7		270	28.8
250	30	10,826	-46.2		265	34.0
200	30	12,278	-55.7		265	37.9
175	30	13,121	-59.9		263	38.1
150	30	14,075	-63.7		261	34.4
125	30	15,185	-66.9		263	29.3
100	30	16,530	-67.4		274	18.5
80	30	17,884	-64.3		291	8.5
60	30	19,666	-59.3		25	1.4
50	30	20,815	-56.7		83	5.2
40	29	22,232	-54.6		86	7.2
30	28	24,082	-52.5		87	10.7
25	28	25,263	-51.2		91	12.2
20	26	26,728	-49.4		90	11.9
15	23	28,618	-47.7		78	11.7
10	18	31,302	-45.7		82	3.1
7	8	33,659	-44.9			

PORTLAND, ME. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	20	13.2	92	289	1.9
1,000	30	173	15.2	76	292	4.1
950	30	607	15.0	64	295	7.2
900	30	1,065	12.5	64	284	9.7
850	30	1,544	10.1	60	287	12.0
800	30	2,046	7.9	54	286	14.2
750	30	2,571	5.8	49	280	16.9
700	30	3,139	3.0	50	279	19.0
650	30	3,733	.1	46	276	21.8
600	30	4,374	- 3.3	45	275	23.7
550	30	5,048	- 7.4	37	275	26.2
500	30	5,794	-12.0	34	276	29.5
450	30	6,584	-17.4		275	32.3
400	30	7,466	-23.6		275	33.2
350	30	8,428	-30.6		274	32.4
300	30	9,506	-38.6		274	35.2
250	30	10,737	-47.2		276	41.8
200	30	12,183	-56.5		278	40.2
175	29	13,026	-59.7		274	40.2
150	29	13,984	-61.8		271	34.8
125	29	15,111	-62.4		271	28.4
100	28	16,501	-61.0		268	22.7
80	27	17,892	-58.4		278	14.2
60	24	19,720	-54.5		273	6.0
50	23	20,886	-52.5		272	3.7
40	19	22,330	-50.4		267	5.6
30	15	24,214	-47.0		252	2.3
25	14	25,433	-45.7		201	1.6
20	11	26,905	-44.7		287	.6
15	7	28,825	-43.9			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

SEPTEMBER 1959

RAPID CITY, S. DAK. (904 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	966	9.3	64		0.0
1,000--	30	113				
950----	30	542				
900----	30	998			139	1.0
850----	30	1,477	12.1	51	259	8.5
800----	30	1,983	9.8	50	274	11.7
750----	30	2,514	7.3	47	278	12.4
700----	30	3,081	3.9	47	275	14.4
650----	30	3,678	- .1	48	268	17.3
600----	30	4,316	- 4.4	47	267	20.2
550----	30	4,990	- 9.1	47	265	22.7
500----	30	5,728	-14.0	45	262	23.5
450----	30	6,511	-19.7	42	260	26.4
400----	30	7,383	-26.3	41	259	30.3
350----	30	8,335	-33.5	41	258	34.2
300----	29	9,394	-41.4		256	36.1
250----	29	10,609	-49.5		258	39.8
200----	29	12,050	-55.4		254	42.7
175----	29	12,899	-56.7		258	41.0
150----	29	13,875	-57.6		258	36.1
125----	28	15,022	-58.4		261	31.5
100----	28	16,424	-59.0		263	18.5
80-----	27	17,823	-57.7		253	12.2
60-----	25	19,649	-55.2		252	8.5
50-----	25	20,815	-54.1		257	4.5
40-----	24	22,255	-53.1		266	2.5
30-----	22	24,119	-50.9		262	4.1
25-----	22	25,309	-49.7		254	2.9
20-----	20	26,784	-47.7		271	3.5
15-----	15	28,729	-45.0			
10-----						
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ST. CLOUD, MINN (978 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	316	11.0	88	158	1.7
1,000--	30	124				
950----	30	561	12.7	75	217	3.3
900----	30	1,008	11.5	64	256	8.4
850----	30	1,484	9.1	59	265	10.7
800----	30	1,985	6.9	55	261	12.0
750----	30	2,516	5.0	43	265	16.5
700----	30	3,074	1.9	44	267	19.6
650----	30	3,665	- 1.8	42	268	19.8
600----	30	4,300	- 5.6	40	272	22.3
550----	30	4,972	-10.2	40	274	21.8
500----	30	5,706	-15.0		265	28.4
450----	30	6,493	-20.3		266	30.3
400----	30	7,358	-26.3		271	33.0
350----	30	8,310	-33.3		281	37.5
300----	30	9,375	-41.7		268	29.7
250----	30	10,587	-50.1		279	32.4
200----	30	12,019	-57.4		278	32.1
175----	30	12,861	-58.4			
150----	30	13,830	-58.7			
125----	29	14,967	-58.6			
100----	29	16,368	-58.9			
80-----	29	17,773	-57.5			
60-----	28	19,604	-54.9		296	7.0
50-----	28	20,773	-53.8		292	5.2
40-----	28	22,210	-52.7		333	1.2
30-----	28	24,080	-50.0		58	2.1
25-----	25	25,289	-48.4		3	1.0
20-----	19	26,754	-47.2			
15-----	12	28,630	-46.2			
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ST. PAUL IS., ALASKA (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	6.6	91	17	2.3
1,000--	30	46			237	.8
950----	30	461	4.4	87	100	1.9
900----	30	904	2.0	86	99	1.2
850----	30	1,365	.2	77	282	.6
800----	30	1,849	- 1.8	68	278	2.3
750----	30	2,359	- 4.2	65	306	4.1
700----	30	2,903	- 6.7	60	303	6.6
650----	30	3,476	-10.0	55	296	7.4
600----	30	4,093	-13.4	52	276	8.7
550----	30	4,748	-17.4	47	268	5.8
500----	30	5,459	-22.0	45	257	9.5
450----	30	6,216	-27.1	46	248	16.5
400----	30	7,068	-32.9	47	254	19.0
350----	30	7,996	-39.1		245	22.2
300----	30	9,037	-46.1		237	23.9
250----	30	10,233	-51.2		247	23.3
200----	30	11,679	-51.7		265	19.8
175----	30	12,546	-51.5		274	20.4
150----	30	13,546	-51.7		243	15.0
125----	29	14,728	-51.7		241	14.8
100----	29	16,175	-51.8		247	14.6
80-----	29	17,622	-51.9		256	12.2
60-----	29	19,486	-52.0		252	9.3
50-----	28	20,671	-52.1		241	13.0
40-----	28	22,117	-51.9		247	10.3
30-----	25	23,994	-50.4		240	11.3
25-----	20	25,182	-48.7			
20-----	14	26,643	-47.6			
15-----	7	28,524	-46.7			
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SALEM, OREG. (1009 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	61	11.0	[illegible]	194	2.5
1,000--	30	137	12.0	87	212	1.7
950----	30	566	11.4	80	262	3.3
900----	30	1,018	9.8	74	246	5.2
850----	30	1,492	7.8	66	237	7.4
800----	30	1,990	5.5	59	246	7.6
750----	30	2,513	2.7	59	258	10.1
700----	30	3,071	- .2	54	258	13.2
650----	30	3,658	- 3.2	47	270	15.7
600----	30	4,292	- 6.2	41	274	18.1
550----	30	4,963	- 9.8	39	281	20.4
500----	30	5,699	-14.0	34	285	24.9
450----	30	6,481	-19.5		286	29.3
400----	30	7,357	-25.5		288	32.1
350----	30	8,312	-32.4		284	33.4
300----	30	9,382	-40.5		290	36.5
250----	30	10,601	-49.0		293	39.4
200----	30	12,041	-55.6		289	37.9
175----	30	12,889	-56.8		288	34.8
150----	30	13,865	-57.8		275	31.5
125----	30	15,013	-58.7		274	27.0
100----	30	16,415	-58.3		276	21.4
80-----	29	17,828	-57.2		273	12.4
60-----	29	19,656	-55.3		283	6.8
50-----	29	20,821	-54.8		297	4.7
40-----	28	22,256	-53.5		315	3.5
30-----	26	24,113	-52.3		20	1.2
25-----	26	25,296	-51.5		39	2.9
20-----	24	26,763	-50.3		39	2.5
15-----	22	28,645	-48.9		39	2.5
10-----	15	31,356	-46.8		310	4.3
7------	5	33,738	-45.9			

SALT LAKE CITY, UTAH (872 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,288	12.2	62	152	4.3
1,000--	30	117				
950----	30	550				
900----	30	1,016				
850----	30	1,499	14.8	48	161	4.7
800----	30	2,011	12.5	46	209	3.5
750----	30	2,550	8.6	49	248	6.4
700----	30	3,116	4.3	52	260	9.3
650----	30	3,713	.1	53	258	13.4
600----	30	4,353	- 4.4	56	250	19.0
550----	30	5,030	- 9.0	54	254	22.5
500----	30	5,766	-13.6	52	252	23.3
450----	30	6,563	-19.1	51	249	24.3
400----	30	7,428	-25.2	48	255	28.8
350----	30	8,385	-32.1		258	29.9
300----	30	9,456	-40.0		260	34.8
250----	30	10,679	-48.3		263	36.3
200----	30	12,125	-54.8		264	39.6
175----	30	12,974	-57.2		264	39.1
150----	30	13,945	-58.9		262	35.6
125----	30	15,083	-60.9		265	27.8
100----	29	16,472	-61.5		265	18.1
80-----	29	17,861	-59.8		268	9.3
60-----	29	19,674	-56.2		251	3.7
50-----	29	20,835	-54.9		240	2.3
40-----	29	22,265	-53.8		239	1.4
30-----	28	24,114	-52.7		18	1.0
25-----	27	25,290	-51.5		61	1.9
20-----	26	26,744	-50.4		123	1.2
15-----	18	28,622	-48.7		249	2.1
10-----						
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SAN ANTONIO, TEX (986 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	243	22.6	90	137	2.5
1,000--	30	122				
950----	30	569	21.3	84	155	9.7
900----	30	1,039	19.5	75	171	12.8
850----	30	1,531	17.1	70	183	12.2
800----	30	2,047	14.6	62	177	6.4
750----	30	2,587	11.7	52	184	4.1
700----	30	3,165	8.4	46	191	2.7
650----	30	3,768	4.8	42	100	.6
600----	30	4,423	.6	40	70	.6
550----	30	5,109	- 3.9	35	320	1.9
500----	30	5,863	- 8.4		288	4.1
450----	30	6,667	-13.8		281	6.0
400----	30	7,560	-20.1		294	8.0
350----	29	8,535	-27.2		294	12.6
300----	29	9,627	-35.3		299	17.3
250----	29	10,873	-44.6		297	22.0
200----	29	12,334	-54.6		296	22.5
175----	29	13,178	-59.8		293	22.0
150----	29	14,129	-65.3		290	22.0
125----	27	15,224	-70.0		292	17.1
100----	27	16,551	-69.1		312	7.6
80-----	27	17,894	-65.7		77	5.1
60-----	27	19,669	-59.6		95	16.5
50-----	27	20,817	-56.6		90	17.1
40-----	26	22,235	-53.3		87	22.7
30-----	25	24,099	-49.9		87	20.4
25-----	24	25,294	-47.9		87	23.9
20-----	24	26,776	-44.8		87	22.9
15-----	19	28,704	-42.1		81	22.2
10-----	5	31,376	-41.1			

SAN DIEGO, CALIF (998 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	124	18.4	85	205	1.0
1,000--	30	103				
950----	30	537	16.5	81	171	1.2
900----	30	1,004	17.8	55	181	1.0
850----	30	1,493	17.8	38	285	3.7
800----	30	2,010	16.5	29	268	7.4
750----	30	2,548	13.9		260	9.3
700----	30	3,136	10.5		260	11.1
650----	30	3,741	6.7		266	10.9
600----	30	4,403	2.5		266	12.0
550----	30	5,090	- 1.9		266	13.6
500----	30	5,853	- 7.1		262	15.2
450----	30	6,657	-13.0		260	16.7
400----	30	7,555	-19.7		266	20.0
350----	30	8,532	-27.3		270	22.5
300----	30	9,624	-35.7		267	23.9
250----	30	10,866	-45.4		266	28.6
200----	29	12,318	-55.5		262	34.4
175----	29	13,160	-60.5		262	38.7
150----	29	14,110	-65.1		263	37.3
125----	29	15,209	-68.9		264	30.5
100----	29	16,541	-69.2		274	15.5
80-----	29	17,881	-65.7		285	8.0
60-----	29	19,656	-59.5		90	4.1
50-----	29	20,803	-57.2		96	8.2
40-----	28	22,217	-55.1		92	10.7
30-----	27	24,065	-52.7		91	16.9
25-----	22	25,233	-51.8		92	16.1
20-----	20	26,686	-49.4		89	14.4
15-----	14	28,579	-48.1		89	14.0
10-----						

SAN JUAN, P. R. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	25.1	86	113	1.4
1,000--	30	125	25.6	79	101	7.6
950----	30	579	22.9	79	95	14.2
900----	30	1,046	20.1	76	98	14.2
850----	30	1,538	17.4	70	95	14.4
800----	30	2,054	14.8	60	96	13.4
750----	30	2,597	12.1	53	98	13.8
700----	30	3,174	9.0	50	95	11.9
650----	30	3,781	5.6	43	90	11.1
600----	30	4,435	2.0	36	93	11.1
550----	30	5,126	- 2.1		92	9.3
500----	30	5,883	- 6.8		97	8.7
450----	30	6,689	-12.0		86	6.8
400----	30	7,588	-18.3		85	4.7
350----	30	8,571	-25.4		71	5.2
300----	30	9,671	-33.9		54	3.3
250----	30	10,921	-43.9		17	3.1
200----	30	12,381	-55.9		351	8.2
175----	30	13,219	-61.8		339	9.5
150----	30	14,160	-68.1		336	8.2
125----	30	15,245	-71.8		358	3.1
100----	30	16,552	-73.8		54	7.8
80-----	30	17,864	-70.5		78	13.6
60-----	30	19,603	-63.3		75	20.8
50-----	30	20,735	-59.2		80	20.8
40-----	28	22,145	-55.0		87	21.6
30-----	23	24,000	-51.1		93	19.0
25-----	23	25,192	-48.6		94	16.3
20-----	22	26,672	-45.6		91	16.5
15-----	13	28,602	-41.7			
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SANTA MONICA, CALIF. (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	38	19.0	80	23	1.4
1,000--	30	107	18.6	80	64	1.2
950----	30	547	17.0	77	112	2.1
900----	30	1,009	17.5	56	113	1.4
850----	30	1,497	16.6	39	298	2.5
800----	30	2,012	15.0	30	283	7.0
750----	30	2,553	12.8	27	269	8.9
700----	30	3,131	9.7		267	9.9
650----	30	3,740	6.0		275	12.0
600----	30	4,393	2.0		276	14.0
550----	30	5,084	- 2.7		272	15.2
500----	30	5,840	- 7.7		267	16.3
450----	30	6,643	-13.6		266	18.1
400----	29	7,537	-20.4		266	22.2
350----	29	8,512	-27.9		267	24.3
300----	29	9,600	-36.6		268	27.8
250----	29	10,838	-46.1		268	32.1
200----	28	12,290	-55.9		263	34.6
175----	28	13,131	-60.4		262	34.8
150----	28	14,082	-64.4		263	36.1
125----	28	15,188	-67.8		265	30.7
100----	28	16,523	-68.4		277	18.8
80-----	28	17,873	-65.0		289	7.6
60-----	27	19,653	-59.2		77	1.6
50-----	26	20,802	-57.0		95	4.3
40-----	23	22,224	-54.9		84	8.7
30-----	22	24,074	-52.8		89	12.8
25-----	19	25,264	-51.3		88	15.0
20-----	17	26,715	-49.7		84	11.3
15-----	10	28,582	-48.6			
10-----	5	31,279	-45.3			

SAULT STE. MARIE, MICH. (992 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	221	11.7	92	104	1.9
1,000--	30	148				
950----	30	579	12.4	78	208	4.9
900----	30	1,032	10.3	76	250	11.5
850----	30	1,507	7.8	75	253	15.0
800----	30	2,006	5.8	65	258	19.2
750----	30	2,531	3.7	53	259	21.4
700----	30	3,090	.8	50	259	23.9
650----	30	3,679	- 2.3	49	262	26.8
600----	30	4,315	- 5.9	43	261	30.7
550----	30	4,987	- 9.7	41	259	33.4
500----	30	5,722	-14.3	39	262	36.5
450----	30	6,506	-19.6	35	260	39.6
400----	29	7,378	-25.8		261	42.2
350----	29	8,331	-32.9		261	46.8
300----	29	9,399	-40.3		257	51.5
250----	29	10,620	-48.5		258	52.3
200----	29	12,063	-56.1		263	51.7
175----	28	12,911	-58.2		266	49.0
150----	28	13,881	-58.3		267	45.1
125----	28	15,026	-59.1		265	36.3
100----	27	16,429	-57.7		268	24.5
80-----	27	17,840	-56.5		270	16.3
60-----	26	19,677	-54.2		263	8.5
50-----	26	20,847	-53.5		277	6.4
40-----	26	22,286	-52.2		301	4.1
30-----	24	24,160	-49.4		288	3.5
25-----	24	25,357	-48.2		286	3.7
20-----	23	26,830	-46.1		283	2.7
15-----	14	28,781	-43.1		10	1.4
10-----	8	31,501	-41.0			

SEATTLE, WASH. (1000 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	125	11.2	94	171	4.3
1,000--	30	125			139	2.5
950----	30	553	10.7	84	200	7.0
900----	30	1,004	9.0	76	233	6.6
850----	30	1,477	7.1	70	228	8.0
800----	30	1,973	4.3	64	231	8.7
750----	30	2,494	1.3	66	238	9.3
700----	30	3,050	- 1.7	64	250	10.9
650----	30	3,632	- 4.7	58	258	12.8
600----	30	4,263	- 8.2	55	261	14.2
550----	30	4,927	-12.2	51	270	16.9
500----	30	5,657	-16.6	45	276	20.4
450----	30	6,432	-21.6	43	281	22.9
400----	30	7,300	-27.4	41	286	28.0
350----	30	8,249	-34.1		290	31.3
300----	30	9,310	-42.0		290	35.2
250----	30	10,524	-49.5		288	37.3
200----	29	11,969	-54.0		292	35.8
175----	29	12,824	-55.2		287	32.4
150----	29	13,806	-56.0		280	29.0
125----	28	14,969	-56.3		281	24.7
100----	28	16,386	-56.1		279	18.7
80-----	28	17,806	-55.5		281	13.0
60-----	27	19,644	-54.2		288	6.6
50-----	27	20,814	-53.6		299	5.6
40-----	26	22,247	-53.0		319	5.8
30-----	24	24,108	-51.7		333	5.6
25-----	22	25,281	-51.4		354	4.7
20-----	19	26,741	-50.3		1	2.9
15-----	8	28,605	-49.4			
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SHEMYA, ALASKA (1004 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	37	8.7	90	339	3.9
1,000--	29	69			1	2.9
950----	29	491	6.5	90	354	6.2
900----	29	935	4.4	90	339	2.7
850----	29	1,399	2.2	85	323	2.9
800----	29	1,887	- .1	72	313	4.9
750----	29	2,397	- 2.4	67	291	5.1
700----	29	2,948	- 5.2	64	288	7.2
650----	29	3,522	- 8.3	61	282	9.5
600----	29	4,146	-11.7	54	281	11.7
550----	29	4,799	-15.9	49	267	12.0
500----	29	5,520	-20.6	48	269	14.4
450----	29	6,283	-25.9	45	262	14.6
400----	29	7,135	-31.8	45	260	17.7
350----	29	8,065	-38.6		256	20.0
300----	29	9,109	-45.5		256	25.8
250----	28	10,317	-50.2		256	30.7
200----	28	11,771	-50.6		264	29.1
175----	28	12,641	-51.2		266	31.5
150----	28	13,642	-51.5		268	28.4
125----	27	14,828	-52.1		266	27.0
100----	27	16,273	-52.3		266	24.1
80-----	27	17,716	-52.4		268	19.2
60-----	25	19,567	-52.5		262	14.6
50-----	25	20,746	-52.4		264	14.2
40-----	20	22,180	-51.8		257	12.2
30-----	19	24,053	-49.8		256	13.0
25-----	16	25,248	-48.0		251	14.2
20-----	14	26,720	-45.9		253	17.3
15-----						
10-----						
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SHREVEPORT, LA. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	76	20.6	91	115	1.9
1,000--	30	135	21.0	88	121	3.3
950----	30	580	20.9	76	174	8.0
900----	30	1,048	18.7	71	186	7.2
850----	30	1,538	16.1	69	191	5.6
800----	30	2,051	13.3	62	214	4.1
750----	30	2,587	10.3	58	219	2.5
700----	30	3,164	6.9	55	252	2.5
650----	30	3,766	3.4	53	282	1.4
600----	30	4,415	- .4	44	263	2.5
550----	30	5,099	- 4.4	41	254	3.1
500----	30	5,853	- 8.9	37	259	3.9
450----	30	6,659	-14.2	37	267	6.4
400----	30	7,547	-20.3		266	9.5
350----	30	8,522	-27.5		268	11.1
300----	30	9,613	-35.7		266	12.8
250----	30	10,856	-45.1		261	17.1
200----	30	12,314	-55.1		266	22.3
175----	30	13,157	-60.0		268	21.4
150----	30	14,109	-64.6		266	21.2
125----	30	15,212	-68.4		265	16.1
100----	30	16,549	-68.2		268	11.1
80-----	30	17,899	-64.5		170	.8
60-----	30	19,681	-59.0		92	8.2
50-----	30	20,831	-56.4		95	12.4
40-----	29	22,260	-53.2		87	14.8
30-----	28	24,130	-49.7		85	16.5
25-----	25	25,327	-47.8		87	17.3
20-----	20	26,813	-45.7		88	19.2
15-----	14	28,747	-43.1		83	18.3
10-----	12	31,507	-39.4		88	17.1
7------	8	33,984	-35.5			
5------	5	36,326	-32.6			

SPOKANE, WASH. (930 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	722	9.5	81	177	3.7
1,000--	30	118				
950----	30	547				
900----	30	999	11.0	68	209	5.8
850----	30	1,475	9.3	62	230	9.5
800----	30	1,975	6.0	64	239	9.5
750----	30	2,501	2.6	63	243	9.7
700----	30	3,056	- .9	63	248	10.1
650----	30	3,639	- 4.7	64	256	11.1
600----	30	4,269	- 8.4	58	255	14.4
550----	30	4,937	-12.0	51	253	16.9
500----	30	5,664	-16.8	51	257	17.9
450----	30	6,442	-22.1	48	260	18.7
400----	30	7,303	-28.5	44	260	22.2
350----	30	8,247	-35.2	41	255	20.8
300----	30	9,306	-42.4		273	24.1
250----	30	10,519	-49.8		279	27.6
200----	30	11,966	-53.5		278	22.7
175----	30	12,825	-54.1		277	26.8
150----	30	13,813	-54.6		275	23.5
125----	30	14,979	-55.4		273	21.0
100----	30	16,401	-55.8		270	17.9
80-----	29	17,821	-55.0		276	11.5
60-----	29	19,660	-54.3		282	7.2
50-----	29	20,830	-53.6		285	5.1
40-----	28	22,266	-52.7		304	3.9
30-----	28	24,127	-51.8		313	2.7
25-----	27	25,314	-51.0		333	3.1
20-----	25	26,765	-50.2		330	3.9
15-----	14	28,602	-49.1		303	6.8
10-----	7	31,253	-48.1			
7------						
5------						

SWAN ISLAND, W. I. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	27.0	91	82	8.0
1,000--	30	112	26.2	90	82	8.7
950----	30	569	23.0	86	98	12.4
900----	30	1,034	20.6	79	101	14.4
850----	30	1,527	17.9	72	100	14.2
800----	30	2,045	15.1	66	102	13.8
750----	30	2,587	12.2	57	100	14.2
700----	30	3,166	9.2	49	99	13.0
650----	30	3,775	5.5	49	99	12.6
600----	30	4,428	2.0	42	97	12.2
550----	30	5,116	- 1.8	39	99	11.5
500----	30	5,877	- 6.6	36	94	9.7
450----	30	6,687	-12.4	42	96	9.3
400----	30	7,583	-18.3	40	93	8.2
350----	30	8,567	-25.3	39	69	10.1
300----	30	9,667	-33.6		39	8.4
250----	30	10,921	-43.7		18	8.5
200----	29	12,382	-55.5		341	10.5
175----	29	13,220	-61.9		331	9.1
150----	29	14,160	-67.9		351	6.0
125----	29	15,242	-72.4		17	4.5
100----	28	16,554	-72.2		61	8.7
80-----	28	17,872	-70.0		83	15.5
60-----	27	19,611	-63.6		84	18.3
50-----	27	20,740	-59.0		82	19.2
40-----	27	22,156	-55.5		90	18.3
30-----	24	24,007	-51.5		91	16.9
25-----	21	25,202	-49.2		90	13.2
20-----	12	26,663	-46.4			
15-----						
10-----						
7------						
5------						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

Standard pressure surface (mb)	TAMPA, FLA. (1015 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	TATOOSH IS., WASH. (1010 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	TOPEKA, KANS. (985 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	8	23.0	95	65	3.5	30	31	12.0	91	127	4.5	30	269	15.3	88	132	4.7
1,000--	30	136	23.7	86	72	5.2	30	115	11.8	87	131	4.7	30	135				
950----	30	587	21.9	82	95	5.2	30	541	10.7	78	198	4.5	30	576	17.5	69	166	9.7
900----	30	1,054	19.3	77	92	4.3	30	993	8.1	78	210	5.4	30	1,037	16.6	59	193	12.8
850----	30	1,545	16.5	74	88	1.9	30	1,464	6.2	71	216	6.8	30	1,522	14.9	53	216	13.0
800----	30	2,059	13.7	70	95	2.3	30	1,959	3.9	66	226	7.8	30	2,034	13.0	42	229	10.9
750----	30	2,602	10.9	62	59	2.5	30	2,478	1.1	61	250	10.1	30	2,571	10.5	40	230	10.5
700----	30	3,175	7.7	58	50	1.6	30	3,034	- 1.5	53	255	12.2	30	3,146	6.8	44	242	12.0
650----	30	3,782	4.6	53	20	1.7	30	3,614	- 4.8	45	258	14.4	30	3,745	2.8	45	249	13.4
600----	30	4,431	.9	50	346	1.0	30	4,246	- 8.3	46	252	16.5	29	4,393	- 1.5	44	259	14.4
550----	30	5,122	- 3.2	45	18	1.4	30	4,905	-12.2	46	256	17.9	29	5,072	- 5.9	40	255	15.5
500----	30	5,875	- 7.5	45	321	1.4	30	5,640	-16.7	45	260	20.0	29	5,821	-10.7	36	249	17.5
450----	30	6,685	-13.0	38	255	1.6	29	6,413	-21.6	44	265	22.3	29	6,616	-16.2		250	18.8
400----	30	7,577	-18.9	35	270	3.1	29	7,282	-27.6	44	262	26.4	29	7,501	-22.5		257	23.1
350----	30	8,559	-25.7		247	4.9	29	8,228	-34.3	41	263	31.3	29	8,466	-29.8		256	26.2
300----	30	9,658	-34.4		234	6.8	29	9,290	-41.7		255	34.2	29	9,547	-38.2		257	28.2
250----	30	10,907	-44.4		249	9.5	29	10,503	-50.0		258	33.6	29	10,776	-47.7		251	33.2
200----	30	12,365	-56.2		256	8.2	29	11,944	-54.7		254	39.6	29	12,217	-57.1		256	36.7
175----	30	13,202	-62.1		257	7.2	29	12,795	-55.8		250	33.8	27	13,055	-60.3		259	35.2
150----	29	14,142	-67.7		261	6.8	29	13,777	-55.5		251	29.5	27	14,012	-62.3		262	29.9
125----	29	15,230	-71.1		265	5.1	29	14,938	-55.8		251	25.3	25	15,141	-63.0		263	20.8
100----	28	16,553	-70.1		345	2.9	29	16,357	-56.2		250	19.6	25	16,511	-63.6		261	14.8
80-----	28	17,887	-67.1		62	8.5	28	17,777	-55.0		257	12.2	25	17,889	-61.1		252	8.5
60-----	26	19,652	-60.8		81	16.1	28	19,617	-54.0		261	7.0	25	19,697	-56.7		160	1.7
50-----	23	20,797	-58.5		86	21.6	27	20,785	-53.5		268	4.9	25	20,859	-54.7		102	3.9
40-----	23	22,210	-55.3		84	24.1	27	22,220	-53.1		278	3.3	25	22,294	-52.7		82	5.2
30-----	20	24,067	-51.5		89	22.5	27	24,079	-51.9		336	2.7	24	24,159	-49.9		86	5.1
25-----	20	25,256	-49.1		83	25.1	26	25,265	-51.2		331	3.1	24	25,356	-48.4		90	5.6
20-----	20	26,729	-46.4		83	22.9	15	26,721	-50.5				22	26,830	-46.4		99	5.6
15-----	13	28,665	-42.9		76	20.8							19	28,750	-43.8		101	6.0
10-----													9	31,553	-40.6			
7------																		

Standard pressure surface (mb)	TUCSON, ARIZ. (923 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	WASHINGTON, D. C. (1011 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	781	20.9	48	147	5.8	30	88	17.6	88	108	0.6
1,000--	30	83					30	179	18.6	82	151	.6
950----	30	526					30	6.8	17.9	71	50	.8
900----	30	1,006	24.5	38	164	6.6	30	1,082	15.5	69		.0
850----	30	1,504	21.7	38	199	5.6	30	1,566	12.9	64	241	1.2
800----	30	2,027	18.1	40	216	8.2	30	2,075	11.1	51	233	2.5
750----	30	2,568	14.1	40	224	10.9	30	2,609	8.7	45	247	3.9
700----	30	3,154	9.9	40	229	12.4	30	3,179	5.6	41	254	6.8
650----	30	3,758	6.1	33	242	11.5	30	3,780	2.7	38	258	8.4
600----	30	4,418	2.3	27	254	12.6	30	4,427	- .7	36	257	9.5
550----	30	5,104	- 2.0		257	12.4	30	5,110	- 4.6		258	11.9
500----	30	5,867	- 6.8		265	14.2	30	5,862	- 9.0		261	14.0
450----	30	6,672	-12.5		269	16.3	30	6,665	-14.3		258	16.1
400----	30	7,572	-19.4		269	18.5	30	7,554	-20.6		259	17.3
350----	30	8,550	-26.6		270	21.0	30	8,529	-27.5		260	20.6
300----	30	9,644	-35.1		270	23.1	30	9,620	-35.6		262	24.1
250----	30	10,891	-44.4		271	29.1	30	10,863	-45.3		261	27.2
200----	30	12,352	-54.6		270	37.9	30	12,316	-56.4		264	30.1
175----	30	13,197	-59.4		269	41.2	30	13,154	-61.2		270	29.7
150----	30	14,150	-64.5		270	36.9	30	14,103	-64.2		269	26.8
125----	30	15,251	-69.4		271	29.7	30	15,214	-65.8		264	23.3
100----	30	16,578	-69.7		269	18.1	30	16,570	-64.8		271	14.4
80-----	30	17,920	-65.5		288	5.2	30	17,941	-61.9		276	7.0
60-----	28	19,700	-59.3		95	6.8	30	19,739	-57.3		320	2.1
50-----	25	20,841	-57.0		99	11.3	30	20,899	-54.5		41	2.1
40-----	23	22,258	-54.9		90	12.6	29	22,339	-52.0		50	4.1
30-----	22	24,110	-52.3		88	16.3	28	24,210	-48.9		75	5.2
25-----	21	25,288	-51.3		89	16.9	26	25,413	-47.4		81	6.4
20-----	19	26,746	-49.0		93	16.1	25	26,895	-45.6		90	7.2
15-----	14	28,628	-47.2		89	14.0	20	28,813	-43.2		84	6.4
10-----							12	31,587	-40.5			
7------							6	34,046	-37.6			

Standard pressure surface (mb)	WINNEMUCCA, NEV. (869 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	YAKUTAT, ALASKA (1008 MB.) Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,310	8.1	63	97	1.4	30	12	7.0	94	90	3.9
1,000--	30	133					30	79			105	3.9
950----	30	563					30	505	7.5	80	143	4.3
900----	30	1,021					30	947	4.7	78	139	4.5
850----	30	1,499	13.1	49	94	2.1	30	1,411	1.9	77	179	3.5
800----	30	2,008	11.1	47	264	2.9	30	1,898	- 1.1	75	190	4.3
750----	30	2,538	7.3	51	263	5.4	30	2,411	- 3.9	72	198	5.8
700----	30	3,108	2.8	55	258	8.9	30	2,953	- 6.9	66	208	7.4
650----	30	3,701	- .9	51	263	13.2	30	3,526	-10.7	62	213	8.0
600----	30	4,341	- 4.5	44	261	17.1	30	4,140	-14.5	54	219	10.1
550----	30	5,012	- 8.6	42	264	21.0	30	4,793	-18.7	51	231	9.3
500----	30	5,755	-13.0	35	269	24.1	30	5,499	-23.5	51	235	10.9
450----	30	6,542	-18.2	32	274	26.4	30	6,254	-28.9	50	221	10.7
400----	30	7,421	-24.4		274	28.8	30	7,094	-34.9	48	219	11.7
350----	30	8,380	-31.8		271	26.4	30	8,013	-41.4		221	14.8
300----	30	9,451	-39.9		271	28.6	30	9,043	-48.4		234	17.7
250----	30	10,674	-48.3		264	28.4	30	10,232	-51.7		277	25.8
200----	30	12,117	-55.6		263	32.6	30	11,686	-50.1		262	17.1
175----	30	12,964	-57.7		259	35.0	30	12,559	-49.9		261	15.5
150----	30	13,933	-59.3		260	31.9	30	13,567	-50.3		265	17.9
125----	30	15,071	-60.8		263	26.6	30	14,756	-50.3		270	16.9
100----	30	16,456	-61.2		266	19.2	30	16,214	-50.2			
80-----	30	17,843	-59.9		268	9.9	28	17,674	-49.8			
60-----	29	19,653	-56.3		285	5.2	27	19,558	-50.4			
50-----	29	20,815	-54.7		280	2.3	26	20,749	-50.7			
40-----	27	22,247	-53.6		272	1.4	25	22,197	-50.8			
30-----	26	24,104	-52.1		326	1.0	24	24,069	-50.4			
25-----	22	25,277	-51.2		348	.6	23	25,263	-49.6			
20-----	20	26,730	-50.1		275	3.9	21	26,742	-48.3			
15-----	9	28,623	-48.0				15	28,607	-47.5			

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun — SEPTEMBER 1959

ALBUQUERQUE, N. MEX. ‡

Date	A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
Air mass	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Sept.									
1	0.96	1.08	1.18	1.32	1.42	1.28	1.14	1.01	0.91
2	.87	.96	1.07	1.21	1.36	1.19	----	.89	---
3	.94	1.02	1.14	1.27	1.39	1.18	1.06	.94	.84
4	----	----	.99	1.19	1.37	----	1.02	----	----
5	.90	1.01	1.13	1.27	1.41	1.25	1.11	1.02	.92
6	.93	1.03	1.14	1.28	1.42	1.27	1.12	1.01	.89
7	.87	.98	1.09	1.24	1.40	1.21	1.06	.99	.86
8	.85	.97	1.08	1.23	1.39	----	---	--	.89
9	.92	1.03	1.09	1.25	1.32	----	.91	.78	.63
10	†	†	†	†	1.32	----	.90	.80	.68
11	.92	.98	1.11	1.25	1.39	1.20	1.03	.89	.79
12	.91	.99	1.09	1.23	---	----	----	----	----
13	.94	1.05	1.17	1.31	1.46	1.33	1.21	1.08	1.01
14	.91	1.00	1.13	1.27	1.42	----	----	----	----
15	.85	.96	1.08	1.22	1.33	----	----	.96	.87
16	.87	----	1.05	----	1.41	1.29	1.14	1.04	.93
17	----	----	----	1.29	----	----	----	----	----
18	.63	.93	1.13	1.28	1.25	1.29	1.07	.91	.83
19	.81	1.05	1.15	1.28	1.43	1.24	1.07	----	.89
20	.98	1.09	1.16	1.33	1.46	1.29	1.17	1.04	.96
21	----	----	----	----	----	1.29	1.16	1.03	.91
22	1.02	1.10	1.23	1.35	1.49	1.33	1.21	1.08	.99
23	1.05	1.11	1.24	1.28	1.49	1.33	1.15	----	----
25	1.03	1.13	1.24	1.37	1.47	----	----	----	----
26	----	----	----	----	1.43	1.26	1.12	1.00	.87
27	.95	1.03	1.18	1.28	1.46	1.29	1.15	1.05	.91
28	.98	1.07	1.19	1.31	1.44	1.34	1.19	1.07	.97
29	----	----	----	1.21	1.37	----	----	----	----
Averages	0.94	1.03	1.14	1.28	1.41	1.27	1.13	1.02	0.91

MADISON, WIS.

Date	A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
Air mass	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Sept.									
2	----	----	----	----	----	S 1.29	S 1.14	S 1.02	S 0.88
3	S 0.86	S 0.96	S 1.10	S 1.29	1.73	S 1.26	S 1.10	S .99	S .88
4	----	S 1.00	S 1.13	S 1.31	S 1.42	K	K	S .89	S .79
7	----	----	----	----	M 1.20	----	----	----	----
9	----	----	M .84	M 1.04	----	----	----	----	----
10	----	----	----	----	1.48	S 1.32	S 1.20	S 1.06	S .99
11	S 1.02	S 1.11	S 1.22	S 1.36	1.47	S 1.32	S 1.16	S 1.04	S .93
12	Clds & Fog		M 1.11	S 1.23	S 1.23	----	----	----	----
14	----	----	----	----	S 1.19	----	----	----	----
Averages	0.94	1.02	1.08	1.25	1.39	1.30	1.15	1.00	0.89

OMAHA, NEBR.

Date	A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
Air mass	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Sept.									
2	S 0.85	S 0.94	S 1.07	S 1.19	----	----	----	----	----
3	----	M .86	M .99	S 1.16	S 1.33	S 1.10	0.97	0.81	----
4	M .75	M .83	1.00	1.19	----	----	----	----	----
6	----	----	M .77	M 1.01	----	----	----	----	----
8	M .73	M .83	M .95	M 1.12	M 1.27	----	----	----	----
9	----	----	----	----	----	H 1.14	H .88	H .62	H 0.52
10	.89	1.00	1.11	1.26	1.41	S 1.26	S 1.12	S .98	S .86
11	.93	1.03	1.13	1.25	1.40	M 1.20	M 1.07	M .95	#
12	----	----	----	----	----	1.26	1.11	.95	#
13	M .80	M .92	M 1.03	M 1.18	M 1.25	M 1.10	M .94	M .81	#
14	M .77	M .89	M 1.00	M 1.14	M 1.30	1.14	.99	.84	#
15	M .67	M .77	M .93	M 1.10	----	----	----	----	----
25	----	----	----	----	----	S 1.24	----	----	-- -
Averages	0.80	0.90	1.00	1.16	1.16	1.18	1.01	0.85	0.69

LINCOLN, NEBR.

Date	A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
Air mass	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Sept.									
25	----	----	----	----	----	1.11	0.98	0.88	----

BLUE HILL, MASS.

Date	A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
Air mass	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Sept.									
5	----	----	---	1.12	1.21	----	0.80	0.65	0.52
6	----	--	0.81	1.00	----	----	----	----	----
7	H 0.44	H 0.54	H .70	H .91	----	----	----	----	----
9	----	----	----	----	----	0.96	.81	.70	.62
12	----	1.04	1.11	1.20	1.35	1.20	1.05	.94	.84
13	.76	.84	.96	1.14	1.35	1.17	1.01	.90	81
17	.98	1.07	1.19	1.31	1.43	1.27	----	----	----
19	----	----	1.04	1.21	1.34	1.21	1.06	.91	.85
20	.89	.99	1.10	1.22	1.34	1.20	1.05	.92	----
23	----	----	I .33	I .60	I .94	----	----	----	----
24	H .25	H 35	H .49	H .72	.98	----	----	----	----
25	----	----	----	----	1.37	1.26	1.10	.98	.89
Averages	0.66	0.81	0.86	1.04	1.29	1.18	0.98	0.86	0.76

TUCSON, ARIZ.

Date	A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
Air mass	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Sept.									
1	----	0.91	1.04	1.18	H 1.37	1.21	1.04	0.92	0.79
2	H 0.75	H .87	H .97	1.19	H 1.34	H 1.19	1.05	.96	.85
4	.87	.96	1.08	1.23	1.40	H 1.19	1.05	.92	.83
5	.85	.94	1.07	H 1.21	1.41	1.18	1.03	H .90	H .79
6	H .80	H .92	H 1.05	1.20	H 1.36	----	----	----	----
7	.94	1.03	1.15	1.28	1.40	1.22	1.02	H .91	H .81
8	H .82	H .93	H 1.04	H 1.18	----	----	----	H .91	H .85
9	H .77	H .88	H 1.01	H 1.15	H 1.36	H 1.14	H .95	H .82	H .71
17	----	----	----	----	1.42	----	----	----	----
18	.93	1.02	1.13	1.27	1.43	1.30	1.15	1.04	.95
19	.97	1.06	1.19	1.32	1.45	1.27	1.18	1.04	.94
20	1.00	1.09	1.20	1.32	1.45	1.32	1.17	1.07	.97
21	.95	1.04	1.14	1.27	1.48	1.35	1.22	1.10	1.00
22	1.03	1.12	1.21	1.36	1.50	1.35	1.21	1.09	1.00
25	H .86	H .97	H 1.09	H 1.76	H 1.44	----	----	----	----
26	.96	1.06	1.17	1.31	1.44	1.29	1.14	1.01	.92
27	1.03	1.10	1.22	1.36	1.45	1.33	1.16	1.04	.95
28	----	----	----	----	1.44	1.28	1.10	H .99	H .89
29	.99	1.07	1.18	1.33	1.44	1.29	1.11	H .96	H .87
30	.98	1.07	----	----	----	----	----	----	----
Averages	0.91	1.00	1.11	1.26	1.42	1.26	1.10	0.98	0.88

MAUNA LOA OBS., HAWAII

Date	A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
Air mass	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Sept.									
8	1.16	1.24	1.33	1.45	1.60	1.44	1.34	----	----
9	----	----	----	----	1.62	1.49	1.39	----	----
10	1.23	1.31	1.40	1.50	1.62	1.49	1.38	1.28	1.19
12	1.24	1.32	1.40	1.52	----	----	----	----	----
13	1.24	1.32	1.41	1.52	----	----	----	----	----
14	1.20	1.27	1.37	1.49	----	----	----	----	----
15	1.29	1.36	1.44	1.55	1.65	----	----	----	----
17	----	----	----	1.47	1.61	1.46	----	----	----
18	1.20	1.28	1.37	1.49	1.62	----	----	----	----
20	----	----	----	----	----	----	1.38	1.28	1.19
21	1.31	1.39	1.48	1.58	----	----	----	----	----
22	1.26	1.35	1.46	1.55	1.64	----	1.38	1.32	1.23
23	1.28	1.36	1.45	1.55	1.65	1.51	1.40	1.30	1.21
24	1.23	1.32	1.40	1.51	1.65	----	----	----	----
28	1.20	1.29	1.37	1.48	----	----	----	----	----
30	1.22	1.29	----	----	----	----	----	----	----
Averages	1.24	1.32	1.41	1.51	1.63	1.48	1.38	1.30	1.21

GUAM, M. I.

Date	A M 78.7°	75.7°	70.7°	60.0°	*	P M 60.0°	70.7°	75.7°	78.7°
Air mass	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Sept.									
7	----	----	----	S 1.17	----	----	----	----	-- -

* Values Corresponding to true solar noon.
† Missing.
‡ Data should be considered doubtful due to condensation in instrument.
\# Power pole shadow.
K Smoke.

H Haze.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.
I Intense haze - indeterminable.

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N. Mex.	Ames, Iowa	Annette, Alaska	Apalachicola, Fla.	Atlanta, Ga.	Astoria, Oreg.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.
Sept. 3	675	(560)	491	240	486	---	159	330	593	328	512	298	485	679	626	48	441	525	593
Sept. 4	636	522	348	603	476	---	152	296	376	356	415	349	593	558	411	356	333	539	549
Sept. 5	665	534	265	641	412	---	197	198	428	510	315	523	512	654	565	477	129	518	601
Sept. 6	666	498	446	502	319	---	209	333	399	491	558	507	585	649	528	524	325	491	580
Sept. 7	655	496	457	532	158	---	109	445	533	475	553	487	383	668	498	511	429	478	573
Sept. 8	632	491	112	367	243	---	---	314	400	450	586	484	556	622	451	482	273	395	253
Sept. 9	633	341	324	160	351	547	141	369	443	473	569	506	514	593	634	529	352	476	293
Average	652	(492)	349	435	349	---	161	327	453	440	501	451	518	632	530	418	326	489	492
Sept. 10	617	---	441	577	563	439	124	395	560	222	533	140	344	648	---	510	381	183	609
Sept. 11	638	---	38	105	441	249	248	398	534	129	506	116	394	635	---	193	428	138	605
Sept. 12	610	505	267	---	222	566	208	379	339	518	326	552	600	657	482	530	244	491	595
Sept. 13	661	482	177	155	132	163	260	324	496	504	317	543	430	603	---	431	125	494	576
Sept. 14	610	467	193	373	78	444	241	228	513	344	149	392	471	667	---	284	250	478	563
Sept. 15	569	175	---	39	480	287	36	126	414	108	375	52	576	654	---	405	133	119	553
Sept. 16	532	90	264	598	243	432	51	164	523	423	475	435	561	682	---	401	340	59	518
Average	605	344	230	308	308	369	167	288	483	321	383	319	482	649	---	393	272	280	574
Sept. 17	432	276	265	596	540	340	90	166	408	497	482	526	583	652	---	292	264	277	191
Sept. 18	609	67	411	543	370	70	114	256	45	290	70	260	440	704	---	---	525	404	256
Sept. 19	605	261	71	571	492	202	71	318	176	503	275	518	464	648	---	---	540	432	337
Sept. 20	616	377	192	571	---	102	40	308	391	494	217	495	555	672	---	467	501	366	507
Sept. 21	609	337	368	587	---	---	51	115	162	389	486	402	380	665	---	269	360	431	262
Sept. 22	614	256	198	586	516	366	61	189	247	405	422	401	541	644	---	351	531	344	501
Sept. 23	605	290	151	588	466	326	39	196	342	400	494	402	432	690	---	96	481	416	316
Average	584	266	237	577	477	234	66	221	253	425	349	429	485	668	---	295	457	381	339
Sept. 24	334	(268)	140	532	511	---	72	125	427	396	419	420	510	---	---	227	484	125	100
Sept. 25	570	146	56	585	453	94	71	126	129	465	430	480	500	721	---	467	456	384	125
Sept. 26	573	88	251	568	420	247	81	237	249	426	293	420	539	686	---	406	453	290	176
Sept. 27	586	100	332	554	342	277	54	37	344	405	---	434	365	---	---	259	385	182	480
Sept. 28	581	234	67	553	432	438	67	99	171	320	---	280	401	687	---	283	286	380	262
Sept. 29	497	389	137	548	374	84	38	40	157	259	350	274	481	686	---	345	12	245	458
Sept. 30	323	157	80	535	440	---	56	97	226	293	261	352	551	691	---	272	437	35	213
Average	495	(197)	152	554	425	228	63	109	243	366	351	380	478	694	---	323	359	234	259

1959	Corvallis, Oreg.	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Flaming Gorge, Utah	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.
Sept. 3	279	588	517	590	659	641	144	633	181	543	560	559	630	440	546	501	534	700	489	---
Sept. 4	129	576	611	516	648	634	184	470	615	551	568	446	620	376	392	549	576	707	571	---
Sept. 5	115	573	595	559	640	636	299	563	656	544	405	384	613	167	316	405	516	714	546	541
Sept. 6	276	572	610	523	656	625	206	579	663	539	610	524	601	525	143	344	508	715	582	517
Sept. 7	336	571	600	514	641	622	276	620	624	517	653	515	611	487	197	312	515	691	524	525
Sept. 8	581	564	593	519	615	618	234	612	480	516	660	---	608	447	360	219	386	703	445	---
Sept. 9	568	534	490	363	621	617	173	612	480	505	374	547	605	522	574	486	436	685	460	329
Average	326	568	574	512	640	628	217	584	528	531	547	496	613	424	361	402	496	702	517	478
Sept. 10	502	567	626	373	42[illegible]	609	313	578	488	485	418	526	531	494	502	587	463	---	377	536
Sept. 11	450	558	621	316	529	399	---	378	627	480	509	411	437	337	426	458	568	643	228	588
Sept. 12	407	542	615	546	636	341	319	350	616	433	311	---	402	465	548	179	545	---	563	490
Sept. 13	223	459	604	497	656	292	175	367	467	482	346	(476)	454	361	479	109	548	---	561	171
Sept. 14	394	432	600	508	632	361	244	314	335	427	322	432	416	362	193	58	527	---	501	309
Sept. 15	271	---	578	116	597	451	282	381	588	514	252	288	263	---	308	86	498	---	96	---
Sept. 16	341	277	396	353	611	343	161	---	530	452	477	394	316	---	528	310	104	---	382	565
Average	370	473	577	387	584	399	249	395	522	468	376	(421)	403	404	426	255	465	---	387	443
Sept. 17	367	242	320	451	620	475	241	196	---	450	478	---	164	---	131	577	243	616	361	505
Sept. 18	209	147	432	526	600	243	105	392	---	57	374	150	392	---	426	401	481	587	230	504
Sept. 19	264	374	540	315	589	230	56	173	528	444	419	391	277	---	554	549	488	656	508	361
Sept. 20	138	395	542	328	598	556	163	434	420	482	575	421	483	---	552	583	427	638	485	355
Sept. 21	234	516	502	401	597	580	263	165	503	489	442	65	393	---	556	549	464	624	456	---
Sept. 22	504	477	500	281	606	514	---	409	368	464	614	113	528	---	525	588	470	631	244	425
Sept. 23	404	389	247	400	356	556	72	71	417	449	584	373	246	---	528	578	409	607	415	383
Average	303	363	440	386	567	451	150	263	447	405	498	252	355	---	467	546	426	623	386	422
Sept. 24	88	434	132	285	507	566	95	162	247	461	616	454	357	---	527	535	424	639	190	347
Sept. 25	210	442	394	301	561	78	65	150	415	445	573	69	171	---	512	508	373	545	525	351
Sept. 26	427	461	---	92	611	481	76	---	501	450	615	---	233	---	476	480	77	---	373	499
Sept. 27	307	475	535	452	599	558	217	282	531	472	521	(179)	426	(179)	366	468	427	604	211	539
Sept. 28	459	461	535	298	569	437	124	433	472	470	383	112	506	91	472	518	399	611	350	272
Sept. 29	168	441	265	336	546	546	35	520	448	451	435	---	350	306	53	413	173	632	398	411
Sept. 30	437	453	115	453	514	239	81	393	170	459	527	307	188	104	61	532	266	597	135	---
Average	299	452	329	317	558	415	99	323	398	458	524	(224)	319	(170)	352	493	306	605	312	403

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

SEPTEMBER 1959

1959	Lander, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles Calif. (urban)	Manhattan, Kans.	Matanuska, Alaska	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Tex.
Sept. 3------	595	650	(685)	565	436	488	484	500	254	---	535	323	573
Sept. 4------	538	628	626	571	249	572	582	554	287	383	283	(313)	599
Sept. 5------	445	638	(625)	346	503	543	591	530	342	355	299	383	617
Sept. 6------	439	614	---	519	486	566	599	521	396	189	488	521	623
Sept. 7------	596	624	---	519	423	382	490	530	305	546	533	640	628
Sept. 8------	569	630	602	542	528	561	558	516	295	733	533	520	494
Sept. 9------	626	614	538	428	243	571	595	174	188	811	519	256	605
Average--------	544	628	(615)	499	410	526	557	475	295	503	456	(422)	591
Sept. 10------	593	549	218	577	596	556	573	557	281	809	383	269	519
Sept. 11------	306	356	632	577	644	368	359	552	388	750	522	370	627
Sept. 12------	377	310	627	565	---	348	322	534	374	550	511	401	648
Sept. 13------	313	342	604	541	364	469	472	526	346	675	352	503	605
Sept. 14------	460	458	550	540	465	518	440	509	367	488	321	294	585
Sept. 15------	289	603	608	513	492	548	526	501	261	786	368	455	592
Sept. 16------	143	480	(543)	96	555	455	433	395	173	798	486	312	513
Average--------	354	442	(540)	487	519	466	446	511	313	694	420	372	584
Sept. 17------	192	507	570	34	558	442	390	134	348	770	290	363	557
Sept. 18------	470	547	588	59	537	469	421	76	184	778	185	586	---
Sept. 19------	264	566	540	(367)	528	523	483	354	243	778	174	455	575
Sept. 20------	480	559	508	289	476	516	503	441	289	786	284	440	522
Sept. 21------	484	563	(563)	---	470	487	340	426	253	491	407	291	568
Sept. 22------	468	567	570	386	531	284	189	348	49	678	417	(145)	552
Sept. 23------	76	533	457	272	494	465	374	109	120	782	455	549	492
Average--------	348	549	(543)	(235)	513	455	386	270	212	723	316	(404)	544
Sept. 24------	259	573	488	(162)	439	493	491	120	171	755	283	515	324
Sept. 25------	300	489	513	405	346	392	445	348	177	750	349	424	348
Sept. 26------	372	549	418	218	218	449	428	276	182	518	219	431	572
Sept. 27------	295	552	369	263	209	321	302	468	118	569	354	420	572
Sept. 28------	199	558	528	57	384	327	279	370	179	398	460	572	553
Sept. 29------	283	558	360	247	213	477	473	419	14	459	296	294	277
Sept. 30------	276	316	203	262	433	408	398	116	45	503	426	507	146
Average--------	283	514	411	(231)	320	409	402	302	127	565	341	452	399

1959	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Page, Ariz.	Phoenix, Ariz.	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	Salt Lake City, Utah	San Antonio, Tex.
Sept. 3------	561	255	204	573	553	290	635	638	394	597	522	240	574	---
Sept. 4------	465	301	527	563	465	513	644	642	106	289	609	476	588	598
Sept. 5------	---	526	503	458	497	566	633	624	136	429	609	441	591	598
Sept. 6------	529	510	483	521	353	568	639	634	334	564	628	448	590	610
Sept. 7------	490	513	549	535	278	537	629	637	473	556	576	518	591	538
Sept. 8------	419	487	387	537	358	527	638	621	580	515	563	512	587	326
Sept. 9------	203	448	423	435	396	292	626	618	563	586	608	298	574	562
Average--------	445	434	440	517	400	470	635	631	369	505	588	419	585	539
Sept. 10------	152	424	190	583	240	622	593	---	477	567	417	554	567	481
Sept. 11------	499	147	527	570	364	605	430	317	490	544	259	543	384	557
Sept. 12------	403	557	585	558	421	595	413	406	485	535	298	388	413	637
Sept. 13------	429	525	529	529	424	514	435	450	323	540	152	350	329	284
Sept. 14------	454	528	536	525	336	571	349	505	238	524	488	498	377	416
Sept. 15------	524	396	332	496	333	554	488	400	116	87	583	398	403	583
Sept. 16------	546	349	356	197	472	531	473	583	386	46	366	386	396	584
Average--------	430	418	436	494	370	570	455	443	359	406	409	445	410	506
Sept. 17------	542	546	529	53	506	514	491	565	468	49	482	509	289	559
Sept. 18------	521	273	373	73	334	501	484	560	122	358	471	255	322	556
Sept. 19------	473	518	550	392	455	493	522	560	223	327	491	81	207	508
Sept. 20------	528	510	479	362	450	471	580	559	309	417	540	137	460	521
Sept. 21------	537	427	440	291	536	467	509	557	266	290	523	417	496	501
Sept. 22------	499	428	428	366	497	472	558	568	342	474	292	304	400	449
Sept. 23------	---	423	366	286	530	362	439	529	392	168	481	408	309	299
Average--------	517	447	452	261	473	469	512	557	303	298	469	302	355	485
Sept. 24------	513	437	378	166	486	207	587	507	237	140	542	460	413	190
Sept. 25------	431	484	424	350	442	215	312	568	384	207	506	60	257	104
Sept. 26------	309	465	425	159	410	508	566	546	138	361	482	155	108	422
Sept. 27------	427	467	385	252	204	510	556	546	249	281	400	305	399	364
Sept. 28------	494	288	281	97	442	490	559	536	329	235	263	310	463	292
Sept. 29------	378	409	359	221	382	207	419	520	184	287	542	165	508	441
Sept. 30------	411	325	332	172	238	82	331	306	386	408	334	170	376	430
Average--------	423	411	369	202	372	317	476	504	272	274	438	232	361	363

1959	Santa Maria, Calif.	S.Ste. Marie, Mich.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Obs & Test Dev Ctr)
Sept. 3------	(541)	---	(293)	387	412	510	213	419	640	512	532
Sept. 4------	655	---	---	523	119	603	507	463	641	662	514
Sept. 5------	665	452	---	566	224	582	---	451	645	656	530
Sept. 6------	630	316	---	582	477	589	---	452	632	678	432
Sept. 7------	631	464	---	---	276	418	545	618	659	670	431
Sept. 8------	531	352	---	(301)	437	529	544	463	638	630	407
Sept. 9------	561	393	---	473	556	542	400	369	628	633	462
Average--------	(602)	395	--	(472)	357	539	442	462	640	635	472
Sept. 10------	551	276	---	519	408	451	574	435	214	646	409
Sept. 11------	441	548	226	633	506	438	570	412	192	651	470
Sept. 12------	594	511	462	516	476	588	557	340	567	673	568
Sept. 13------	576	534	(292)	191	300	563	548	512	589	598	532
Sept. 14------	515	65	(204)	387	168	545	542	570	517	664	407
Sept. 15------	634	556	(163)	355	65	423	528	329	464	678	485
Sept. 16------	---	496	(377)	575	329	183	496	238	628	611	160
Average--------	552	398	(287)	454	322	456	545	405	453	646	433
Sept. 17------	418	263	125	546	441	544	405	536	---	261	472
Sept. 18------	244	500	93	563	113	392	427	561	615	195	511
Sept. 19------	318	301	126	491	184	498	475	453	614	522	537
Sept. 20------	457	57	108	451	169	487	482	426	---	594	512
Sept. 21------	549	292	204	347	191	425	464	491	615	659	490
Sept. 22------	583	65	271	375	296	374	480	473	618	(582)	486
Sept. 23------	323	344	393	492	332	439	167	484	446	622	472
Average--------	413	260	232	467	247	451	414	489	582	(491)	497
Sept. 24------	421	491	57	384	164	407	80	522	---	(406)	476
Sept. 25------	513	335	188	329	313	399	205	531	581	637	441
Sept. 26------	563	60	112	403	210	239	499	552	591	(654)	243
Sept. 27------	503	316	357	373	208	212	490	491	596	(653)	373
Sept. 28------	546	220	358	358	412	446	599	411	575	(657)	318
Sept. 29------	520	455	232	260	151	219	162	-	578	(615)	216
Sept. 30------	541	239	347	319	133	103	56	553	569	626	180
Average--------	516	302	236	347	270	289	276	[illegible]	582	(607)	321

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

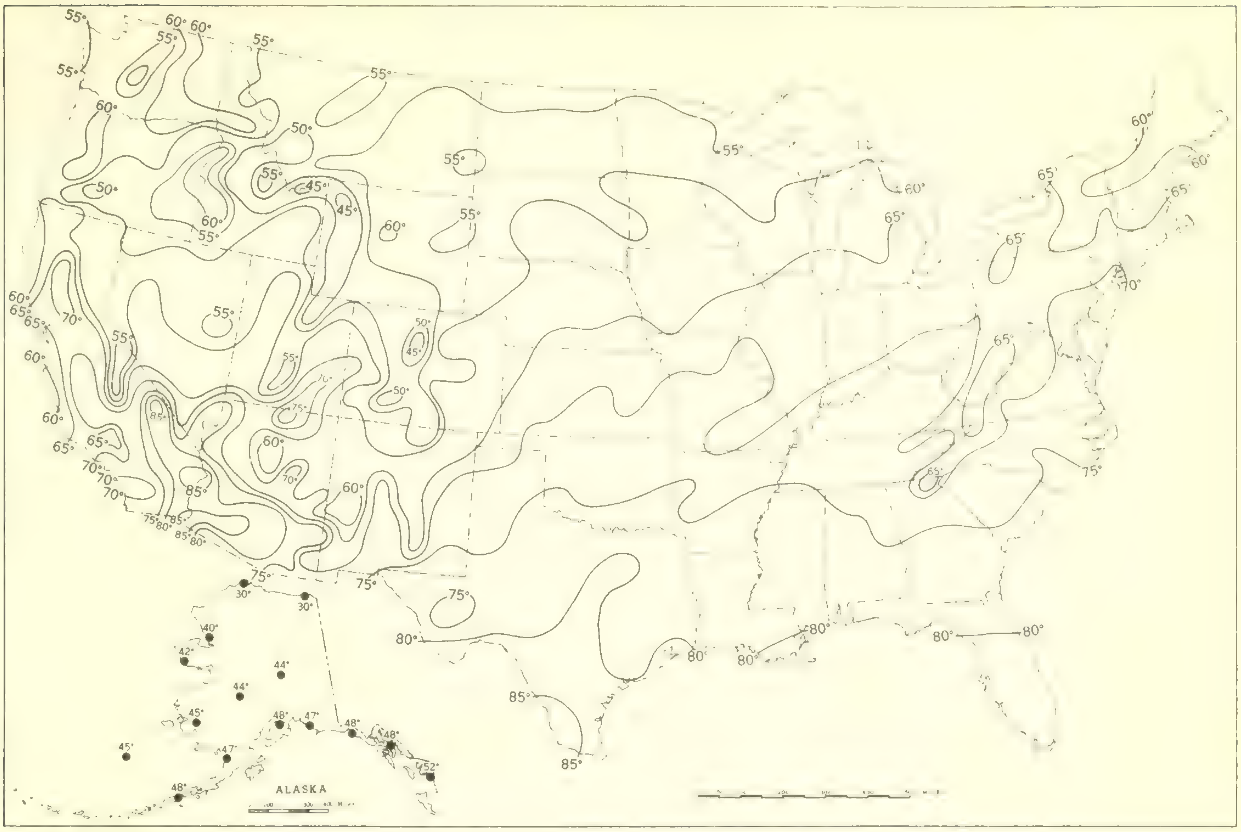
SEPTEMBER 1959

Date	Bismarck, N. Dak.	Caribou, Me.	Ft. Worth, Tex.	Green Bay, Wis.	Washington, D.C. (Silver Hill Obs.)
SEPT.					
1	---	---	300	---	282
2	---	---	---	---	288
3	---	---	---	328	299
4	---	303	307	307	303
5	---	310	298	298	326
6	---	303	305	289	328
7	---	295	305	292	---
8	---	286	310	284	323
9	---	282	304	295	318
10	---	289	310	293	325
11	273	306	307	263	323
12	281	295	316	288	315
13	267	370	315	283	314
14	261	---	---	300	321
15	---	371	322	---	325
16	300	---	311	---	---
17	304	377	304	---	336
18	---	365	342	---	348
19	---	340	307	---	334
20	326	321	299	---	324
21	---	---	290	---	312
22	---	---	301	---	316
23	299	---	---	---	311
24	289	---	---	289	308
25	317	295	274	---	310
26	308	295	291	---	---
27	319	---	287	328	293
28	---	281	294	345	295
29	---	281	282	288	---
30	---	254	---	---	---

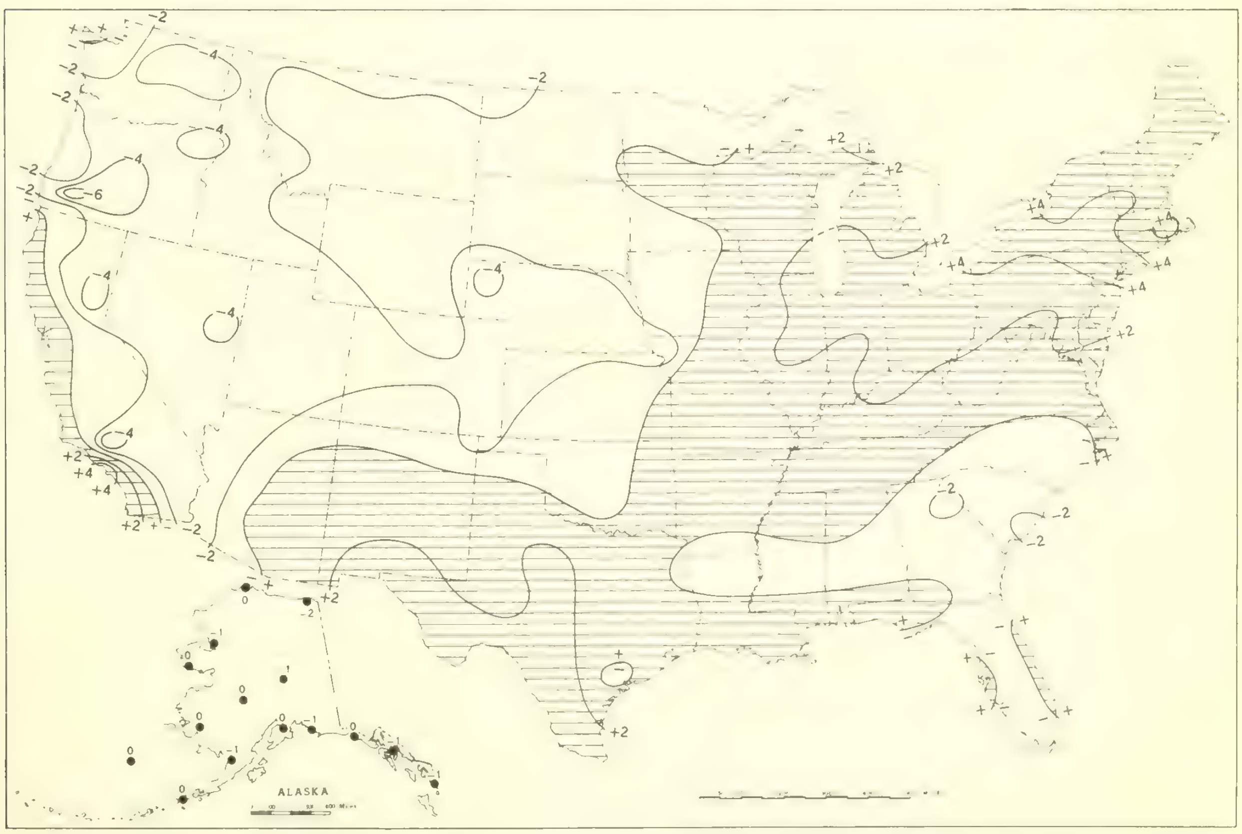
The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

Chart I. A. Average Temperature (°F.) at Surface, September 1959.

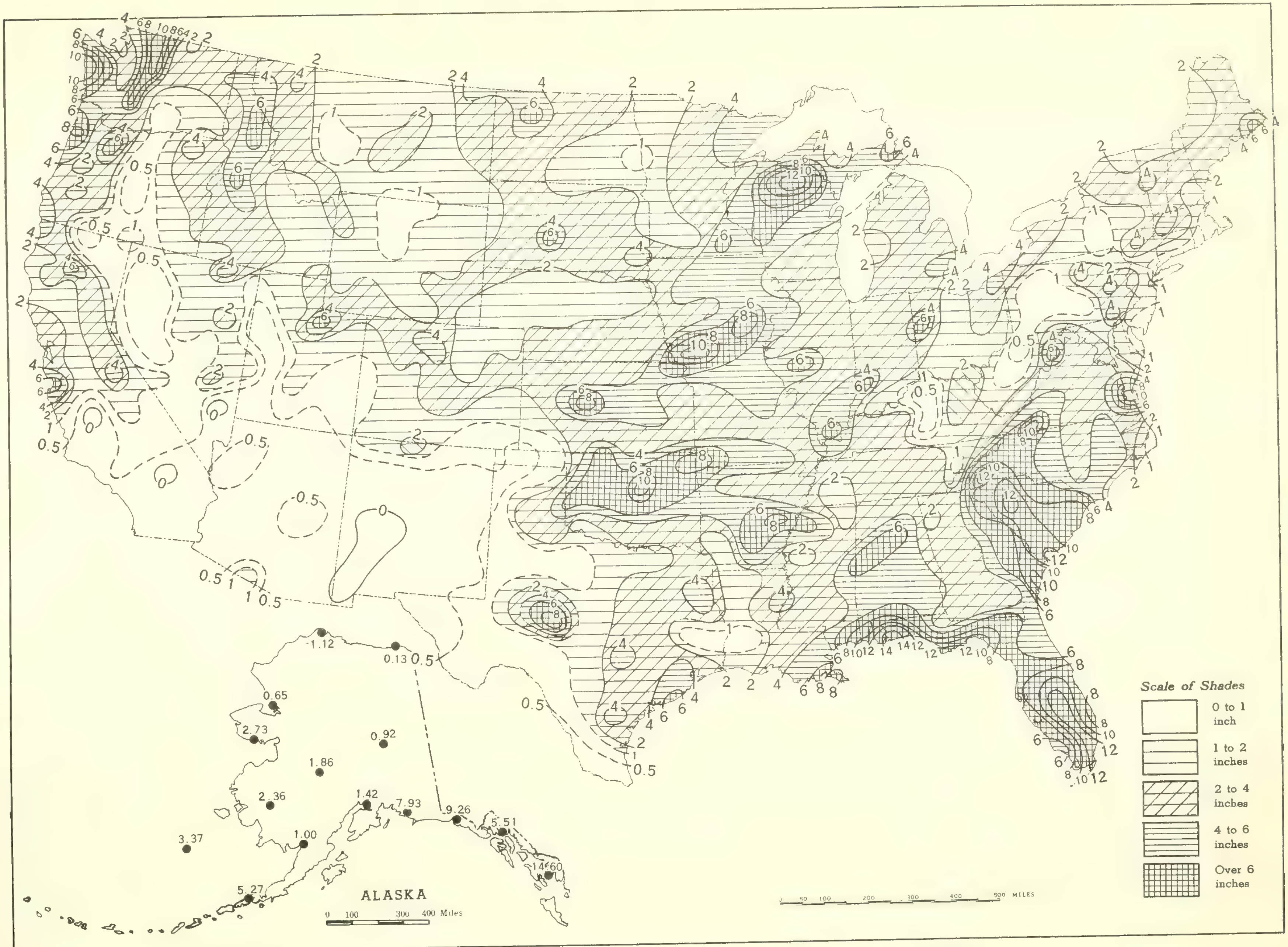


B. Departure of Average Temperature from Normal (°F.), September 1959.



A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

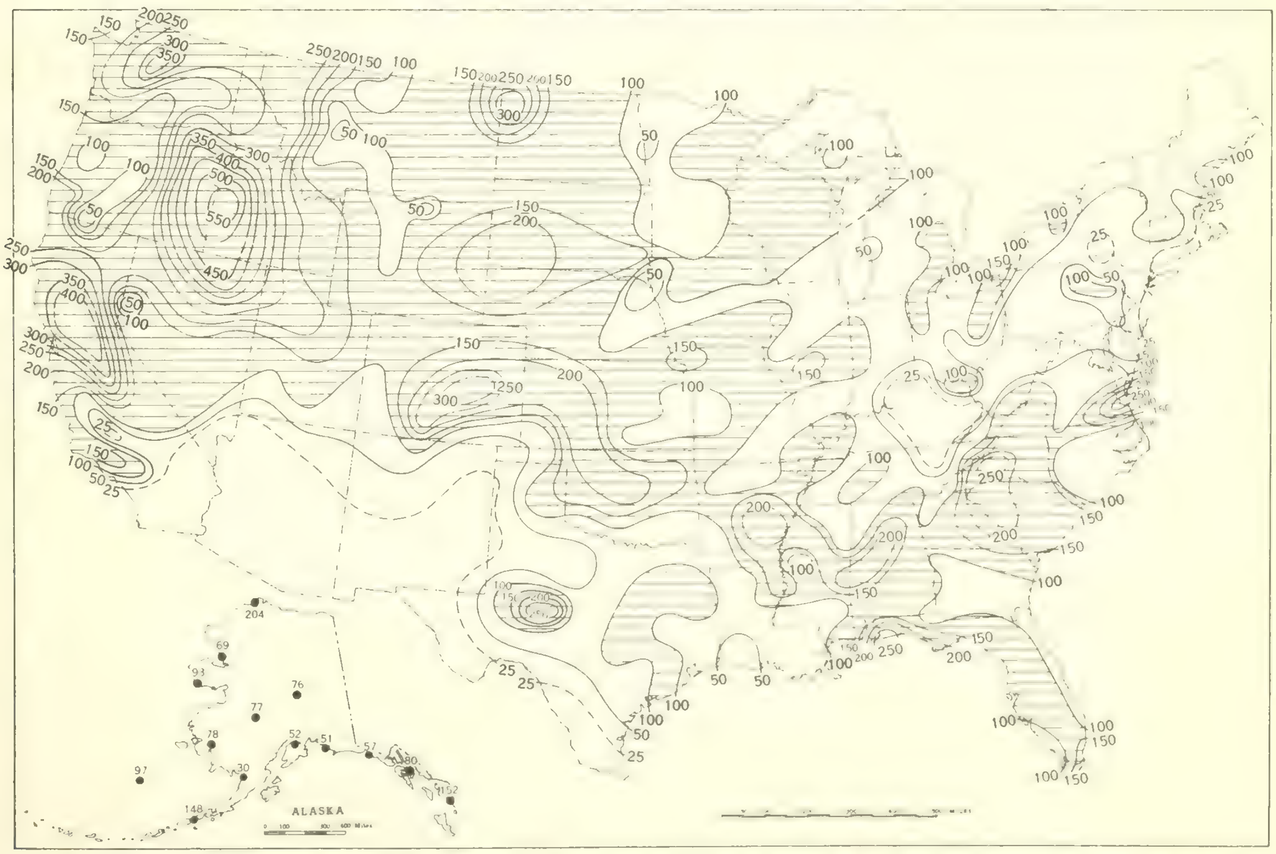
Chart II. Total Precipitation (Inches), September 1959.



Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

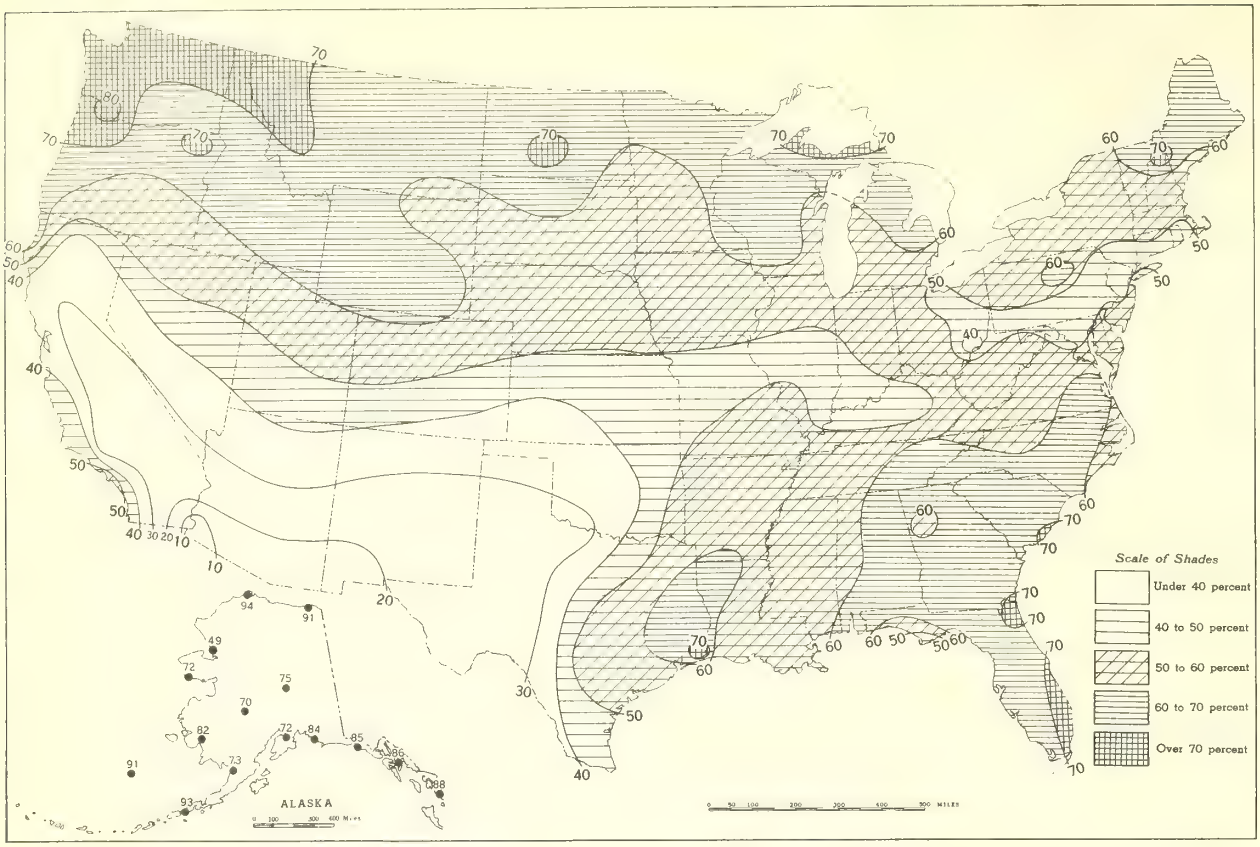
Chart III. A. Departure of Precipitation from Normal (Inches), September 1959.

B. Percentage of Normal Precipitation, September 1959.

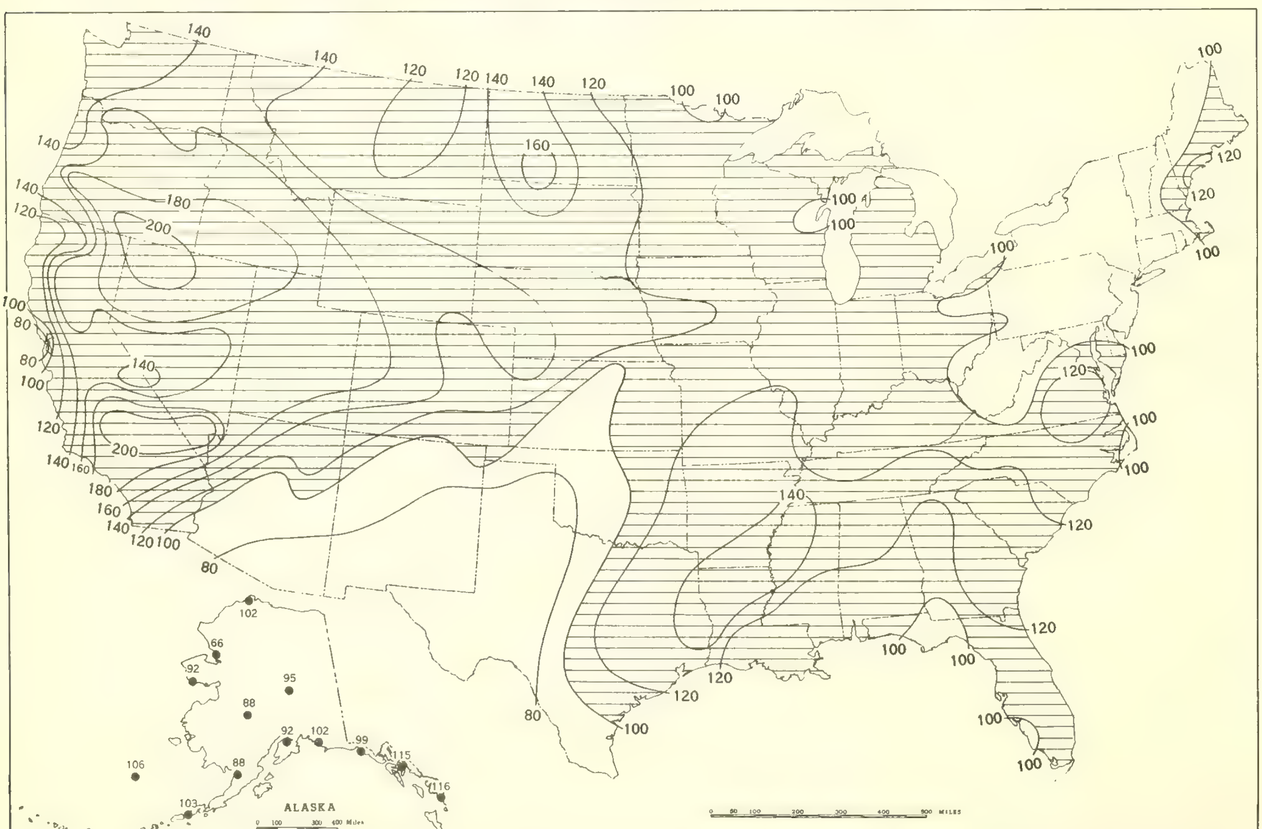


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, SEPTEMBER 1959.

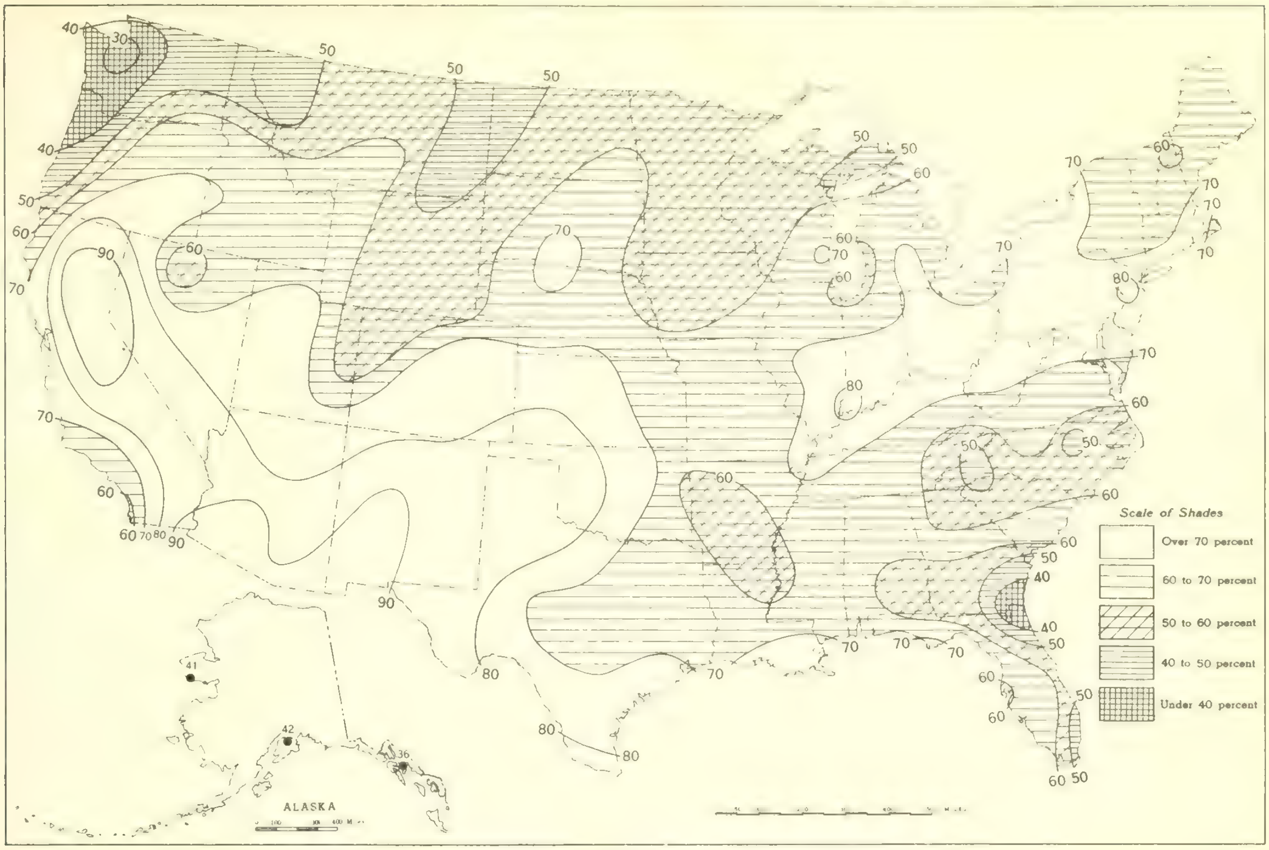


B. Percentage of Mean Monthly Sky Cover Between Sunrise and Sunset, September 1959.

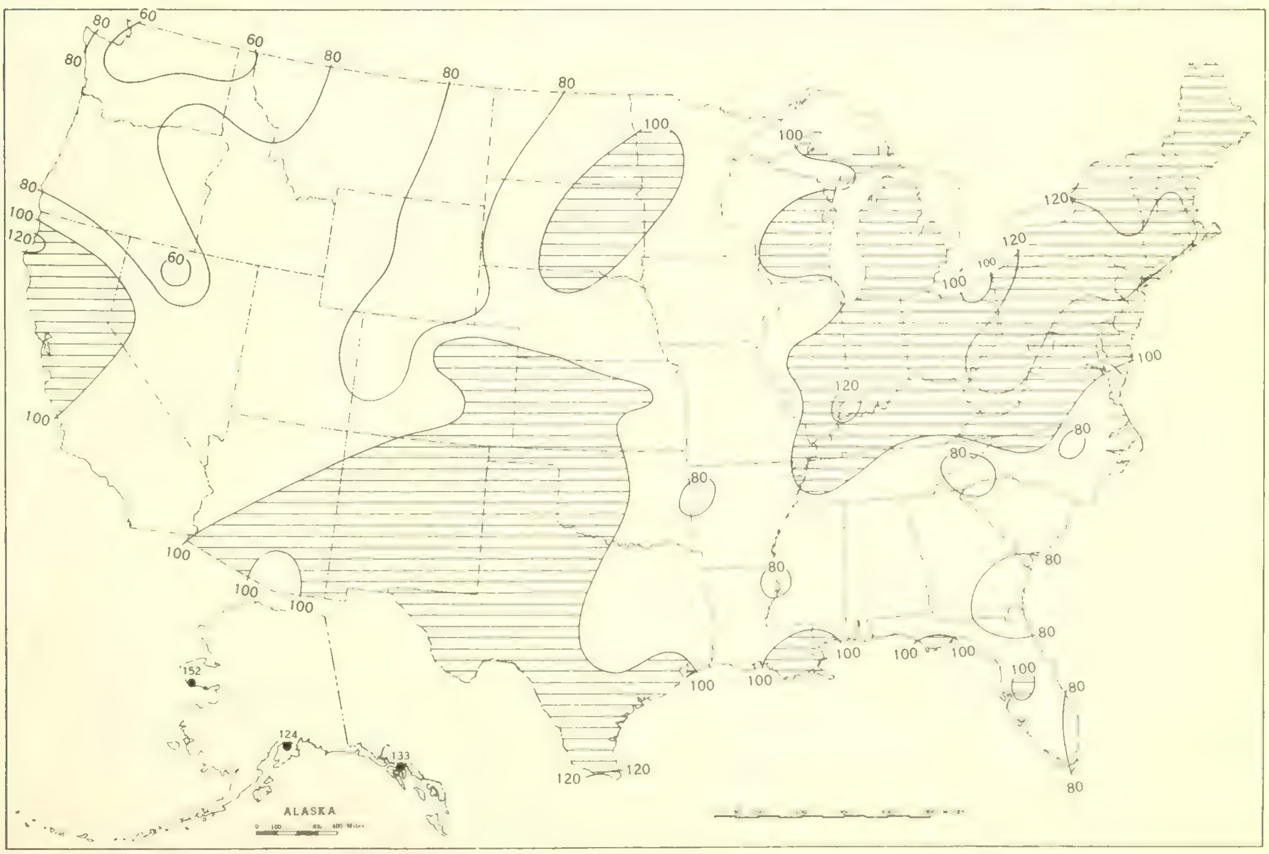


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of mean amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, September 1959.

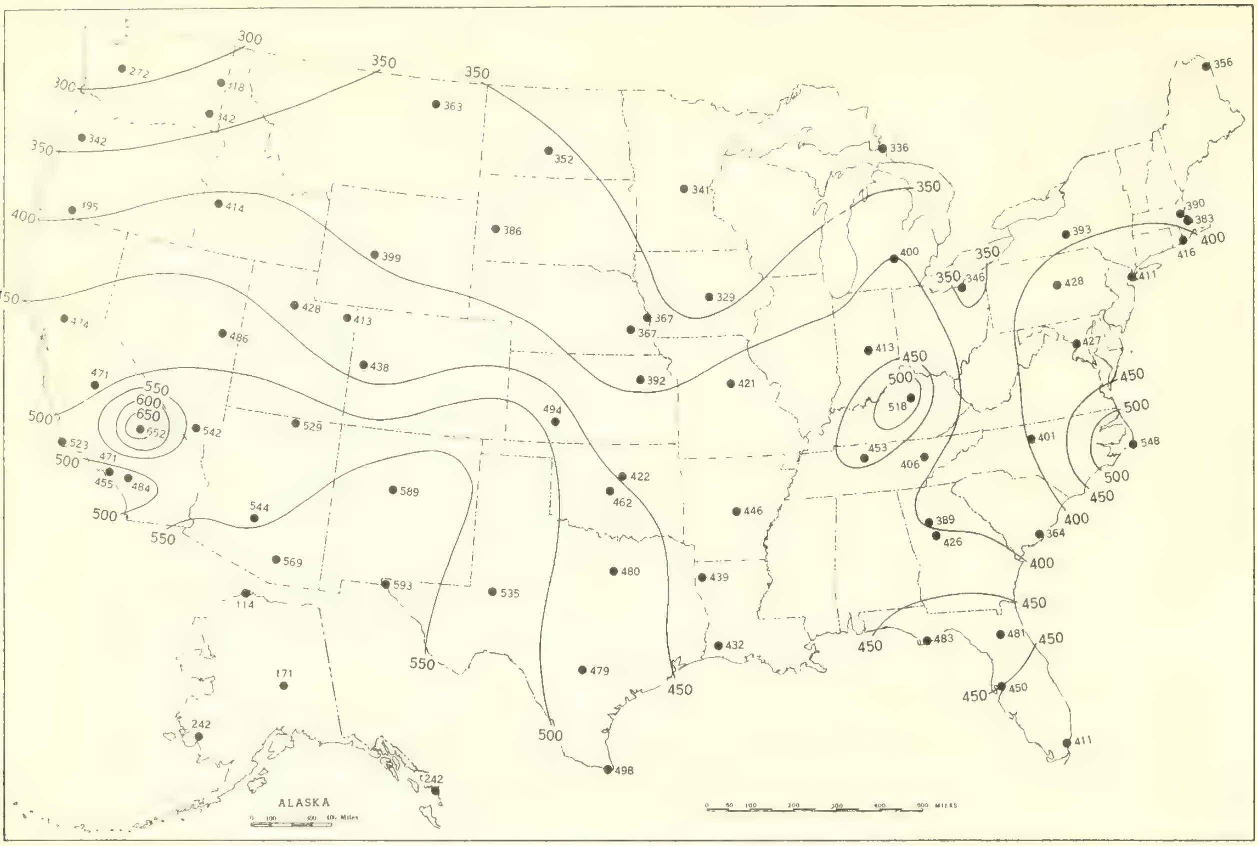


B. Percentage of Mean Monthly Sunshine, September 1959.

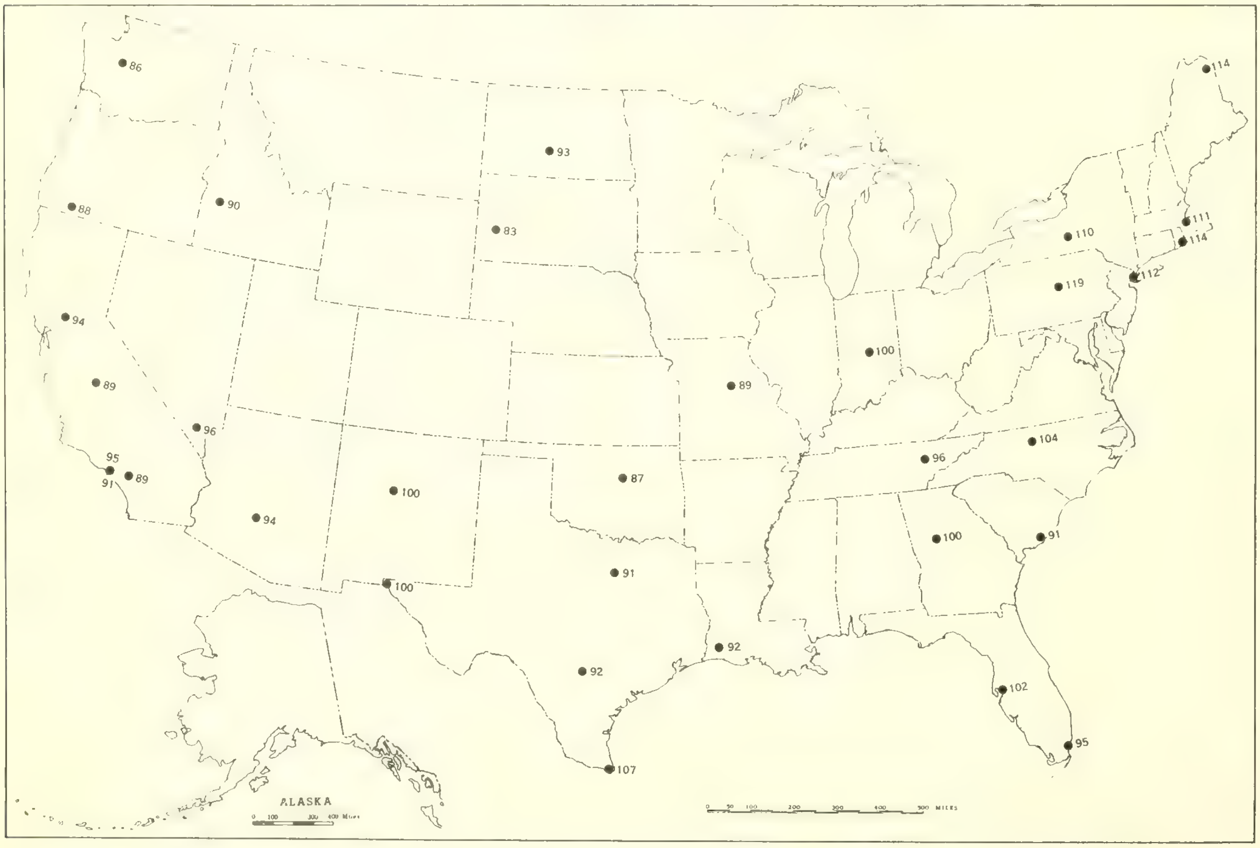


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Means are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, September 1959.



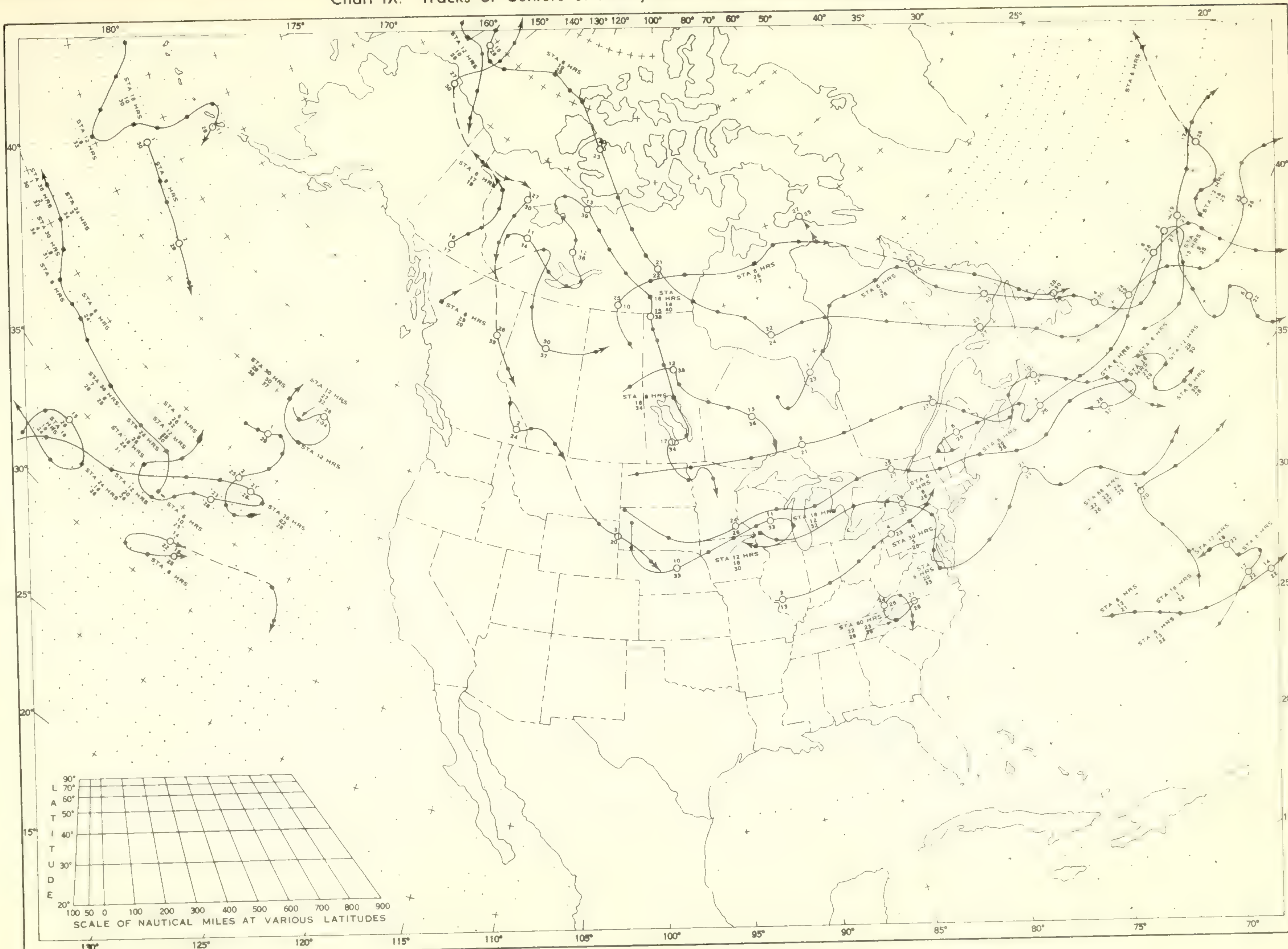
B. Percentage of Mean Daily Solar Radiation, September 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. $^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

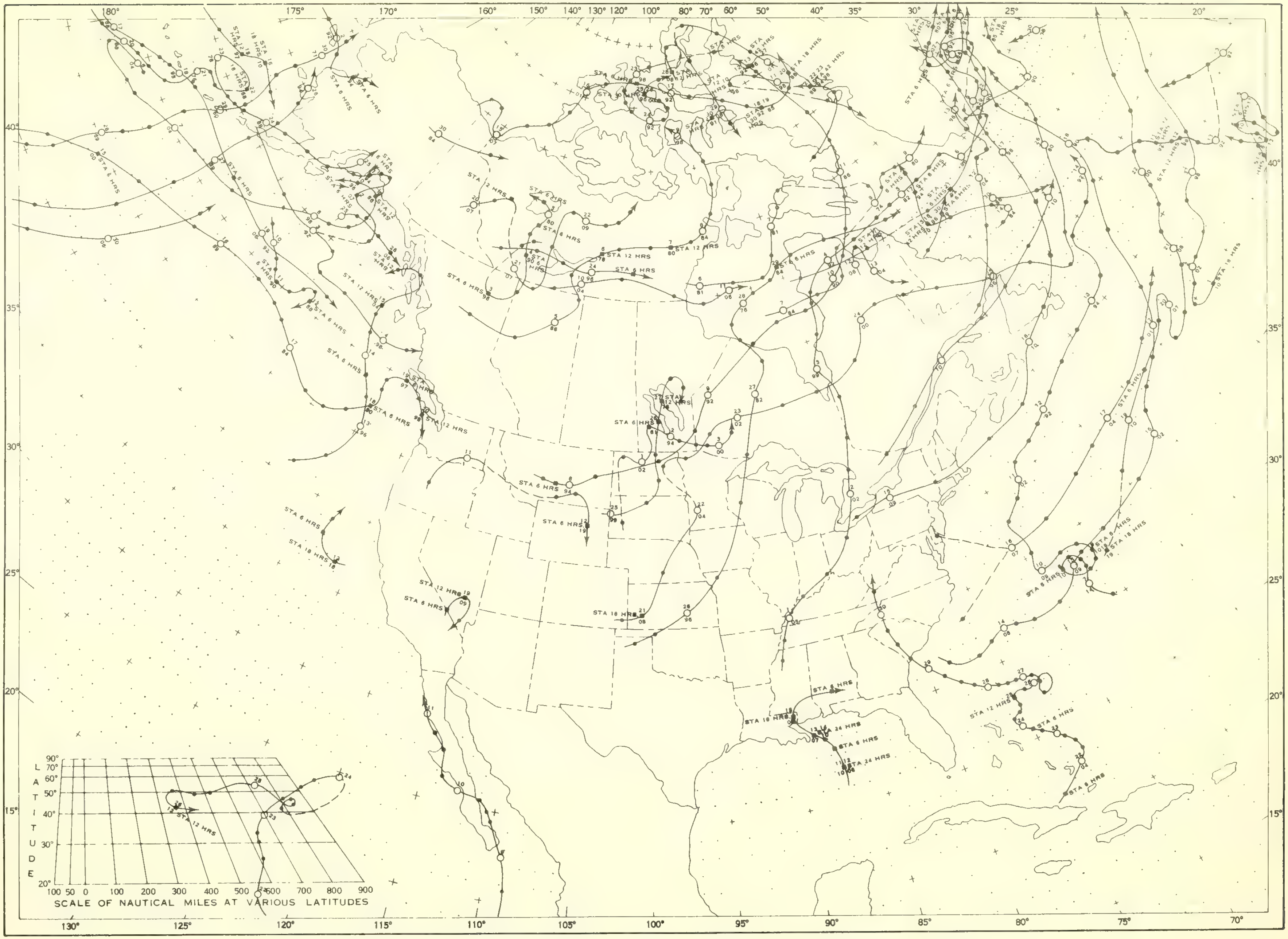
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, September 1959.



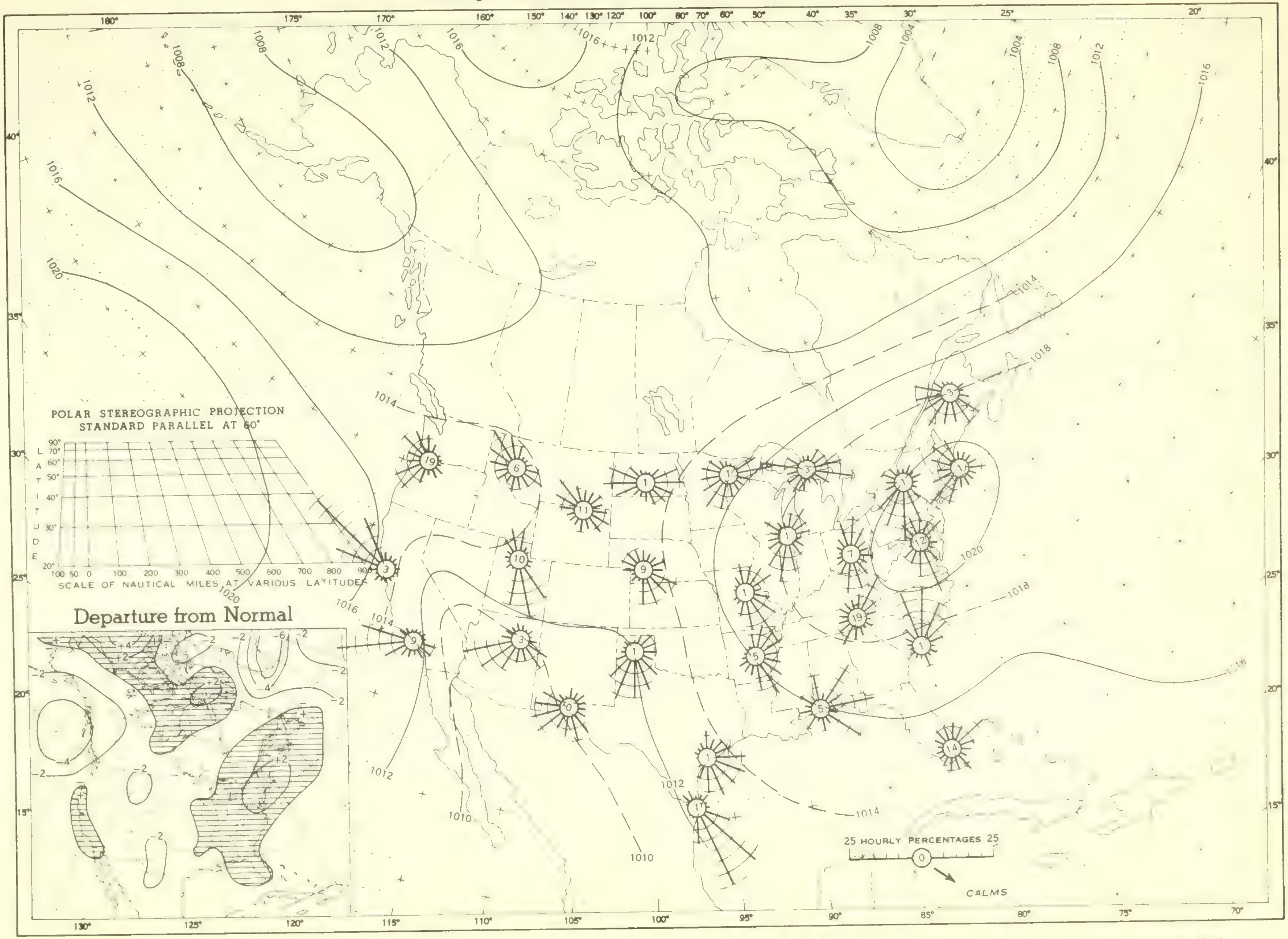
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, September 1959.



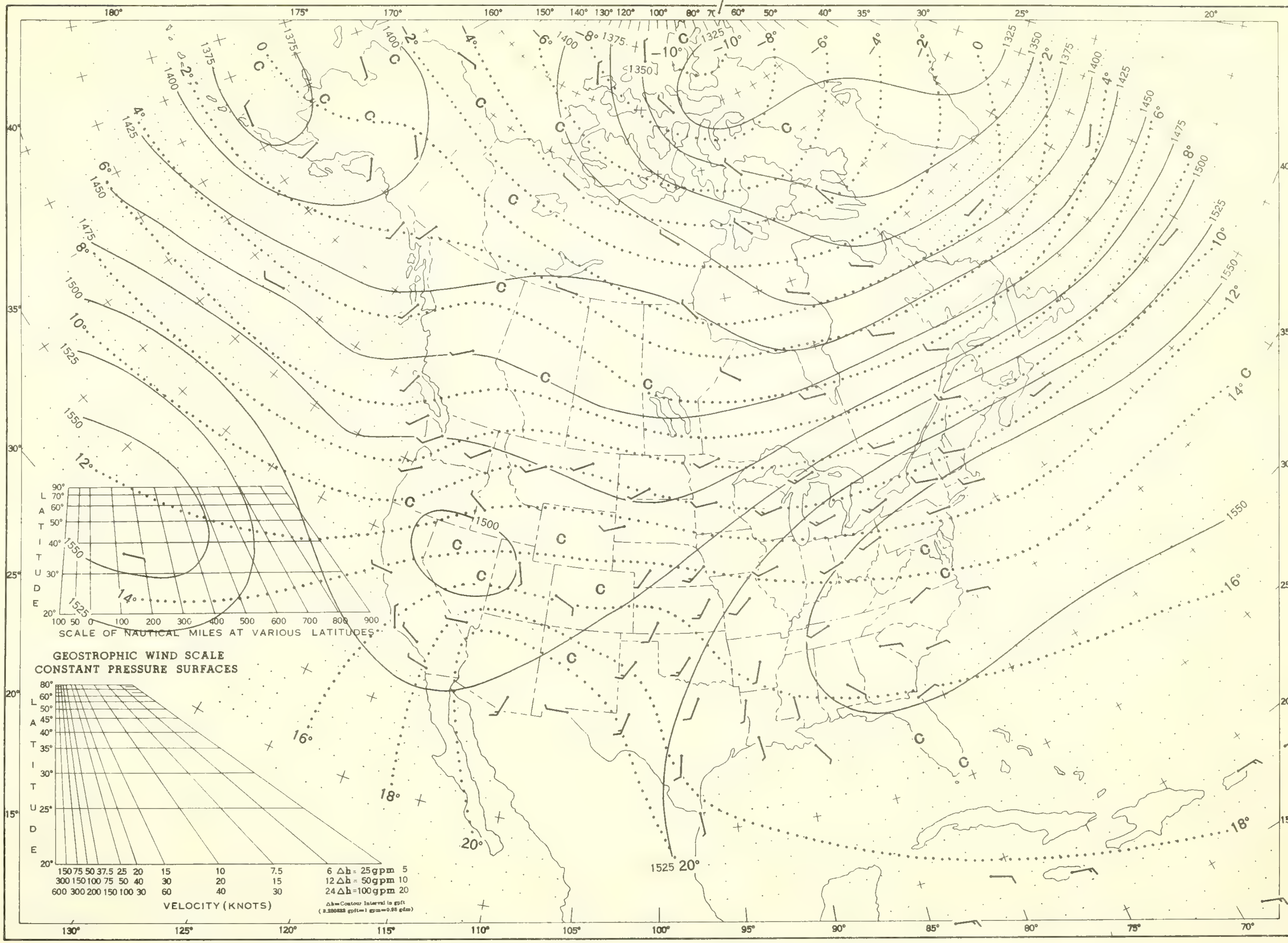
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, September 1959. Inset: Departure of Average Pressure (mb.) from Normal, September 1959.



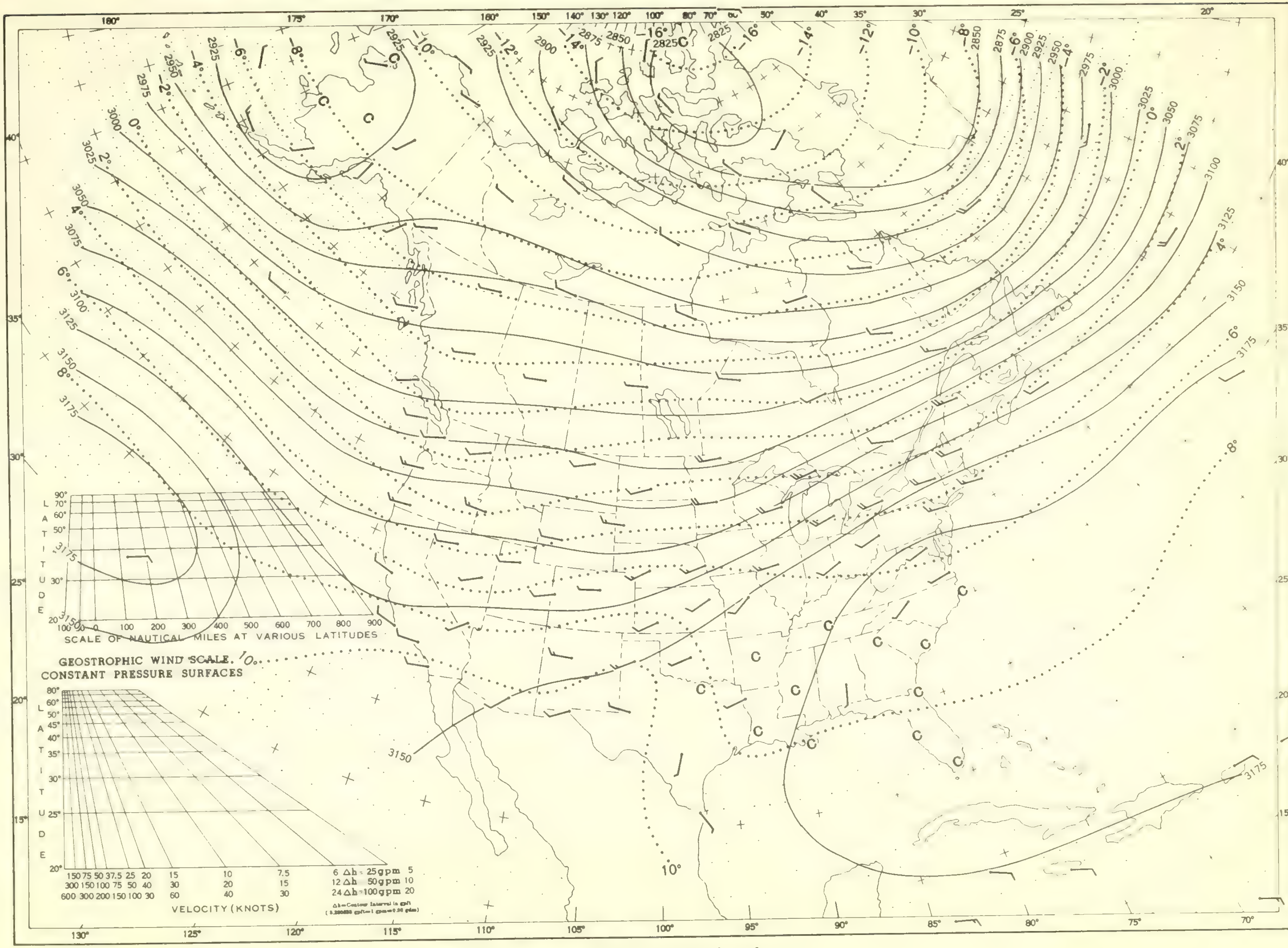
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, September 1959. Average Height and Temperature, and Resultant Winds.



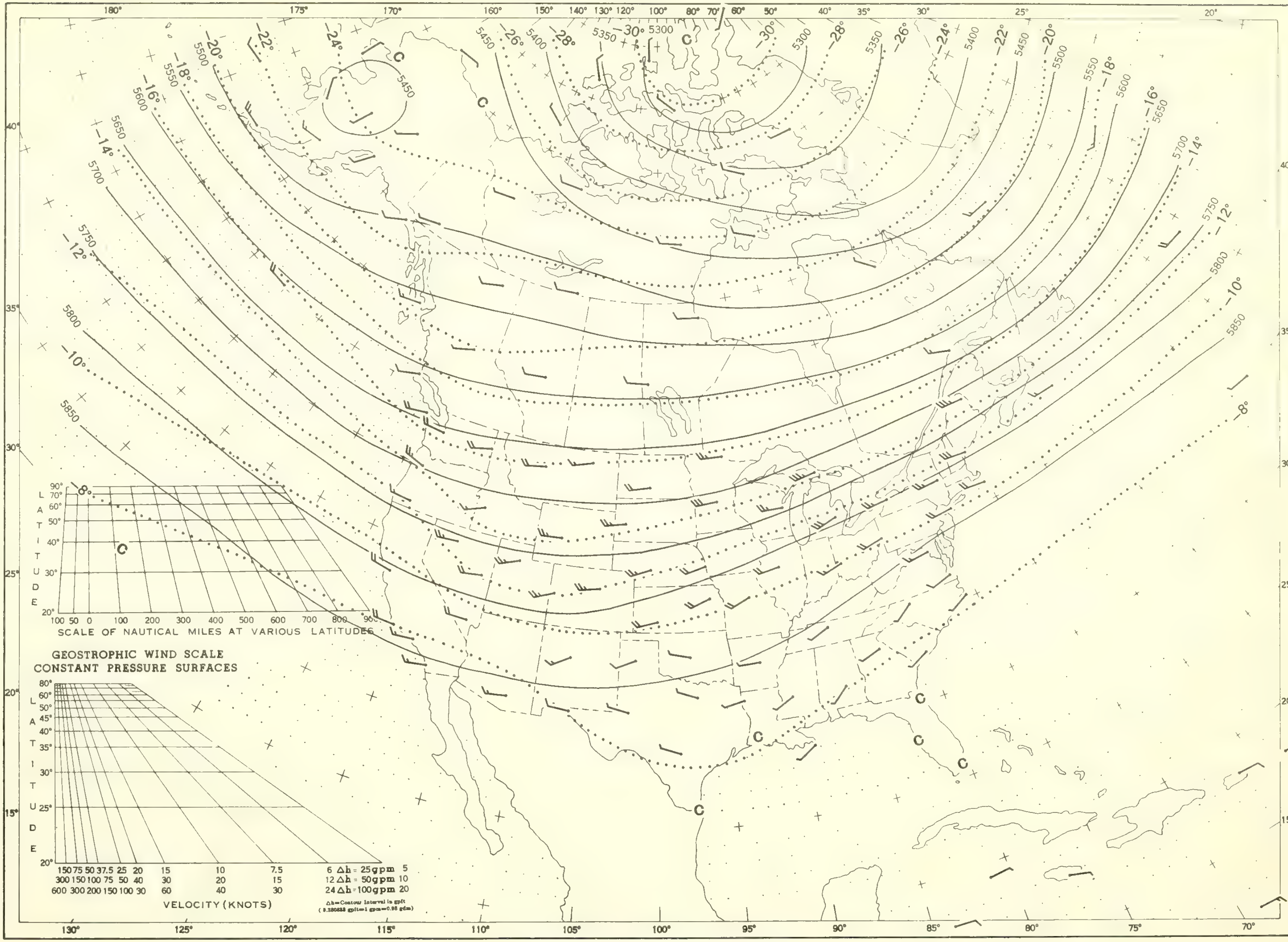
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, September 1959. Average Height and Temperature, and Resultant Winds.



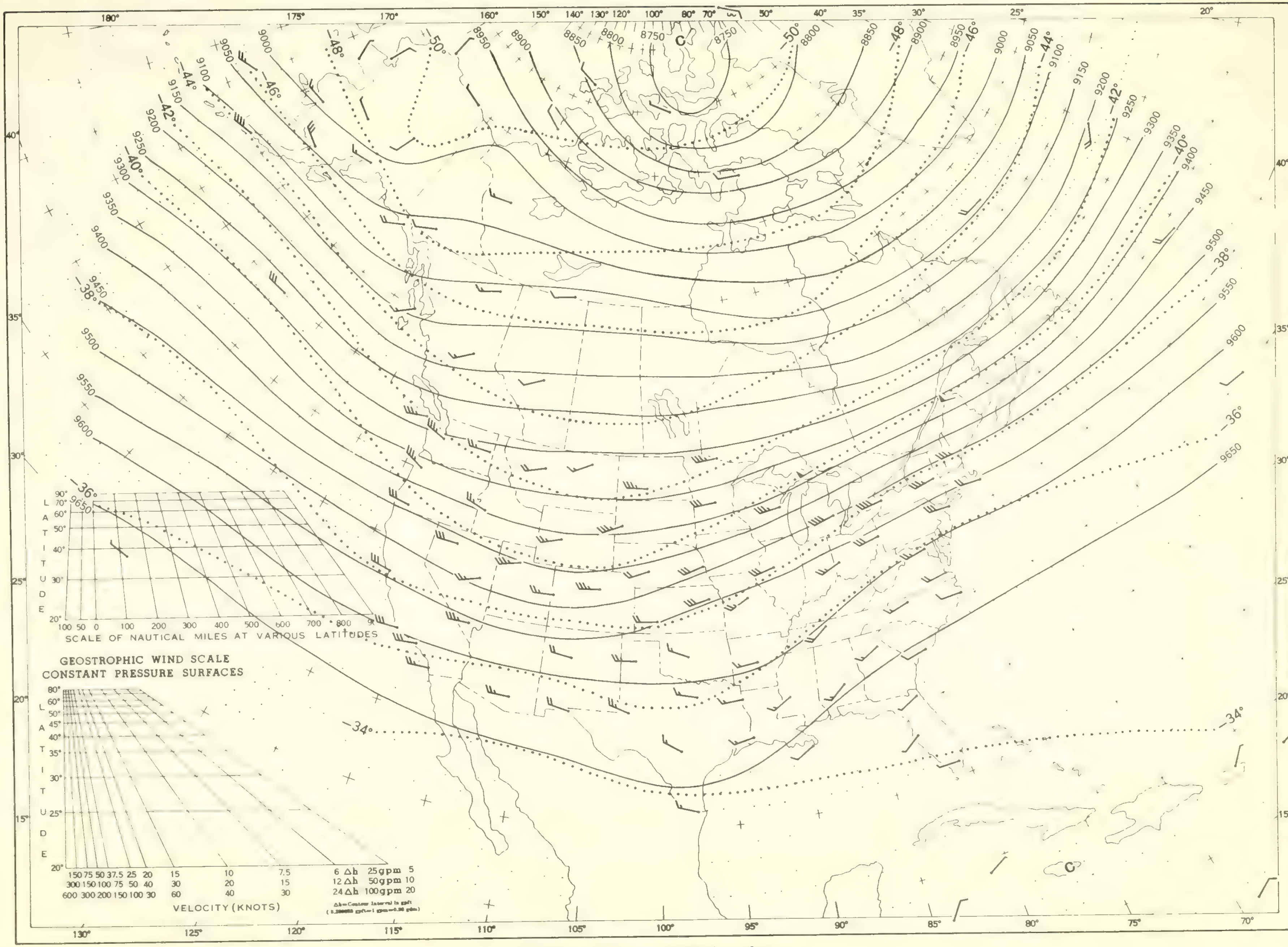
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, September 1959. Average Height and Temperature, and Resultant Winds.



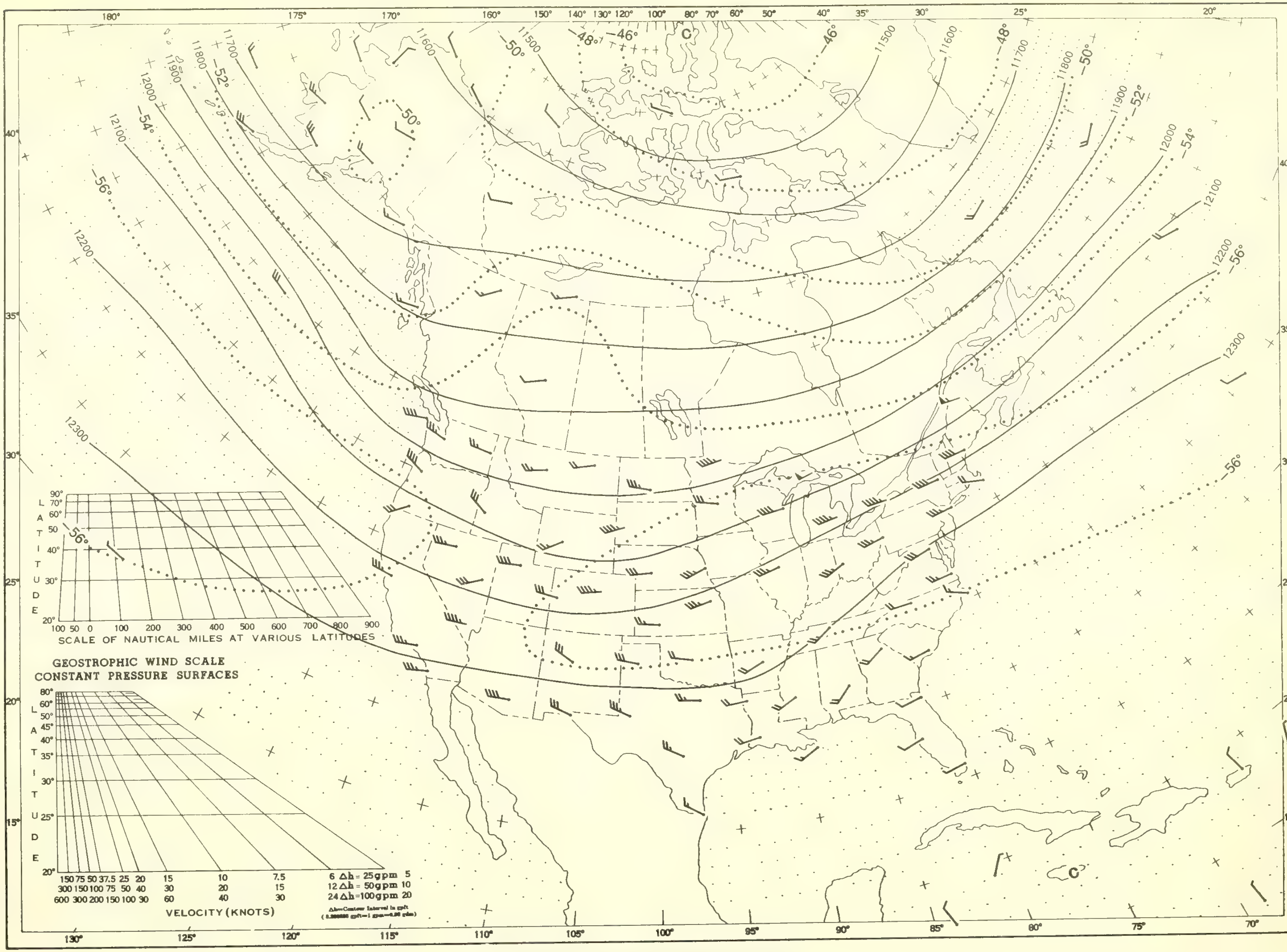
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, September 1959. Average Height and Temperature, and Resultant Winds.



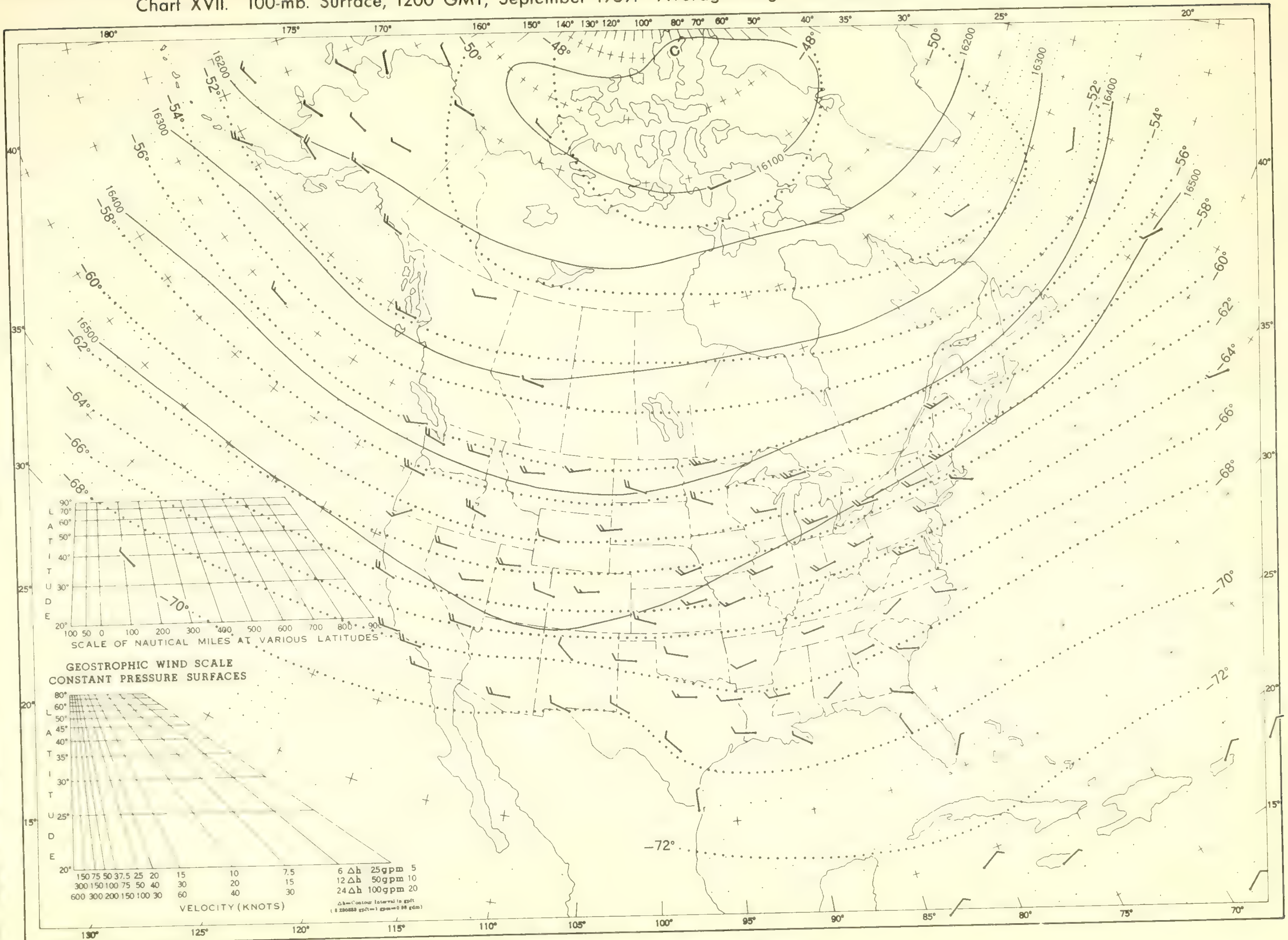
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, September 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, September 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 11 25 59 - 1900

U. S. DEPARTMENT OF COMMERCE
FREDERICK H. MUELLER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

OCTOBER 1959
Volume 10 No. 10

ASHEVILLE: 1959

C O N T E N T S

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 10 OCTOBER 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

Record-breaking precipitation, floods in many sections, extreme cloudiness, and lack of sunshine east of the Rockies during a month that is usually the driest of the year were the outstanding features of the weather of October 1959. Escanaba, Mich., had 2 clear and 24 cloudy days, both new October records; Pensacola, Fla., had only 36 percent of possible sunshine compared to a normal of 78 percent; and Knoxville, Tenn., had its least sunshine for any October since 1919. Rainy weather caused much delay in harvesting operations in many sections, resulting in considerable crop losses locally. The month was abnormally dry in much of the Far West, and forest and range fires occurred in California. It was abnormally cold in the midcontinent area, with record snowfall in some northern areas.

PRECIPITATION.--East of the Rockies precipitation in large areas was the heaviest in many years, and set new records at scattered stations. Among the stations reporting new record totals for October were Wichita Falls, Tex., 7.27 inches; Appalachicola, Fla., 12.09; Marquette, Mich., 7.13; Dallas, Tex., 11.38; and Macon, Ga., 9.39 inches. Other stations measuring unusually large totals for October included Norfolk, Va., 8.78 inches, the most since 1872; Charleston, S. C., 11.74 and Savannah, Ga., 8.54, the most since 1876; Milwaukee, Wis., 6.42, the most since 1877; Montgomery, Ala., 9.06, the most since 1879; and Concord, N. H., 6.78 inches, the most since 1890. Monthly totals exceeded 200 percent of normal in much of the lower Great Plains, the Great Lakes region, the Southeast, and Northeast, and locally ranged up to 400 and 500 percent of normal.

Heavy rains fell in Texas during the first few days of the month, about midmonth, and again during the closing days. Extremely heavy amounts early in the month caused severe flash floods in many parts of the State, and record overflows west of Austin where more than a foot of rain fell in 24 hours.

During the week ending October 12, a storm system over the North Central Interior brought heavy precipitation to the lower Great Lakes region, the Northeast, and parts of the Ohio and Mississippi Valleys, with totals ranging up to 5 inches in Indiana and 4 inches in Missouri and Ohio. In the Northeast totals generally exceeding 1 inch and ranging up to 3 inches or more locally replenished moisture supplies for fall crops. The Southeast received heavy rainfall when tropical storm Irene moved inland near Pensacola, Fla., on the 8th and subsequent showers and thunderstorms occurred. Weekly totals ranged from 4 to 6 inches locally in Florida and North Carolina, and up to 4 inches in Georgia, South Carolina, and Tennessee.

Heavy frontal showers occurred in the Southeast during the week ending the 19th and weekly totals ranged up to 7 inches in southern Louisiana, and 4 to 5 inches in Georgia, Virginia, and the Carolinas. In Florida hurricane Judith moved from the Gulf of Mexico across the southern part of the State on the 18th, and 4 to over 7 inches of rain fell over an area extending from Punta Gorda to Fort Pierce, causing some scattered flooding. Rains occurred on several days in the Southeast during the remainder of the month, causing more flooding and further delay in agricultural activities.

The relatively heavy precipitation for October extented into portions of Montana, Colorado, New Mexico, and Arizona, but in most of the remainder of the Far West precipitation was slightly to much below normal. The month was particularly dry in California and Nevada where 274 stations had no precipitation at all.

SNOWFALL.--Snowfall was unusually heavy and early in many northern areas, but in most cases it melted soon after falling. In north central areas snowfall occurred at intervals throughout the month, with accumulations sometimes ranging from 2 to 5 inches in local areas. At Topeka, Kans., snowfall on the 3d was the earliest there since September 19, 1901. One of the heaviest falls of the month occurred in the Big Horn Mountains near Sheridan, Wyo., on the 15th and 16th when up to 18 inches was measured during the storm. A fall of 7.5 inches at Williston, N. Dak., on the 7th was the heaviest of record for so early in the season.

Unusually heavy monthly totals for October were reported from scattered stations. A total fall of 11.4 inches set a new record at Devils Lake, N. Dak.; Denver, Colo., reported 11.8 inches which is 400 percent of normal; and Minneapolis, Minn., measured 3.4 inches, the most since 1917. Havre, Mont., measured 10.3 inches, the most since 1898 when 15.7 inches fell.

TEMPERATURES.--The month was warmer than normal in Oregon, California, and Arizona, with departures ranging up to 4° or more in California. Temperatures were below normal for short periods early and late in the month, but persistently above during the remainder. Bakersfield, Calif., recorded a late season high of 100° on the 17th, and 95° was a late season high for both Bakersfield and Fresno on the 24th. At San Francisco, Calif., the monthly average of 65.2° was the highest of a record dating back to 1871, and at San Diego temperatures averaged above normal for the 18th consecutive month.

The month also was warmer than normal east of a line joining Erie, Pa., and Port Arthur, Tex., with departures up to 4° or more in parts of Florida. The first 11 days of the month were unusually warm in the Northeast where daily averages ranged from 10° to 25° above normal.

Temperatures were well below normal in most of this area for the week ending the 19th and near to slightly below the remainder of the month, except in Florida where they remained above normal virtually throughout the month.

Temperatures averaged below normal for the month in the midcontinent area and the Northwest, with departures ranging up to 6° or more in the North Central Interior. In the midcontinent area temperatures remained below normal levels all month,

OCTOBER 1959

except for a few relatively warm days in the western Great Plains during the fourth week.

The month was the coldest October in many years in the upper Great Plains. At Topeka, Kans., this October was the coldest in 35 years, and the monthly maximum temperature there, 76°, was the lowest in 73 years. Minneapolis, Minn., reported the third coldest October on record; Lincoln, Nebr., the coldest since 1935; Bismarck, N. Dak., the coldest since 1932; and Devils Lake, N. Dak., and Sioux Falls, S. Dak., the coldest since 1925.

The below normal average monthly temperatures in the midcontinent area were mainly due to persistently below normal temperatures, since extremes were not unusual.

DESTRUCTIVE STORMS.--Heavy rainfall was the most destructive weather element during the month, as it not only resulted in heavy flood losses, but caused heavy crop damage in many sections of the South.

As usual for October only a few tornadoes were reported. One of these storms caused extensive property damage in the vicinity of McHenry, Ill., on the 8th. Another struck Kure Beach, N. C., on the 15th, causing several thousand dollars damage, and a small tornado was reported in the southern part of Corpus Christi, Tex., on the 12th.

Snow and wind caused considerable damage in Upper Michigan on the 24th and 25th and snow and glaze caused heavy damage to overhead wires in northeastern North Dakota on the 8th. Near blizzard conditions prevailed in central North Dakota on the 9th and 10th when slightly more than 3 inches of snow fell at Bismarck and the wind reached 61 m.p.h.

CONDENSED CLIMATOLOGICAL SUMMARY

OCTOBER 1959

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	Clayton	97	4	Vernon	31	19	Lockhart	16.61	Gadsden Gas Pl	2.31
Arizona	2 Stations	105	24+	2 Stations	4	31	Horseshoe Dam	11.10	Yuma Valley	.00
Arkansas	Cummins Farm	92	4	3 Stations	26	29+	Cove	8.33	Monticello 3S	.83
California	Indio US Date Gar	108	24	White Mountain 2	-8	30	Fort Dick 1NNE	4.21	254 Stations	.00
Colorado	Eversoll Ranch	94	25	Fraser	-2	31	Wolf Creek Pass 4W	8.59	Aroya 9NNE	.60
Connecticut	Hartford Brainard Fld.	89	6	Coventry	15	22	Norfolk 2SW	10.13	Saugatuck Reservoir	4.40
Delaware	2 Stations	92	5	2 Stations	27	29	Selbyville	5.38	Dover	3.81
Florida	Avon Park	98	2	3 Stations	40	26+	Miles City Tower	17.25	Key West WB AP	2.45
Georgia	Morgan	99	4	Blairsville Exp Sta.	27	26	Neel Gap	17.60	Chatsworth 1NW	3.51
Idaho	2 Stations	83	25+	2 Stations	9	30	Bungalow RS	6.27	Arco 3NW	.00
Illinois	5 Stations	89	4+	3 Stations	23	28	New Boston	7.70	Casey	1.66
Indiana	Henryville State Forest	92	5+	2 Stations	20	29+	La Porte	7.95	Shoals Hiway 50 Br	2.33
Iowa	Sioux City WB Airport	78	19	do	19	17	Columbus Junction	6.96	Jefferson	.89
Kansas	Elkhart	95	25	do	16	27	Sedan	10.47	Goodland WB Airport	1.83
Kentucky	4 Stations	94	5+	Inez	22	19	Sebree	9.13	Jackson	2.20
Louisiana	2 Stations	96	13+	Chatham	31	19	Quarantine	14.24	Point Au Fer Reef	.60
Maine	West Buxton 2NNW	83	4	2 Stations	11	22	Gilead	12.22	Brassua Dam	4.18
Maryland	Keedysville	94	6	Picardy	21	29	Luke	10.33	Washington WB City	2.42
Massachusetts	Lake Cochituate	89	1	2 Stations	16	22	West Cummington	10.67	Chestnut Hill	3.68
Michigan	Monroe Waterworks	85	3	Champion Van Riper Pk	10	27	Holland	7.81	Ontonagon	2.30
Minnesota	Wheaton	80	4	Hallock	5	27	Windom	3.82	2 Stations	1.35
Mississippi	2 Stations	95	2+	Houston 2NE	32	19	Waynesboro 3WNW	12.45	Sardis Dam	1.39
Missouri	Kennett Radio KBOA	90	3	Berryman 6NW	22	18	Carthage	11.43	Caruthersville	1.88
Montana	3 Stations	80	5	Redstone	0	9	Essex	4.95	Biddle	.00
Nebraska	Madrid	91	25	Oshkosh	7	31	Pawnee City	5.28	Chadron FAA Airport	.40
Nevada	2 Stations	98	23+	Wilkins	9	31	Jarbidge	1.60	20 Stations	.00
New Hampshire	3 Stations	82	4	Fabyan	10	22	Pinkham Notch	15.21	Lebanon FAA AP	4.37
New Jersey	do	92	6+	4 Stations	22	29	Greenwood Lake	9.49	Pemberton 3E	2.37
New Mexico	Artesia	97	25	Eagle Nest	9	19+	Los Alamos	4.62	Cienega 5SSW	.18
New York	Poughkeepsie	91	5	Paul Smiths	10	22	Peekamoose	15.34	Hempstead Malverne	3.01
North Carolina	Cedar Island	93	10	Celo 2S	24	28	Highlands	19.48	Daybook	1.77
North Dakota	Linton	80	4	Grafton	3	27	Langdon Exp Farm	4.53	Reeder 14N	.07
Ohio	2 Stations	93	4+	3 Stations	21	29	Dorset 2E	8.93	Hamilton Water Wks.	2.00
Oklahoma	Buffalo	97	25	Gage FAA Airport	24	27	Maramec	16.17	Regnier	1.93
Oregon	2 Stations	87	3	Fremont	8	30	Bonneville Dam	12.72	Rome 1N	.09
Pennsylvania	do	92	7+	Coudersport 3NW	17	29	Northeast 2SE	10.35	Reading WB City	2.73
Puerto Rico	San German	97	26	Garzas Dam	54	11	Rio Blanco Upper	18.17	Santa Rita	.60
Rhode Island	Providence WB AP	85	6+	Kingston	21	29	Greenville	8.37	Newport	3.62
South Carolina	Hampton	94	1	Chester 2WSW	29	27	Sassafras Mountain	16.19	Great Falls	4.90
South Dakota	2 Stations	84	18+	Kyle	8	27	Wagner	4.49	Scenic	.00
Tennessee	Dale Hollow Dam	93	5	Mountain City 2	26	19	Haw Knob	12.84	Memphis WB AP	1.57
Texas	Rio Grande City 2ESE	101	9+	Borger	25	27	Thurber 5NE	17.02	Cornudas Service Sta.	.05
Utah	St George PH	92	12	Panguitch	9	29	Silver Lake Brighton	2.93	2 Stations	T
Vermont	Vernon	81	5	Cavendish	11	22	Newfane	10.21	Union Village Dam	4.99
Virginia	Ashland 1SW	94	9	Woodstock	23	29	Meadows of Dan 5SW	14.30	Gordonsville FAA AP	2.11
Washington	Packwood	84	18	2 Stations	19	30+	Rainier Paradise RS	18.91	Prosser 4NE	.24
West Virginia	Williamson	95	6	do	18	29	Stony River Dam	9.46	Kermit	2.80
Wisconsin	Sparta	75	19	Laona 4SSW	13	28	Whitewater	8.86	Madeline Island	1.75
Wyoming	Arvada 3N	83	5	Foxpark	-1	3	Crandall Creek	3.10	2 Stations	.00

\+ And also on an earlier date or dates.

Note Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

OCTOBER 1959

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F	°F.	°F.	°F		°F.		#		°F.	%	In.	In.	In.			In.	In.	M p. h.		M p. h			0–3	4–7	8–10	0–10	%
ALABAMA																																
Birmingham	610	990.0	1015.4	75	57	65.8	2.1	90	3	39	19	1	0	59	82	6.21	3.35	3.26	16	1	0.0	0	9.4	ENE	27	W	24	6	8	17	7.0	48
Huntsville	605	992.7	1015.8	75	56	65.5	----	91	5+	39	26	3	0	56	77	4.69	----	2.07	12	3	.0	0	7.5	SE	*17	ESE	29	8	8	15	6.4	--
Mobile	211	1011.5	1014.0	77	64	70.5	1.4	90	2	44	25	1	0	64	84	6.56	2.81	2.13	14	3	.0	0	10.5	NE	*25	N	27+	5	4	22	7.6	--
Montgomery	195	1006.6	1014.9	76	60	68.2	1.8	94	3	43	28+	5	0	61	82	9.06	6.70	2.04	17	4	.0	0	8.8	ENE	24	NW	24	6	4	21	7.4	39
ALASKA																																
Anchorage	90	1003.4	1008.4	40	25	32.5	-3.5	51	6+	2	18	0	24	26	76	1.12	-.75	.40	10	0	7.1	6	6.6	NE	*29	ESE	28	8	4	19	6.9	44
Annette	110	1009.1	1013.2	52	43	47.4	-.5	58	2+	34	7	0	0	41	81	24.96	10.58	5.17	20	0	T	0	12.5	SE	*46	SSE	29	2	5	24	8.4	--
Barrow	22	1016.3	1016.9	21	12	16.5	-.6	39	1	-11	22	0	30	13	84	1.28	.76	.41	23	0	10.1	10	12.1	S	45	W	16	0	5	26	9.2	--
Barter Island	39	1013.9	1016.0	20	10	14.6	-2.8	43	1	-10	15+	0	31	12	87	.30	-.73	.09	7	0	3.0	7	14.9	E	*48	WNW	3	1	3	27	9.2	--
Bethel	125	1006.8	1008.5	35	21	28.0	-3.8	51	4	4	18	0	27	23	83	.73	-1.02	.45	7	0	2.8	2	14.8	NNE	*33	NE	28	10	6	15	6.1	--
Cold Bay	90	1001.0	1005.1	47	36	41.5	1.0	58	7	30	9+	0	8	36	81	4.35	-.03	1.26	15	0	T	T	14.3	ESE	*49	ESE	19	5	5	21	7.5	--
Cordova	40	1006.1	1007.7	47	31	39.0	-1.8	57	4	13	18	0	17	32	80	15.08	-.48	3.59	17	2	T	0	5.7	ESE	*32	ESE	28	9	3	19	6.6	--
Fairbanks	436	994.9	1012.3	34	15	24.0	-3.5	49	2+	-8	19	0	30	18	78	.68	-.24	.44	9	0	4.2	3	5.4	N	*15	NE	28+	6	8	17	7.1	--
Juneau	25	1011.5	1012.3	46	35	40.3	-1.6	55	1	22	11	0	11	34	80	6.04	-2.43	.90	20	0	T	0	8.9	E	*37	ESE	29	3	4	24	8.3	33
King Salmon	44	1004.1	1006.1	44	26	34.9	-.9	55	7	10	17	0	21	29	80	.20	-2.32	.07	8	0	T	T	12.1	NNE	*40	ENE	21	9	5	17	6.4	--
Kotzebue	10	1013.2	1014.1	28	16	22.0	-3.5	46	1	-6	31	0	28	18	81	.53	-.05	.30	9	0	1.9	1	9.2	ENE	*25	SSE	1	6	8	17	6.7	--
McGrath	334	997.6	1010.8	33	14	23.3	-4.3	48	3	-11	19	0	28	18	81	.55	-1.12	.22	10	0	6.6	5	4.3	N	*17	ENE	28+	10	4	17	6.5	--
Nome	13	1011.2	1012.0	35	22	28.4	-1.6	49	6	5	31	0	27	22	77	.44	-1.26	.25	6	0	4.5	4	10.2	N	*38	NNE	29	7	9	15	6.4	38
Shemya	122	1000.7	1004.1	46	39	42.5	----	52	3	33	28+	0	0	38	82	4.04	----	.86	23	0	.9	T	22.2	ENE	*60	E	15	1	6	24	8.6	--
St. Paul Island	22	1005.4	1006.8	44	36	39.6	.5	51	1	25	31	0	8	35	83	2.31	-.81	.96	16	0	1.1	T	----	---	--	---	--	2	8	21	8.1	--
Yakutat	28	1008.8	1010.1	49	33	40.6	-1.1	58	4	17	18	0	13	33	78	14.82	-5.11	3.52	20	1	2.0	T	8.5	ENE	*49	SE	29	8	4	19	6.8	--
ARIZONA																																
Flagstaff	6993	------	------	64	31	47.7	1.6	79	24	18	31	0	18	--	-	2.35	.89	1.85	5	3	3.9	3	----	---	--	---	--	21	5	5	3.0	--
Phoenix	1109	970.9	1009.3	86	59	72.7	1.9	96	24	44	31	15	0	44	41	1.75	1.35	1.47	3	1	.0	0	6.8	ENE	*30	NE	29	23	3	5	2.5	91
Prescott	5014	845.6	1012.2	75	42	58.3	1.3	88	24	31	31+	0	3	30	--	.41	-.27	.22	4	2	T	0	8.3	SSW	34	SW	1	22	4	5	2.7	80
Tucson	2584	922.1	1009.3	84	55	69.7	.1	96	24	39	30	7	0	39	37	.70	.23	.54	4	1	T	0	9.9	SE	32	S	30+	21	5	5	2.6	89
Winslow	4880	850.7	1012.0	72	42	56.9	.6	86	12	29	31	0	1	31	43	1.83	1.28	.73	7	3	.5	T	8.8	SW	*35	WNW	12	20	4	7	3.3	--
Yuma	199	1003.7	1008.9	93	62	77.5	1.1	105	24	48	31+	24	0	43	35	.03	-.29	.03	1	0	.0	0	6.8	N	25	N	13	25	4	2	1.6	97
ARKANSAS																																
Fort Smith	458	998.0	1015.1	72	51	61.6	-2.3	88	2	37	18	0	0	53	79	4.88	1.25	2.25	8	4	.0	0	8.5	ENE	34	NW	2	14	5	12	4.9	59
Little Rock	257	1002.4	1015.8	74	55	64.1	.0	88	3+	41	29+	0	0	53	72	2.07	-.74	1.10	5	2	.0	0	8.2	ENE	30	SW	4	14	8	9	4.6	71
Texarkana	361	------	1014.8	76	55	65.5	-1.5	90	2	40	28+	1	0	--	--	3.18	-.20	1.11	6	4	.0	0	5.6	ENE	--	---	--	--	--	--	---	--
CALIFORNIA																																
Bakersfield	494	994.9	1013.2	82	55	68.8	2.3	100	17	41	30	6	0	46	45	T	-.37	T	0	0	.0	0	4.9	NW	*23	ENE	29	24	2	5	2.4	--
Bishop	4108	873.7	1013.5	81	39	59.7	2.6	93	23	30	2	4	1	--	--	.00	-.34	.00	0	1	.0	0	----	---	--	---	--	19	6	6	3.0	--
Blue Canyon	5280	839.5	1013.2	68	49	58.4	5.3	83	23	32	30+	0	2	--	--	.07	-3.10	.07	2	0	.0	0	9.2	ENE	70	NE	30	22	4	5	2.5	--
Burbank	699	985.4	1011.7	81	56	68.5	3.4	96	15	48	31	6	0	50	60	T	-.52	T	0	0	.0	0	3.0	ESE	*20	N	29	15	10	6	4.0	--
Eureka (U)	43	1014.6	1016.9	62	50	55.6	1.4	70	2	39	20	0	0	--	--	.74	-1.96	.31	5	0	.0	0	5.2 ⊛	N	28	N	29	10	7	14	6.0	51
Fresno	331	1000.7	1012.6	82	51	66.5	2.4	97	17	40	31	7	0	46	54	.00	-.66	.00	0	0	.0	0	5.5	NW	40	NE	29	24	2	5	2.2	99
Long Beach	34	1010.8	1012.1	79	58	68.3	----	96	14	49	14	2	0	56	71	.02	----	.02	1	0	.0	0	5.6	WNW	*29	NNW	29	16	10	5	4.4	--
Los Angeles (U)	312	------	------	80	61	70.2	3.6	94	14	56	31+	3	0	56	69	T	-.50	T	0	0	.0	0	5.5 ⊛	W	48	N	30	17	9	5	3.6	77
Los Angeles	99	1007.8	1011.8	76	61	68.2	4.8	91	15	54	31+	2	0	58	74	.01	-.42	.01	1	0	.0	0	8.1	WSW	*29	N	29	11	15	5	4.6	--
Mt. Shasta (U)	3544	893.7	1017.3	68	40	54.1	3.1	84	24	31	2	0	3	--	--	.02	-2.59	.02	1	0	.0	0	----	---	--	---	--	23	3	5	2.3	--
Oakland	3	1013.9	1014.2	76	54	64.7	4.7	93	23	45	29	1	0	49	63	T	-.91	T	0	0	.0	0	7.2	WNW	*26	N	29	21	4	6	3.2	--
Point Arguello	367	998.6	------	71	51	61.1	----	85	23	42	31+	0	0	--	--	T	----	T	0	0	.0	0	8.3	---	*31	NNW	29	22	5	4	3.0	--
Red Bluff	341	1001.4	1014.3	82	55	68.7	3.6	99	23	45	19	9	0	38	38	.04	-1.45	.02	2	0	.0	0	10.8	N	30	N	29	24	3	4	2.4	92
Sacramento	17	1012.2	1013.2	80	53	66.3	3.6	89	10	42	19	0	0	47	53	.00	-.91	.00	0	0	.0	0	8.6	NNW	38	NE	30+	20	6	5	2.9	92
Sandberg (R)	4517	861.8	1011.5	73	53	62.7	4.4	87	24	33	30	0	0	--	--	.00	-.66	.00	0	0	.0	0	12.7	N	*37	ENE	23	22	7	2	2.1	--
San Diego	19	1008.1	1011.3	75	60	67.2	2.2	88	15	51	30	0	0	57	74	.23	-.40	.14	3	0	.0	0	5.4	WSW	24	S	1	13	13	5	4.3	68
San Francisco (U)	52	------	------	73	57	65.2	4.2	88	16	51	4	0	0	--	--	T	-1.07	T	0	0	.0	0	7.2 ⊛	W	26	W	18	--	--	--	---	82
San Francisco	8	1013.5	1014.5	76	54	65.0	5.6	90	23	49	28	1	0	50	66	T	-.92	T	0	0	.0	0	9.8	WNW	45	N	29	21	4	6	2.7	--
Santa Maria	238	1004.1	1012.8	78	49	63.4	3.4	98	23	40	31+	3	0	48	65	T	-.62	T	0	0	.0	0	6.7	WNW	*28	WNW	8	23	5	3	2.3	--
COLORADO																																
Alamosa	7536	771.4	1016.8	60	26	42.8	-1.3	75	25	18	18	0	27	--	--	1.78	1.20	.88	8	1	12.8	6	----	---	--	---	--	16	4	11	4.6	--
Colorado Springs	6173	810.7	1017.6	59	32	45.5	-5.9	79	25	20	4	0	16	29	59	.97	.34	.28	9	0	9.0	20	9.8	N	*41	WNW	25	15	6	10	4.7	--
Denver	5292	837.8	1016.4	61	35	48.1	-3.4	80	25+	21	31	0	11	28	54	2.46	1.45	1.06	8	0	11.8	5	9.9	SSW	35	NW	25+	12	6	13	5.3	61
Grand Junction	4849	859.5	1015.4	65	40	52.4	-2.0	75	25+	32	8	0	1	27	43	.66	-.18	.29	6	0	.0	0	8.1	ESE	42	NW	12	16	6	9	4.4	68
Pueblo	4639	856.8	1014.9	64	35	49.4	-3.4	87	25	27	31+	0	6	34	62	1.32	.62	.38	6	1	6.7	2	7.1	W	43	N	12	14	7	10	4.8	72
CONNECTICUT																																
Bridgeport	7	1016.0	-----	65	49	57.0	2.6	85	6	32	29	0	1	--	--	5.09	2.26	1.61	13	3	.0	0	----	---	--	---	--	12	4	15	5.7	--
Hartford	169	1010.4	1016.7	62	44	52.7	-0.2	86	6	24	22	0	8	45	79	8.01	5.21	4.45	13	2	.0	0	6.5	N	29	W	18	7	11	13	6.4	51
New Haven	6	1016.2	1016.6	64	47	55.5	-2.2	82	6	27	29	0	3	--	--	7.42	4.42	3.32	11	3	.0	0	----	---	27	SE	24	12	5	14	5.5	57
DELAWARE																																
Wilmington	78	1012.8	1016.2	68	51	59.5	3.3	89	5	30	29	0	1	51	76	4.11	1.12	1.02	13	2	.0	0	8.3	SW	*25	S	1	10	6	15	5.7	--
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	70	53	61.5	3.1	91	5	36	29	2	0	--	--	2.42	-.55	1.18	12	--	----	--	----	---	--	---	--	--	--	--	---	--
Wash. Nat'l. AP	14	1011.7	1016.3	70	55	62.2	4.0	90	5	37	29	1	0	52	73	2.43	-.42	1.10	13	2	.0	0	10.1	SSW	27	WNW	27	10	5	16	5.9	52
FLORIDA																																
Apalachicola (U)	13	1011.4	------	80	69	74.9	3.9	89	1	54	25	0	0	--	--	12.09	9.54	5.36	14	2	.0	0	7.6	---	31	E	29	7	8	16	6.6	64
Daytona Beach	31	1013.3	1015.1	86	70	77.9	4.5	95	2	49	26	3	0	69	83	7.2	1.23	3.05	17	14	.0	0	8.2	SW	*27	W	24	5	10	16	6.7	--
Fort Myers	15	1013.1	------	88	72	80.1	3.8	93	11+	61	26	15	0	--	--	12.04	7.89	7.57	13	16	.0	0	7.4	---	*40	SSW	18	3	14	14	6.8	--
Jacksonville	24	1013.5	1014.9	83	68	75.7	4.8	94	1	48	26	5	0	68	82	3.12	-1.59	1.18	14	3	.0	0	8.1	NE	33	SW	24	6	9	16	6.9	35
Key West	4	1012.3	------	87	78	82.5	3.0	90	3+	73	27+	2	0	--	--	2.45	-4.33	1.02	11	3	.0	0	11.4	---	33	SW	18+	2	10	19	7.2	69
Lakeland (U)	214	------	------	87	71	78.7	4.4	94	3	59	26	10	0	--	--	6.63	4.10	1.71	14	10	.0	0	5.9	---	--	---	--	6	13	12	6.3	55
Miami	7	1012.6	1013.9	86	75	80.4	2.5	90	2	63	26	1	0	73	83	7.62	-.61	2.45	18	12	.0	0	5.8	ESE	*29	SSW	17+	2	15	14	6.8	--
Miami Beach	9	------	------	86	77	81.0	2.3	90	23	65	26	1	0	--	--	4.47	-2.60	1.47	14	--	.0	0	----	---	¢36	SW	18	6	20	5	---	¢46
Orlando	106	1010.1	1014.5	87	70	78.5	3.8	94	3	54	26	12	0	70	81	5.97	2.06	2.07	13	8	.0	0	6.8	S	*28	WNW	24	6	14	11	6.1	--
Pensacola (U)	13	------	------	78	66	72.1	1.8	88	2	50	25	0	0	--	--	14.61	10.73	4.21	15	5	.0	0	†9.6	---	30	SE	8	-	--	--	---	36
Tallahassee	64	1011.5	1014.2	80	66	72.9	4.1	94	2	44	26	7	0	65	84	12.27	9.89	3.60	13	7	.0	0	5.9	NE	--	---	--	5	8	18	7.3	--
Tampa	19	1012.6	1014.3	88	72	79.6	5.0	94	3	58	26	15	0	71	81	6.26	3.12	1.55	13	8	.0	0	7.6	E	*23	S	6	5	13	13	6.4	51
West Palm Beach	15	1013.1	1014.2	88	74	80.7	3.1	95	2	60	26	9	0	72	81	15.29	6.97	6.37	14	5	.0	0	8.4	ESE	*41	WSW	18	3	14	14	7.1	--
GEORGIA																																
Athens	798	986.9	1016.1	72	56	63.7	-.2	89	5	38	26	0	0	58	84	5.58	2.64	1.49	16	0	.0	0	8.1	NE	*23	WNW	25+	6	6	19	7.2	--
Atlanta	975	974.2	1015.7	72	58	64.8	1.4	88	1	42	26	0	0	58	82	7.14	4.54	2.47	17	3	.0	0	10.3	NE	*35	WNW	24	7	6	18	7.0	40
Augusta	143	1008.7	1015.5	75	59	66.8	2.1	88	10	39	26	0	0	60	84	6.90	4.37	2.01	16	4	.0	0	5.8	ENE	*23	WNW	25	7	4	20	7.4	--
Columbus	385	1001.1	------	75	59	67.3	1.5	92	3	40	26	6	0	--	--	6.59	4.55	1.94	18	3	.0	0	8.6	---	*25	NE	21+	5	6	20	7.6	--
Macon	356	1001.7	1015.4	76	60	67.8	1.2	93	1	41	26	5	0	60	82	9.39	7.12	2.26	17	3	.0	0	8.2	NE	26	SW	24+	7	5	19	7.1	42
Rome	637	992.5	------	74	54	63.9	1.7	90	5	33	26	1	0	55	77	5.26	2.40	1.66	17	7	.0	0	3.9	---	—	---	--	6	7	18	7.2	--
Savannah	48	1012.5	1015.1	78	62	70.3	3.3	90	1	43	26	1	0	64	84	8.54	6.09	3.57	14	2	.0	0	8.0	NNE	27	W	25+	6	8	17	6.8	40
Thomasville	283	------	------	79	64	71.7	2.4	95	3+	48	26+	8	0	--	--	9.21	6.94	3.72	17	5	.0	0	----	---	--	---	--	--	--	--	---	--
HAWAII																																
Hilo	31	1012.9	1014.2	83	67	74.9	.4	86	6	62	3	0	0	67	78	9.26	-1.76	5.97	23	1	.0	0	8.2	SW	*23	WSW	31	3	19	9	6.2	51
Honolulu	7	1014.6	1015.1	86	72	78.8	.6	90	7	68	31+	1	0	67	69	.64	-1.25	.42	6	0	.0	0	10.6	NE	26	NE	26+	10	18	3	4.7	74
Lihue	115	1009.5	1014.6	85	71	77.9	1.4	87	30+	67	30+	0	0	68	74	2.19	-2.44	1.54	17	0	.0	0	9.6	NE	22	NE	12	9	17	5	5.0	77

See footnotes at end of table.

CLIMATOLOGICAL DATA

OCTOBER 1959

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	Min. 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb.	°F	°F	°F	°F	°F		°F.				°F	%	In.	In.	In			In.	In.	M p. h.		M p. h.			0–3	4–7	8–10	0–10	%
IDAHO																																
Boise	2842	920.8	1018.3	62	37	49.6	-3.0	73	4	23	30	0	7	38	68	0.76	-0.18	0.45	6	0	0.0	0	7.6	SE	27	W	6	15	7	9	4.7	76
Idaho Falls 46W (R)	4933	849.0	1017.6	61	28	44.3	.4	73	5	14	31	0	25	--	--	.05	-.63	.04	2	0	T	T	7.9	SW	@32	WSW	9	--	--	--	---	--
Idaho Falls 42NW (R)	4790	------	------	61	27	43.8	-.5	72	5	15	21	0	27	--	--	.12	-.35	.05	4	--	---	--	7.6	N	@34	NNW	15	--	--	--	---	--
Lewiston	1413	966.1	1018.1	61	40	50.6	-1.3	73	17	30	31+	0	4	--	--	.94	-.27	.31	11	0	.0	0	---	---	--	---	--	6	12	13	6.5	--
Pocatello	444	963.5	1017.3	62	35	48.5	-.8	75	24+	22	31	0	9	33	56	.20	-.84	.18	4	1	T	T	13.1	SW	42	W	9	9	9	13	5.5	69
ILLINOIS																																
Cairo (U)	314	1002.0	------	70	52	60.8	-1.2	88	3	36	28	0	0	--	--	3.19	.22	1.46	7	4	.0	0	7.1	S	28	SW	23	12	10	9	5.0	61
Chicago (O'Hare)	656	989.5	1014.7	57	43	50.1	----	76	2	25	28	0	2	42	77	4.04	----	1.51	15	3	.3	T	11.6	NNW	*40	SW	23	7	3	21	7.5	--
Chicago (Midway)	610	991.5	1014.6	59	44	51.9	-2.2	78	2	29	28	0	1	43	73	2.86	.30	.72	13	2	T	T	11.6	NW	36	W	11	8	3	20	7.1	50
Moline	589	992.2	1014.9	58	42	49.9	-4.0	72	22	29	28	0	3	42	76	5.59	3.32	1.97	10	3	T	0	8.6	E	35	NW	23	7	6	18	6.9	40
Peoria	654	992.6	1015.3	60	43	51.3	-3.4	73	5	29	28+	0	3	44	76	3.56	1.12	1.46	12	2	.0	0	10.6	S	35	W	24	12	1	18	6.3	44
Rockford	728	987.1	1014.7	56	41	48.7	-3.1	69	22+	27	28	0	3	42	79	5.56	2.95	2.38	14	2	1.1	1	9.2	ENE	*32	W	11	7	4	20	7.5	--
Springfield	589	991.5	1015.0	63	45	54.1	-1.8	79	2	31	18	0	1	46	75	5.41	2.20	2.12	10	4	.0	0	10.7	SSW	36	W	24	10	2	19	6.5	43
INDIANA																																
Evansville	383	1000.0	1015.9	69	46	57.5	-1.8	89	4+	29	28	0	1	49	77	2.80	-.02	1.06	11	3	.0	0	7.2	SW	29	NW	10	11	10	10	5.0	65
Fort Wayne	801	983.7	1015.2	62	42	52.0	-1.2	83	3	29	29	0	4	44	78	3.48	.86	1.39	13	2	T	0	11.9	S	39	W	8	11	6	14	6.0	49
Indianapolis	793	985.1	1015.3	64	43	53.8	-2.1	85	4	29	18	0	3	45	74	5.66	3.14	3.90	12	3	.0	0	9.1	S	33	W	24	10	8	13	5.5	54
South Bend	768	986.1	1014.4	60	42	51.1	-1.8	79	3	30	29	0	3	44	80	5.44	2.45	1.74	12	4	.0	0	10.3	SSW	*29	SW	23+	5	7	19	7.2	--
IOWA																																
Burlington	694	989.2	1015.2	60	42	51.1	-3.9	72	22	30	28+	0	5	43	76	5.06	2.11	2.00	11	1	.0	0	10.9	NW	47	NW	24	7	6	18	6.5	52
Des Moines	948	983.7	1015.7	59	40	49.6	-4.9	73	15	29	12	0	4	40	74	2.64	.44	.88	13	2	T	0	11.1	S	48	NW	24	7	5	19	6.7	56
Dubuque	1065	989.5	1015.4	54	39	46.5	-4.4	66	22	27	12	0	6	39	75	6.72	4.52	2.58	12	2	T	T	----	---	--	---	--	5	7	19	7.6	--
Sioux City	1094	973.6	1015.5	59	37	48.2	-4.4	78	19	26	17	0	6	37	69	2.62	1.18	.70	12	3	.3	T	12.0	NNW	46	NW	23	10	7	14	6.3	58
Waterloo	870	------	------	57	39	47.6	-4.3	73	19	27	12	0	7	--	77	2.47	.31	.90	11	0	T	0	10.8	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	965.1	------	63	42	52.5	-5.2	82	15	26	27	0	1	--	70	6.37	4.65	1.94	10	4	.0	0	7.7	NW	41	NW	23	13	9	9	4.4	71
Dodge City	2594	926.9	1015.2	65	41	53.1	-4.7	86	25	26	27	0	2	39	66	3.30	1.73	1.33	8	1	.0	0	14.8	SSE	54	N	25	17	7	7	4.1	70
Goodland	3645	887.9	1015.5	62	34	48.2	-3.9	88	25	21	27	0	11	33	62	1.83	.79	1.00	8	2	3.9	2	11.5	NNW	*52	NW	25	13	9	9	4.5	--
Topeka	877	979.7	1015.8	64	42	52.6	-5.3	76	15	29	18	0	2	43	72	4.04	1.48	1.45	10	3	T	0	11.2	S	48	NW	26	13	8	10	5.3	56
Wichita	1321	965.8	1014.8	65	45	55.2	-5.0	80	25	29	27	0	1	44	70	6.13	3.95	2.37	10	5	.0	0	13.1	SSE	42	NW	23	15	6	10	4.3	64
KENTUCKY																																
Lexington	979	980.3	1016.3	68	49	58.6	.7	91	4	32	28	1	1	49	75	3.91	1.47	1.66	9	2	.0	0	10.4	S	--	---	--	13	7	11	5.1	--
Louisville	474	996.1	1015.5	70	48	59.1	.5	92	5+	31	28	3	1	49	74	3.26	.81	.77	11	2	.0	0	8.1	SE	29	W	24	14	6	11	5.0	53
LOUISIANA																																
Baton Rouge	64	1011.2	1014.1	80	63	71.6	2.0	92	3	49	25	4	0	65	84	3.89	.91	1.16	11	4	.0	0	8.1	NE	--	---	--	5	8	18	7.3	--
Lake Charles	12	1012.2	1013.7	80	62	71.1	.8	90	4	50	28	1	0	63	79	4.62	1.18	1.33	9	4	.0	0	8.8	N	*27	NNW	24	7	9	15	6.3	--
New Orleans (U)	9	------	------	80	67	73.4	.6	92	2	53	28+	4	0	--	82	9.27	5.61	1.86	19	5	.0	0	6.6	---	20	NE	27	3	14	14	6.8	39
New Orleans	3	1007.5	1013.7	80	67	73.1	1.7	91	5	51	25	5	0	66	83	6.45	3.27	1.29	18	4	.0	0	10.3	NE	*29	WNW	24	5	10	16	6.8	--
Shreveport	252	1005.4	1014.6	78	56	67.3	-1.2	91	2	44	28+	3	0	56	73	3.90	.80	1.55	7	3	.0	0	10.4	NNE	--	---	--	13	8	10	5.0	68
MAINE																																
Caribou	624	992.1	1015.3	50	35	42.3	.2	69	5	17	22	0	15	37	83	4.99	1.52	1.75	13	1	9.9	4	11.7	W	*35	WNW	19	2	5	24	8.2	--
Portland	61	1012.3	------	58	38	48.0	-.4	79	4	20	30+	0	11	--	--	5.28	2.30	1.19	11	2	.1	T	----	---	45	SE	24	6	10	15	6.6	49
MARYLAND																																
Baltimore (U)	14	------	------	70	55	62.6	3.3	92	5+	39	29	3	0	--	--	3.83	.46	.93	13	--	---	--	----	---	--	---	--	--	--	--	---	--
Baltimore	146	1011.5	1016.4	68	51	59.4	2.9	90	5	31	29	1	1	50	74	4.16	.79	1.43	13	3	.0	0	11.7	SW	33	SE	24+	9	7	15	5.8	58
Frederick	294	------	------	68	48	57.9	1.1	91	5	28	29	0	3	--	--	3.32	.03	1.03	14	--	.0	0	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs.	629	991.8	1015.3	60	43	51.5	----	83	4	26	29	0	7	--	--	4.77	1.32	1.04	17	0	.0	0	----	---	52	SE	24	--	--	--	---	50
Boston	15	1011.4	1016.1	62	48	55.1	.1	85	4	33	22	0	0	46	76	4.60	1.81	1.20	17	1	.0	0	10.9	NW	40	NNW	18	9	8	14	6.1	55
Nantucket	43	1015.6	1016.2	61	48	54.9	1.9	74	5	32	30	0	1	48	79	4.18	.59	1.00	13	2	.0	0	13.1	WSW	38	W	18	9	7	15	6.3	49
Pittsfield	1153	------	------	59	40	49.3	1.8	78	4	21	22	0	11	--	--	6.11	3.18	1.94	15	2	.0	0	----	---	--	---	--	--	--	--	---	--
Worcester	986	979.0	------	59	42	50.4	-.2	79	6	25	29	0	8	--	--	8.25	5.08	3.77	15	2	.0	0	7.8	---	*29	SE	24	7	10	14	6.4	--
MICHIGAN																																
Alpena	689	989.5	1015.1	52	38	45.0	-3.0	72	3	22	22	0	8	38	77	3.78	1.39	1.02	20	3	.2	T	7.5	W	26	SW	16+	0	4	27	9.2	11
Detroit (City AP)	619	988.2	1015.0	59	45	51.9	-1.0	84	3	30	19	0	2	43	73	4.61	2.32	2.24	14	0	T	0	9.7	N	36	W	11	4	7	20	7.5	33
Detroit M (Wayne Co.)	630	990.5	1014.8	59	43	51.1	----	82	3	27	19	0	4	44	77	4.14	----	2.11	12	2	T	0	10.1	SW	--	---	--	4	6	21	7.7	--
Detroit (Willow Run)	722	986.1	1014.7	60	43	51.4	-1.1	83	3	30	19	0	5	43	77	4.29	2.12	2.08	12	3	T	0	11.0	SW	*35	W	11+	5	6	20	7.5	--
Escanaba (U)	594	991.2	------	50	39	44.7	-2.4	67	7	28	28	0	2	--	78	3.82	1.78	1.96	12	2	T	T	11.1	---	38	N	25	2	5	24	8.5	18
Flint	761	986.8	1014.9	57	41	49.0	-1.4	80	3	25	19	0	7	42	80	3.49	1.01	1.46	13	1	T	0	9.1	WSW	*32	W	11	2	9	20	8.1	--
Grand Rapids	681	989.2	1014.6	56	41	48.9	-1.4	72	2	28	19	0	6	42	78	5.58	3.07	1.49	17	2	T	T	9.3	ESE	33	W	11	3	3	25	8.5	19
Lansing	852	982.4	1014.6	57	40	48.7	-1.8	79	3	24	19	0	9	41	78	4.99	2.54	1.82	13	1	T	T	11.8	S	42	W	11	3	4	24	8.1	32
Marquette (U)	677	986.8	------	49	38	43.2	-4.3	71	4	27	28	0	9	--	75	7.13	4.87	4.06	17	0	5.0	2	8.6	N	34	NW	24	0	5	26	9.1	29
Muskegon	627	991.2	1014.5	56	42	48.7	-1.6	71	8	27	19	0	4	42	76	5.15	2.63	2.34	14	3	T	0	----	---	--	---	--	3	3	25	8.5	--
Sault Ste. Marie	721	991.9	1015.0	49	36	42.6	-1.8	69	7	24	21	0	8	37	81	5.74	2.76	2.06	18	0	3.0	T	10.7	ESE	*27	WNW	12	0	3	28	9.0	20
MINNESOTA																																
Duluth	1409	972.6	1014.7	46	33	39.3	-4.7	70	4	22	25	0	18	34	83	2.62	.40	.81	16	0	3.3	1	13.6	E	49	NW	24	4	4	23	8.1	30
Intern'l Falls	1179	972.2	1014.2	46	31	38.6	-3.3	68	4	18	27	0	20	33	80	2.09	.28	.94	14	0	.5	T	8.8	SE	*29	NW	16	2	5	24	8.5	--
Minneapolis	830	980.7	1014.9	52	37	44.4	-6.0	70	5	26	17	0	7	37	76	2.43	.78	.65	15	0	3.7	1	10.9	ESE	33	NW	24+	6	5	20	7.4	37
Rochester	1017	977.3	1015.2	52	36	44.0	-5.1	68	19	26	17	0	10	38	81	2.15	.46	.90	13	1	1.3	T	10.6	SE	--	---	--	5	4	22	7.8	--
St. Cloud	1034	975.6	1014.8	49	33	41.2	-5.4	70	4	23	25+	0	17	34	79	1.85	.21	.36	16	0	4.1	2	----	---	--	---	--	7	4	20	7.3	--
MISSISSIPPI																																
Jackson	305	1002.5	1014.5	78	59	68.3	1.9	92	4	39	19	3	0	60	80	4.18	2.00	2.25	14	2	.0	0	5.7	NE	22	NW	24	6	10	15	6.5	41
Meridian	292	1000.8	1014.6	77	58	67.4	2.7	91	3+	40	19	4	0	61	84	6.86	4.48	2.81	15	3	.0	0	6.7	NE	*23	W	24	7	7	17	6.8	--
Vicksburg (U)	234	1005.5	------	76	60	67.7	.0	90	4+	43	19	2	0	--	--	2.93	.71	1.75	9	6	.0	0	7.2	---	35	SW	5	7	12	12	6.0	44
MISSOURI																																
Columbia	778	986.8	1015.7	64	45	54.5	-3.6	75	16	32	18	0	1	45	75	4.19	.98	1.75	10	3	.0	0	10.8	WNW	49	NW	23	11	5	15	5.7	46
Kansas City	741	979.7	1015.0	64	47	55.6	-4.0	76	15	35	28	0	0	43	65	6.27	3.34	2.47	11	4	.0	0	8.9	S	42	NW	23	12	7	12	5.5	52
St. Joseph	809	979.7	------	63	42	52.4	-5.7	76	15	32	18	0	1	--	--	5.18	2.65	1.94	7	4	.0	0	10.6	NNW	*35	WNW	26+	12	8	11	5.5	--
St. Louis (RFC)	465	------	------	67	50	58.4	-2.2	82	4	37	28	0	0	--	--	2.85	-.05	.83	8	--	.0	0	----	---	--	---	--	--	--	--	---	--
St. Louis	552	994.6	1015.4	66	48	57.1	-2.3	81	2	35	18	0	0	47	72	3.81	.73	1.55	10	3	.0	0	8.8	S	30	W	24	11	7	13	5.7	44
Springfield	1265	967.8	1015.5	66	45	55.5	-2.9	79	2	30	28	0	2	46	74	5.49	2.09	2.16	9	5	.0	0	13.4	SSE	39	NW	2	14	3	14	5.2	57
MONTANA																																
Billings	3567	890.6	1015.6	58	37	47.2	-2.0	77	18+	22	11	0	10	33	64	.69	-.45	.25	9	0	1.8	1	12.0	SW	49	NW	9	6	8	17	6.7	55
Butte	5530	830.0	1019.0	53	26	39.6	-1.4	71	24	9	31	0	26	28	--	.81	.02	.60	7	1	3.5	4	7.6	WNW	*30	WNW	9	7	9	15	6.6	--
Glasgow	2277	940.4	1015.6	50	30	40.1	-5.4	71	18+	14	11	0	18	32	75	1.02	.22	.49	5	0	5.4	2	----	---	--	---	--	6	10	15	7.0	--
Great Falls	3664	887.9	1015.8	55	35	44.8	-3.3	72	24+	18	8	0	11	30	61	1.20	.48	.53	10	0	8.9	3	11.4	SW	43	W	24	6	6	19	7.1	47
Havre (U)	2488	926.2	1016.3	53	33	42.9	-3.9	75	3	15	11	0	14	--	--	2.24	1.56	.78	9	0	10.3	9	9.5	⊛ W	26	NW	25+	7	8	16	7.0	49
Helena	3893	873.7	1017.6	55	32	43.7	-1.4	72	24	21	1	0	18	31	64	.95	.27	.32	10	0	3.4	1	8.2	WNW	43	W	25	6	12	13	6.4	63
Kalispell	2965	------	------	53	32	42.4	-2.0	68	4	23	30+	0	21	--	--	1.97	.61	.58	14	0	.4	T	----	---	--	---	--	6	5	20	7.5	--
Miles City	2629	931.6	1016.8	54	32	43.4	-4.9	76	5	18	11	0	15	32	--	.53	-.41	.42	6	0	T	T	10.6	NW	*40	WNW	25	6	6	19	7.1	--

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In	In	In			In	In	M p. h.		M p. h.			0-3	4-7	8-10	0-10	%
MONTANA (Cont'd.)																																
Missoula	3200	902.8	1019.0	56	34	44.8	-0.1	69	14+	25	30+	0	13	36	74	1.71	0.64	0.62	12	0	0.2	T	5.7	NW	33	NW	9	2	11	18	7.6	37
NEBRASKA																																
Grand Island	1841	948.5	1015.3	61	36	48.7	-5.3	79	15	16	27	0	7	37	66	1.48	.17	.61	5	1	.0	0	12.4	NW	--	---	-	13	5	13	5.5	--
Lincoln (U)	1166	------	------	61	41	51.4	-5.0	77	15	29	27	0	2	--	--	2.42	.76	.85	9	4	.0	0	11.0	NW	50	NW	23	9	8	14	5.7	60
Norfolk	1544	959.0	1015.4	59	36	47.4	-4.7	79	15	19	27	0	8	35	64	2.03	.67	.69	7	1	T	0	----	---	--	---	--	10	8	13	5.7	--
North Platte	2779	915.3	1015.3	62	30	45.7	-6.0	87	25	13	27	0	22	33	64	2.12	1.08	1.06	6	1	7.3	5	10.8	NNW	65	NW	26+	11	11	9	5.0	65
Omaha	978	974.9	1015.4	61	41	50.8	-4.7	76	15	31	17	0	1	39	69	2.15	.42	.85	9	2	.0	0	11.9	SSE	43	NW	24+	7	11	13	6.1	49
Omaha N.Omaha AP	1323	966.8	------	59	39	49.0	-4.7	76	15	27	17	0	5	--	--	2.08	.35	.65	10	2	.0	0	----	-	--	---	-	8	9	14	6.3	--
Scottsbluff	3950	878.8	1016.1	61	31	45.9	-4.6	80	25	12	31	0	18	31	63	1.14	.13	.35	8	0	8.6	1	10.8	NW	*44	WNW	23+	12	6	13	5.1	-
Valentine	2587	923.5	------	58	29	43.7	-5.8	82	18	13	31	0	19	--	65	.78	-.39	.33	6	0	3.9	4	10.9	N	49	N	23	9	11	11	5.6	67
NEVADA																																
Elko	5075	845.9	1017.5	66	30	48.0	.6	80	24	18	31	0	23	25	43	.02	-.79	.02	1	0	T	0	5.3	WSW	*25	NNE	29	20	4	7	3.2	--
Ely	6257	809.7	1016.0	65	28	46.1	-.8	80	24	17	29+	0	23	21	41	.15	-.67	.15	2	1	1.2	1	12.8	S	56	NE	30	18	6	7	3.5	88
Las Vegas	2162	945.8	1010.8	84	53	68.2	.8	94	23	41	29	8	0	26	25	.51	.19	.46	3	0	.0	0	8.4	WSW	*41	NNW	29	18	9	4	3.2	88
Reno	4397	863.5	1017.8	72	32	51.8	1.1	89	24	20	31	0	16	29	46	T	-.55	T	0	0	.0	0	3.9	N	35	SW	18+	19	6	6	3.1	91
Winnemucca	4299	869.6	1017.6	70	30	49.6	1.0	85	24	13	31	0	20	27	43	.02	-.77	.02	2	0	T	T	6.8	W	28	W	9	21	4	6	2.9	73
NEW HAMPSHIRE																																
Concord	339	1005.1	1016.3	59	39	49.2	1.2	81	4	18	22	0	11	41	78	6.79	3.89	1.77	13	2	.0	0	6.7	NNW	30	SE	24	4	11	16	7.1	44
Mt. Washington	6262	809.0	------	36	24	30.0	-1.7	55	1	1	19	0	18	--	--	13.49	7.59	7.03	19	0	4.9	4	34.7	---	‡123	SE	24	6	5	20	7.4	30
NEW JERSEY																																
Atlantic City (U)	10	------	------	66	55	60.5	2.5	82	4	34	29	0	0	--	--	5.47	2.26	2.18	13	--	---	--	11.5	---	28	W	24	--	--	--	---	54
Atlantic City	58	1013.4	1016.3	67	52	59.5	2.9	90	5	30	29	1	1	52	78	4.37	1.32	1.43	13	1	.0	0	12.1	S	--	---	--	11	5	15	5.7	--
Newark	11	1015.0	1016.3	68	52	59.9	4.3	91	6	35	29	1	0	50	71	4.22	1.02	1.38	13	3	.0	0	9.5	SW	*22	ESE	24+	12	5	14	5.5	--
Trenton (U)	56	1008.5	------	67	52	59.6	3.5	88	6+	33	29	0	0	--	--	2.59	-.06	.66	12	1	.0	0	8.8	---	27	W	18	13	7	11	5.0	61
NEW MEXICO																																
Albuquerque	5310	847.3	1012.0	69	44	56.8	-1.4	81	25	36	30	0	0	32	44	1.70	1.06	.74	5	0	T	0	8.5	E	66	N	31	18	6	7	3.5	74
Clayton	4969	844.9	1013.5	66	37	51.7	-3.4	89	25	27	27	0	5	--	--	1.19	-.11	.45	8	2	.4	T	----	--	--	---	--	14	10	7	4.0	--
Raton	6379	804.6	1013.9	64	31	47.4	-3.7	85	25	25	30+	0	22	--	--	1.96	.86	.71	7	0	6.6	2	----	---	--	---	--	14	5	12	4.5	--
Roswell	3612	892.3	1012.9	76	42	59.0	-1.9	94	25	32	28	2	1	38	48	.52	-.46	.31	6	2	.0	0	10.3	---	34	NE	16	19	4	8	3.4	--
NEW YORK																																
Albany	277	1012.2	1016.2	60	43	51.4	.7	80	9	20	22	0	8	44	78	5.60	3.39	1.10	15	1	.0	0	8.5	SSE	29	N	20	4	8	19	7.4	42
Binghamton	1590	956.0	1015.5	59	43	51.1	2.8	79	5	27	29+	0	6	43	77	7.62	4.58	1.87	20	4	T	T	8.8	WSW	38	W	18	2	7	22	7.9	35
Buffalo	693	987.0	1015.5	60	45	52.6	1.4	82	3	32	21	0	1	44	76	4.93	2.44	1.42	14	1	T	0	9.8	SW	39	SW	11	3	8	20	7.9	35
New York (U)	10	1014.4	------	65	53	58.8	1.8	85	6	36	19	0	0	--	--	4.88	1.84	1.89	12	2	.0	0	13.3	---	46	NW	18	14	4	13	5.1	56
New York	19	1015.4	1016.0	66	53	59.5	----	83	6+	35	29	0	0	49	72	2.89	----	.93	14	2	.0	0	13.3	SW	--	---	--	13	5	13	5.4	--
Rochester	543	995.9	1015.4	59	44	51.9	1.1	83	3	30	29	0	4	45	79	4.07	1.57	.79	13	0	T	0	10.7	WSW	37	W	11	2	8	21	8.3	38
Schenectady	217	------	------	60	45	52.6	2.3	80	9	26	22	0	8	--	--	5.56	2.90	1.01	12	0	.0	0	----	---	--	---	--	11	11	9	5.3	--
Syracuse	424	993.4	1015.7	61	44	52.3	-.1	81	9	26	21	0	6	44	75	7.15	4.11	2.39	15	0	T	T	9.8	WNW	38	NW	18	1	7	23	8.5	30
NORTH CAROLINA																																
Asheville (U)	2203	937.2	------	69	51	59.9	2.9	85	5+	36	28+	0	0	--	--	5.09	2.55	1.17	16	0	.0	0	7.2	---	23	W	24	8	10	13	6.3	53
Cape Hatteras	9	1015.1	1015.9	75	62	68.3	2.0	86	8	49	20	0	0	62	80	4.66	.61	2.47	15	1	.0	0	12.1	N	54	SSW	14	8	7	16	6.5	--
Charlotte	725	988.2	1016.4	72	54	63.1	1.6	88	4	34	26	0	0	56	81	6.13	3.14	2.29	15	0	.0	0	9.6	NNE	27	NW	12	6	7	18	6.9	48
Greensboro	891	985.1	1017.2	70	51	60.2	1.2	87	4	34	28+	0	0	54	83	9.60	7.00	5.97	15	4	.0	0	8.3	NE	23	NE	22	8	7	16	6.6	55
Raleigh	433	1002.9	1016.7	71	52	61.7	.6	86	4	35	26	0	0	56	84	6.53	3.71	2.01	14	2	.0	0	7.8	S	*18	SW	24	7	5	19	6.8	52
Wilmington	30	1014.6	1015.9	75	59	67.1	1.8	88	10+	41	26	0	0	61	86	5.11	2.33	1.44	17	3	.0	0	11.5	N	27	SW	24	5	12	14	6.7	47
Winston-Salem	967	981.5	1016.9	70	52	61.3	1.5	88	5+	35	28	0	0	52	78	7.27	4.14	2.67	15	5	.0	0	8.6	NNE	*29	NE	22	8	6	17	6.5	--
NORTH DAKOTA																																
Bismarck	1650	954.3	1015.8	51	30	40.6	-5.1	77	4	22	12+	0	21	31	71	1.44	.44	.57	8	0	3.4	2	14.3	WNW	61	W	10	7	7	17	6.6	48
Devils Lake (U)	1471	960.4	------	44	29	36.5	-7.4	71	4	20	13+	0	22	--	82	2.50	1.24	1.42	8	0	11.4	7	9.2	SE	35	NW	10	8	5	18	7.0	44
Fargo	895	979.7	1014.9	49	33	40.7	-5.4	75	4	24	17	0	19	34	78	1.61	.35	.78	9	0	.7	T	16.5	N	49	NW	23	6	5	20	7.3	38
Williston (U)	1877	947.2	1016.1	48	30	39.3	-6.2	71	3	15	9	0	18	32	74	1.38	.61	1.00	10	0	10.0	5	7.9	NW	34	NW	15+	6	6	19	7.2	38
OHIO																																
Akron	1210	977.5	1015.9	62	43	52.4	-.6	82	5	27	28	0	4	45	81	4.79	2.40	1.14	15	4	.0	0	9.7	S	--	---	--	11	4	16	6.2	--
Cincinnati Obs.	761	------	------	68	47	57.5	.1	91	5+	32	29+	3	2	--	--	2.62	.43	.93	12	1	.0	0	5.2	---	21	SW	11	--	--	--	---	62
Cincinnati	869	984.4	1015.9	67	47	56.8	.8	88	5+	29	18	0	2	47	72	3.05	.88	1.03	12	0	T	0	8.8	SSW	29	WNW	11	13	3	15	5.3	--
Cleveland	787	987.0	1015.1	62	46	54.3	-.1	85	3	31	19	0	1	46	76	3.57	1.15	1.32	13	2	T	0	9.3	S	32	W	11	8	6	17	6.6	37
Columbus (U)	724	------	------	65	48	56.0	-.1	87	5+	34	28	0	0	--	--	2.89	.89	.82	11	2	.0	0	----	---	--	---	--	--	--	--	---	--
Columbus	815	986.1	1016.3	65	45	55.1	.6	89	4	29	29+	0	4	46	77	3.33	1.15	.92	10	2	.0	0	6.3	SSW	33	W	5	10	7	14	5.6	53
Dayton	1002	979.0	1015.6	64	45	54.5	-.6	86	4+	31	28+	0	2	46	76	2.57	.27	.56	15	3	.0	0	9.4	SSW	47	W	11	12	5	14	5.4	57
Sandusky (U)	603	992.9	------	62	46	53.9	-1.1	87	3	32	29	0	1	--	--	3.68	1.58	1.77	15	2	.0	0	7.6	---	42	SW	11	9	8	14	6.3	47
Toledo	676	989.5	1016.0	60	40	49.6	-3.1	82	3	24	28	0	6	43	81	3.72	1.40	1.59	13	2	.0	0	7.8	WSW	33	W	11	8	4	19	6.9	43
Youngstown	1178	972.7	1015.6	61	43	51.2	-2.1	82	5+	27	29	0	4	45	81	3.66	.89	.91	13	4	.0	0	10.6	SSW	44	SW	5	9	6	16	6.5	--
OKLAHOMA																																
Oklahoma City	1280	971.6	1015.2	69	47	58.3	-4.9	83	25	34	28+	0	0	48	75	6.08	3.42	2.37	6	3	.0	0	13.7	SSE	36	NW	24	17	5	9	3.9	66
Tulsa	672	990.2	1015.0	71	49	59.7	-3.7	78	22	36	18	0	0	49	70	9.08	5.99	5.46	9	5	.0	0	9.0	SSE	38	N	13	17	4	10	4.3	62
OREGON																																
Astoria	8	1017.3	1018.0	62	46	53.6	-.5	76	17	34	30	0	0	50	86	6.48	-.67	1.67	15	2	.0	0	7.8	SE	*32	S	22+	7	4	20	7.1	--
Burns (U)	4140	874.7	1018.0	63	34	48.4	1.2	79	24	23	31	0	17	33	60	1.02	.22	.59	4	0	T	T	----	---	--	---	--	18	4	9	4.0	--
Eugene	361	1004.7	1018.5	65	44	54.5	1.8	77	3	28	30	0	2	--	--	2.23	-1.34	.73	9	0	.0	0	7.1	---	*25	N	25	8	8	15	6.5	--
Meacham	4050	------	------	54	37	45.4	-.1	70	14	26	30	0	7	--	--	3.52	.58	1.43	15	1	3.1	1	----	---	--	---	--	8	6	17	6.6	--
Medford	1312	970.5	1018.5	71	41	56.0	1.5	86	3	24	30	0	3	43	70	.61	-1.30	.30	5	0	.0	0	3.7	NW	*16	NW	18	14	8	9	4.4	--
Pendleton	1492	963.8	1017.8	65	42	53.5	-.1	78	24	29	30	0	1	41	66	.65	-.53	.28	8	1	.0	0	9.2	SE	*49	WSW	20	10	9	12	5.7	--
Portland	21	1012.2	1014.0	63	45	54.2	-.5	73	2	31	29	0	1	48	81	3.51	.34	1.93	14	0	.0	0	6.2	ESE	32	SW	22	6	8	17	6.6	37
Roseburg	505	999.3	1018.0	67	43	54.8	.5	78	17+	31	31+	0	3	--	--	2.10	-.83	.76	8	0	.0	0	3.7	---	19	NW	19	4	14	13	6.5	38
Salem	195	1011.5	1017.5	66	43	54.4	-.1	76	3+	32	29	0	1	49	84	1.53	-2.17	.40	14	0	.0	0	5.5	S	*21	S	8	8	6	17	6.5	--
Sexton Summit (R)	3836	885.5	1017.6	59	42	50.8	.5	75	17+	30	29	0	4	--	--	1.52	-2.32	.69	7	0	.0	0	12.1	N	--	---	--	16	5	10	4.3	--
PACIFIC AREA																																
Canton Island	8	1009.1	1009.5	90	78	84.2	.1	93	22	75	23	24	0	72	71	.20	-.19	.16	3	0	.0	0	13.0	E	*23	ESE	3	2	7	22	8.4	--
Guam (R)	361	------	------	86	73	79.5	.6	90	20	67	12	1	0	--	--	10.76	-2.14	1.88	27	3	.0	0	5.7 ☆	E	30	E	16	--	--	--	---	58
Johnston Island	7	1011.5	1012.1	85	77	81.1	---	88	4	71	31	0	0	73	77	1.61	----	.51	16	0	.0	0	13.9	---	36	NE	31	0	20	11	6.5	65
Koror (R)	94	1007.1	1010.9	88	76	81.5	.4	90	31+	72	9	5	0	77	86	16.64	4.10	3.23	18	7	.0	0	4.7	W	23	N	16	0	7	24	8.8	59
Majuro	10	1009.5	1009.8	86	77	81.4	---	88	24+	74	21+	0	0	75	79	11.49	----	2.32	25	5	.0	0	7.4	E	33	NW	31	0	3	28	9.4	58
Ponape (R)	120	1005.1	1010.4	88	73	80.6	-.1	90	23+	70	27+	6	0	75	86	13.28	-3.11	3.20	22	1	.0	0	2.6	E	17	S	16+	1	6	24	8.5	47
Truk, Moen Island	5	1010.2	1010.5	87	75	81.4	.7	90	23	73	27+	1	0	76	84	11.36	.33	2.07	20	0	.0	0	5.3	NNE	40	S	17	0	7	24	9.0	--
Wake Island	11	1012.9	1013.3	88	79	83.4	2.0	90	23+	73	31+	4	0	75	77	2.36	-3.68	.87	16	1	.0	0	14.3	ENE	*39	ENE	30	5	18	8	5.6	--
Yap (R)	55	1008.1	1010.1	88	76	81.6	-.3	91	13+	73	9	8	0	77	86	11.61	-1.21	2.39	24	2	.0	0	4.3	WSW	*25	SW	19	0	0	31	9.9	--
PENNSYLVANIA																																
Allentown	376	1002.1	1016.5	66	48	56.5	3.3	86	6+	26	29	0	4	49	79	3.95	.98	1.14	15	1	.0	0	9.6	WSW	*31	WNW	16	13	4	14	5.5	--
Erie	732	------	------	61	47	53.7	1.4	84	3	32	29+	0	2	--	--	6.29	3.28	1.89	16	4	.0	0	8.6	---	*23	SSE	24+	3	9	19	7.3	--
Harrisburg	335	1002.2	1016.1	67	49	58.2	3.0	90	5	29	29	1	1	47	71	4.17	1.10	1.00	13	2	.0	0	6.1	WNW	24	W	12	11	5	15	6.1	56
Philadelphia (U)	35	------	------	70	54	61.9	3.4	91	5	36	29	1	0	--	--	----	----	----	--	--	---	--	----	---	--	---	--	--	--	--	---	--
Philadelphia	7	1011.4	1016.0	68	52	60.1	3.5	89	5	31	29	0	1	50	74	3.41	.81	1.00	13	1	.0	0	8.6	WSW	*26	SW	9	10	6	15	5.7	62

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation ground	Pressure: Station	Pressure: Sea level	Temp: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Precip: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb.	°F	°F.	°F.	°F.	°F		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	.4–7	8–10	0–10	%
PENNSYLVANIA (Cont'd.)																																
Pittsburgh (U)	749	-----	------	66	49	57.3	1.4	87	6+	33	29	0	0	--	--	4.52	2.03	1.58	13	--	0.0	0	----	---	--	---	--	--	--	--	---	46
Pittsburgh	1151	985.8	1016.4	64	43	53.8	.8	87	6	27	29+	0	3	44	73	5.94	3.50	1.77	17	4	T	0	8.8	WSW	35	W	6	9	9	13	6.1	57
Reading (U)	266	1003.8	------	68	52	59.5	3.4	90	6+	32	29	2	1	--	--	2.73	-.02	.74	13	1	.0	0	10.1	---	42	NW	12	12	5	14	5.5	57
Scranton	940	981.7	1016.3	62	46	54.0	1.8	84	6+	26	29	0	5	45	76	4.25	.87	.97	16	2	T	0	8.6	SW	*25	SW	24+	6	10	15	6.8	55
Williamsport	527	997.2	1016.3	64	46	55.0	2.0	86	5	27	29	0	5	46	76	6.96	3.59	1.86	16	3	.0	0	7.0	W	*41	E	1	4	12	15	7.2	49
RHODE ISLAND																																
Block Island	110	1011.3	1015.3	62	50	56.1	1.6	75	6	36	29	0	0	--	--	5.21	2.11	1.97	12	4	.0	0	----	---	--	---	--	--	--	--	5.8	--
Providence	55	1010.1	1016.3	63	45	54.1	1.4	85	6+	27	29	0	6	46	76	4.71	1.88	1.30	14	1	.0	0	10.1	N	*35	SSE	24	11	9	11	5.5	57
SOUTH CAROLINA																																
Charleston (U)	9	------	------	77	65	71.1	2.9	90	1	50	26	1	0	--	--	11.74	9.30	3.57	16	--	.0	0	10.8	---	42	SE	22	--	--	--	---	--
Charleston	41	1013.3	1015.9	77	61	69.0	2.5	88	11+	43	26	0	0	63	82	9.12	6.39	2.71	15	2	.0	0	8.8	NNE	‡31	SW	9	4	11	16	7.0	52
Columbia	217	1002.9	1015.8	75	58	66.4	1.5	89	5	37	26	0	0	59	82	12.09	9.67	2.75	17	4	.0	0	7.1	NNE	*23	WSW	24+	8	5	18	6.7	30
Florence	146	1009.7	1015.5	75	58	66.3	2.2	89	10	40	26	0	0	60	83	6.83	4.56	1.76	13	3	.0	0	7.9	NNE	*18	SE	10	7	8	16	6.7	--
Greenville	1018	979.0	1016.3	70	55	62.5	.0	85	11+	35	26	0	0	55	81	7.32	3.86	2.05	15	4	.0	0	7.8	NE	27	W	24	5	9	17	6.9	42
Spartanburg	801	-----	------	71	55	62.6	.4	85	5+	36	26	0	0	--	--	9.55	6.15	3.69	15	4	.0	0	7.2	---	*28	SW	13	--	--	--	---	--
SOUTH DAKOTA																																
Huron	1282	967.5	1015.5	55	32	43.5	-6.5	76	15	19	27	0	16	34	72	1.90	.64	.99	9	2	1.5	T	14.1	SSE	52	N	8	9	5	17	6.6	52
Rapid City	3165	900.8	1016.3	57	32	44.5	-4.6	76	18	18	31+	0	17	29	59	.22	-.91	.09	5	0	T	T	12.4	NNW	54	NW	23	10	9	12	5.8	59
Sioux Falls	1420	963.1	1015.3	56	34	44.7	-5.3	74	15	24	17	0	12	33	68	3.29	1.83	.88	10	3	.6	T	11.5	NW	*34	NW	23	8	8	15	6.3	--
TENNESSEE																																
Bristol	1519	961.9	------	69	49	59.3	1.4	86	6	35	28+	0	0	--	--	5.65	3.26	2.14	13	1	.0	0	----	---	--	---	--	7	8	16	6.7	--
Chattanooga	670	988.0	1015.7	72	54	63.2	2.4	89	5+	34	26	0	0	56	81	5.63	2.39	2.13	14	1	.0	0	6.1	S	27	S	26	8	4	19	6.8	46
Knoxville	950	980.7	1016.2	72	53	62.4	2.1	89	5	36	26	0	0	54	79	5.00	2.37	1.21	16	1	.0	0	6.1	NE	35	W	24	7	6	18	7.0	41
Memphis (U)	271	------	------	73	56	64.3	-.7	89	3	40	28	0	0	--	--	1.74	-1.44	.93	3	--	.0	0	----	---	--	---	--	--	--	--	---	--
Memphis	263	1000.7	1015.6	75	54	64.5	.9	90	3	38	19	1	0	52	70	1.57	-1.70	1.11	5	2	.0	0	7.7	E	26	SW	26+	11	10	10	5.3	65
Nashville	577	995.6	1015.7	72	52	61.8	.0	90	4	33	28	1	0	54	80	6.13	3.61	3.84	10	4	.0	0	6.4	S	29	WNW	25	9	8	14	6.0	53
Oak Ridge	905	982.9	------	72	52	62.1	3.3	88	5	39	26	0	0	--	--	4.05	1.63	1.13	15	1	.0	0	5.3	---	‡35	---	24	8	7	16	6.4	--
TEXAS																																
Abilene	1759	952.9	1013.6	75	51	63.1	-3.1	89	10	36	18	0	0	50	67	5.79	3.22	5.10	6	2	.0	0	10.8	SE	36	N	3	19	3	9	3.4	73
Amarillo	3590	888.3	1013.8	68	42	54.8	-3.9	88	25	30	27	0	2	38	58	2.10	.17	1.17	7	4	.0	0	12.5	NNE	35	NE	26+	17	6	8	3.6	76
Austin	615	991.9	1013.7	81	59	69.5	-1.4	93	2	42	28	4	0	58	72	5.98	3.03	3.64	6	2	.0	0	8.4	N	26	N	27+	18	3	10	4.4	64
Brownsville	16	1009.5	1012.7	85	68	76.7	.7	92	8+	52	27	10	0	68	77	3.21	.30	1.44	7	2	.0	0	10.6	SSE	34	NW	27+	9	10	12	5.6	53
Corpus Christi	41	1011.9	1013.3	83	66	74.2	-.3	90	3+	50	27	3	0	65	78	7.73	5.27	4.26	6	3	.0	0	9.8	SSE	30	SE	3	9	8	14	6.3	50
Dallas	487	995.9	1014.5	76	56	65.8	-3.0	88	10	40	28	0	0	53	67	11.38	8.71	6.52	6	4	.0	0	10.2	SE	33	S	4	19	2	10	3.5	69
Del Rio (U)	957	------	------	83	60	71.2	-.3	91	6+	43	28	6	0	--	--	5.37	3.17	2.46	5	2	.0	0	----	---	--	---	--	--	--	--	---	--
El Paso	3920	884.5	1010.9	80	52	66.1	.9	89	25	43	28	0	0	37	37	.58	-.25	.34	4	1	.0	0	9.9	S	38	SW	1	23	4	4	2.4	88
Fort Worth	544	993.6	1014.3	77	56	66.1	-2.4	89	10+	37	28	0	0	54	69	9.22	6.53	5.91	6	4	.0	0	11.7	N	*43	NNW	3	19	3	9	3.4	--
Galveston (U)	7	------	------	79	68	73.2	-.4	86	3+	49	27	0	0	--	--	2.09	-1.50	1.22	10	--	.0	0	12.2	---	38	SW	13	--	--	--	---	55
Galveston	5	1011.5	1013.8	79	67	72.9	-.9	88	2+	49	27	0	0	62	74	3.93	.09	1.88	10	6	.0	0	11.3	N	--	---	--	8	[illegible]	15	6.1	--
Houston (U)	41	1008.5	------	81	64	72.3	-.3	88	8	51	28	0	0	--	--	4.89	1.50	2.55	10	6	.0	0	9.3	N	30	SE	4	10	9	12	5.6	62
Houston	50	1010.8	1013.7	81	63	72.2	.8	90	8+	49	25	2	0	62	75	5.76	2.06	2.84	9	6	.0	0	10.7	N	--	---	--	6	10	15	6.2	--
Laredo	500	997.0	1012.2	88	66	76.7	.2	100	8	44	28	13	0	60	62	.84	-.73	.37	8	3	.0	0	10.2	SE	*25	SSE	4+	8	9	14	5.8	--
Lubbock	3243	902.5	1013.9	72	44	58.4	-2.8	91	25	33	18	1	0	43	63	.98	-1.09	.47	5	2	.0	0	14.0	NE	*31	NNE	26	20	2	9	3.4	--
Midland	2854	914.7	1013.0	76	50	63.0	-3.6	90	10	38	28	1	0	47	63	2.75	.97	1.79	7	3	.0	0	8.8	NNE	*29	NNE	23+	19	5	7	3.3	--
Port Arthur	16	1011.9	1013.4	80	62	71.3	.8	90	11+	48	25	2	0	64	80	5.85	2.92	2.84	11	5	.0	0	10.9	NNE	40	W	13	5	10	16	6.5	48
San Angelo	1903	946.5	1013.3	77	52	64.6	-3.4	88	23+	36	28	0	0	52	67	5.29	3.04	5.11	5	2	.0	0	10.3	SW	*31	NE	26+	19	3	9	3.4	--
San Antonio	792	988.5	1013.3	82	59	70.4	-.9	94	2	44	28	2	0	58	70	5.11	3.01	3.79	8	4	.0	0	9.6	N	30	NE	27+	13	11	7	4.7	66
Victoria	110	1008.5	1013.1	82	63	72.5	-1.1	90	8+	49	27	4	0	63	72	6.58	3.70	3.57	7	3	.0	0	7.4	N	‡35	SSE	4	8	10	13	6.2	--
Waco	500	995.6	1014.0	78	56	67.4	-2.0	90	11+	39	28	2	0	57	71	7.36	4.95	3.63	7	3	.0	0	11.6	N	*29	NNW	24	19	4	8	3.2	--
Wichita Falls	1020	977.3	1014.1	74	50	61.9	-3.4	89	10	35	18	0	0	49	66	7.27	4.49	5.61	7	3	.0	0	10.4	N	*24	N	26	18	5	8	3.5	--
UTAH																																
Milford	5028	844.2	1015.9	69	32	50.3	.2	83	25	23	29+	0	19	--	--	.35	-.53	.28	4	2	.7	T	----	---	--	---	--	17	11	3	3.5	--
Salt Lake City	4220	868.3	1016.8	65	37	51.0	-1.9	78	24	24	31	0	7	33	54	.22	-1.12	.13	4	0	T	0	6.9	SSE	26	NW	7	15	9	7	4.1	76
Wendover	4237	871.3	1014.9	65	43	54.0	----	75	6	32	29	0	1	--	--	T	----	T	0	0	T	T	----	---	--	---	--	17	9	5	3.5	--
VERMONT																																
Burlington	331	1001.0	------	55	41	48.0	-.2	77	4	22	30	0	9	41	77	6.22	3.33	1.48	19	2	T	0	7.9	---	32	SW	24	3	9	19	7.9	43
VIRGINIA																																
Lynchburg	947	982.9	------	68	51	59.1	1.3	89	4	36	29	0	0	--	--	3.61	.74	1.15	12	4	.0	0	7.5	---	25	NE	21	8	8	15	6.1	46
Norfolk	26	1015.3	1016.7	72	57	64.7	3.5	87	5	39	20	0	0	59	83	8.78	6.33	4.19	13	5	.0	0	10.4	SW	32	NE	22	8	6	17	6.6	40
Richmond	162	1010.9	1017.1	71	52	61.4	2.6	90	5	33	28	1	0	53	79	3.25	.64	1.37	11	3	.0	0	7.5	SSW	35	SE	24	8	5	18	6.4	50
Roanoke	1174	974.5	1016.9	69	50	59.6	1.7	90	5+	33	29	2	0	50	75	3.97	.58	.94	13	2	.0	0	6.3	SE	--	---	--	8	8	15	6.3	--
WASHINGTON																																
Olympia	190	1010.8	1014.2	61	42	51.2	.2	69	2	29	30	0	3	46	82	3.92	-.58	1.30	14	0	.0	0	6.4	SW	*24	SW	8	4	5	22	8.0	--
Seattle (U)	14	------	------	59	49	54.2	-.2	67	2+	38	30	0	0	--	--	2.36	-.72	.84	15	--	.0	0	---	---	44	SW	11	--	--	--	---	24
Seattle	14	1016.6	1017.7	--	--	----	----	--	--	--	--	--	--	46	77	----	----	----	--	--	---	--	6.3	S	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	1003.7	1018.0	58	46	52.0	.3	65	2+	34	30	0	0	47	84	2.67	-.65	.86	15	0	.0	0	10.3	S	*35	SW	11	3	8	20	7.8	--
Spokane	2357	948.2	1017.7	56	36	46.1	-2.5	67	4	26	30+	0	9	39	79	1.32	-.01	.45	8	0	.0	0	7.4	SW	43	SW	8	5	6	20	7.5	40
Stampede Pass (R)	3958	880.1	1019.3	47	37	41.9	-.5	63	2	27	9	0	8	--	--	13.98	4.64	2.76	19	0	14.1	7	----	---	--	---	--	3	6	22	7.9	--
Tatoosh (R)	101	1013.9	1017.1	55	48	51.3	-.6	60	2+	44	29+	0	0	48	89	6.20	-2.52	1.44	17	0	.0	0	13.1	ENE	45	E	10	4	5	22	8.0	34
Walla Walla (U)	949	981.0	1016.9	64	45	54.5	-.7	78	14	34	30	0	0	--	--	.93	-.55	.45	7	1	.0	0	4.7	⊛ S	20	SE	8	12	5	14	5.7	75
Yakima	1061	978.3	1017.8	65	36	50.4	-.2	76	14	25	30	0	10	38	65	.42	-.20	.30	7	0	.0	0	6.1	WNW	*35	SW	24	10	7	14	6.1	--
WEST INDIES																																
San Juan, P.R. (U)	47	------	------	86	75	80.6	.5	90	25	71	6	1	0	--	--	4.35	-.92	1.14	21	8	.0	0	---	---	--	---	--	--	--	--	---	--
San Juan, P.R.	15	1012.0	1014.8	89	73	80.7	1.0	92	26+	67	20	8	0	72	80	6.59	.06	1.66	20	7	.0	0	6.8	ENE	29	S	6	5	12	14	6.7	72
WEST VIRGINIA																																
Charleston	950	980.5	1016.1	69	48	58.3	.9	89	4	29	29	0	1	49	74	3.64	.83	1.13	15	1	.0	0	6.1	ESE	*21	W	24	5	12	14	6.6	--
Huntington (U)	565	------	------	70	48	59.4	.2	90	5+	32	29	2	1	--	--	3.29	.86	1.13	9	--	.0	0	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	------	68	47	57.5	.6	90	5	30	29	1	1	--	--	3.23	1.11	1.51	9	1	.0	0	5.1	---	21	W	6	12	6	13	5.3	53
WISCONSIN																																
Green Bay	689	991.5	1014.7	51	37	44.1	-4.3	64	8	22	28	0	9	40	85	3.27	1.47	1.58	13	3	1.7	1	12.0	NE	39	W	11	3	3	25	8.6	19
La Crosse	652	989.5	1014.6	53	39	46.1	-4.7	72	19	30	17	0	2	39	75	2.92	.99	1.76	12	0	1.4	T	9.7	SE	*36	W	11	4	2	25	8.5	--
Madison	857	978.7	1014.9	54	39	46.5	-3.9	65	22+	27	28	0	6	39	79	5.55	3.47	1.70	12	3	T	0	9.0	WSW	38	NW	24+	4	4	23	8.1	30
Milwaukee	672	989.5	1015.1	54	41	47.7	-3.7	69	3	26	28	0	4	42	80	6.42	4.45	2.60	13	4	T	T	10.6	WSW	32	NW	24	4	4	23	8.0	33
WYOMING																																
Casper	5319	836.8	1015.1	57	31	43.7	-2.7	71	18+	21	30+	0	20	29	60	.71	-.40	.18	7	0	4.1	1	13.3	SW	*44	SW	9	10	6	15	5.9	--
Cheyenne	6131	811.0	1015.8	57	29	43.0	-3.4	74	18	12	30	0	21	28	61	1.38	.25	.34	8	0	9.1	4	13.6	WNW	49	W	25	12	8	11	5.1	62
Lander	5563	835.1	1016.0	57	31	43.9	-.7	72	15+	12	31	0	18	29	59	1.32	-.21	.67	6	1	12.8	7	5.6	⊛SE	50	W	9	10	8	13	5.5	66
Sheridan	3942	884.2	1016.4	57	31	44.2	-2.4	78	5	14	31	0	15	32	66	1.48	.21	.60	10	1	4.1	3	8.5	NW	57	NW	9	5	11	15	6.6	50

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
a Maximum hourly average.
\+ And also on an earlier date or dates.
Ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
\# Number of days maximum 70° or above for Alaskan Stations.

⊛ Wind direction to 8 compass points only.
¢ City Office Data
† Airport Data
‡ Peak Gust

HEATING DEGREE DAYS

(Base 65°F.)

OCTOBER 1959

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ALABAMA			
Birmingham	99	100	136
Mobile	27	27	28
Montgomery	63	63	69
ARIZONA			
Flagstaff	528	854	956
Phoenix (U)	18	18	13
Phoenix	26	26	22
Prescott	211	254	295
Tucson	45	45	24
Winslow	247	266	294
Yuma	16	16	0
ARKANSAS			
Ft. Smith	137	137	140
Little Rock	106	106	120
Texarkana	81	81	69
CALIFORNIA			
Bakersfield	33	36	41
Bishop	175	252	308
Blue Canyon	234	533	551
Burbank	15	16	70
Eureka (U)	283	1035	1114
Fresno	54	60	86
Los Angeles (U)	2	2	58
Los Angeles	3	3	196
Mt. Shasta (R)	331	617	682
Oakland	62	146	394
Red Bluff	30	47	59
Sacramento (U)	34	46	92
Sacramento	48	63	120
Sandberg (R)	146	311	237
San Diego	11	11	94
San Francisco (U)	73	429	604
San Francisco	59	177	555
San Jose (U)	47	61	141
Santa Maria	92	269	460
COLORADO			
Alamosa	680	1085	1142
Colorado Springs	597	831	575
Denver	518	715	561
Grand Junction	386	524	369
Pueblo	477	611	457
CONNECTICUT			
Bridgeport	273	333	400
Hartford	394	517	499
New Haven	315	389	474
DELAWARE			
Wilmington	256	300	329
DIST. OF COLUMBIA			
Washington (U)	213	246	263
Washington	195	223	274
FLORIDA			
Apalachicola (U)	3	3	17
Daytona Beach	2	2	0
Fort Myers	0	0	0
Jacksonville	5	5	16
Key West	0	0	0
Miami	0	0	0
Miami Beach	0	0	0
Orlando	0	0	0
Pensacola (U)	13	13	18
Tallahassee	14	14	31
Tampa	0	0	0
West Palm Beach	0	0	0
GEORGIA			
Athens	142	150	105
Atlanta	121	129	118
Augusta	74	75	59
Columbus	81	83	78
Macon	75	79	63
Rome	133	136	148
Savannah	30	30	38
IDAHO			
Boise	470	709	524
Lewiston	438	670	539
Pocatello	506	799	670
ILLINOIS			
Cairo (U)	196	198	189
Chicago	406	468	440
Chicago University	409	472	
Moline	462	567	467
Peoria	421	488	436
Springfield	339	395	404
INDIANA			
Evansville	272	294	274
Ft. Wayne	412	495	501
Indianapolis	371	425	385
South Bend	430	518	500
IOWA			
Burlington	424	511	419
Des Moines	471	610	471
Dubuque	569	731	629
Sioux City	516	662	558
KANSAS			
Concordia (U)	382	469	332
KANSAS (Cont'd.)			
Dodge City	364	420	302
Goodland	514	695	508
Topeka	375	438	338
Wichita	300	341	251
KENTUCKY			
Lexington	253	277	315
Louisville	241	252	283
LOUISIANA			
Baton Rouge	19	19	27
Lake Charles	20	20	22
New Orleans (U)	13	13	5
New Orleans	13	13	7
Shreveport	61	61	53
MAINE			
Caribou	700	1094	1282
Greenville (U)	680	1047	
Portland	522	743	785
MARYLAND			
Baltimore (U)	191	219	236
Baltimore	255	301	328
Frederick	294	364	323
MASSACHUSETTS			
Blue Hill Obs. (R)	420	559	
Boston	319	406	399
Nantucket	314	442	539
Pittsfield	480	701	844
MICHIGAN			
Alpena	613	871	880
Detroit	408	500	485
Detroit (Willow Run)	421	507	499
Escanabe (U)	620	883	959
Grand Rapids	492	605	649
Lansing	504	653	
Marquette (U)	670	954	935
Muskegon	499	636	688
S. Ste. Marie	686	1020	1172
MINNESOTA			
Duluth	790	1210	1096
Internat. Falls	811	1284	1260
Minneapolis	634	795	641
Rochester	645	863	743
St. Cloud	734	972	880
MISSISSIPPI			
Jackson	71	71	69
Meridian	81	81	90
Vicksburg (U)	76	76	51
MISSOURI			
Columbia	318	363	330
Kansas City	289	333	284
St. Joseph	383	458	319
St. Louis (U)	225	250	240
St. Louis	258	288	278
Springfield	300	332	318
MONTANA			
Billings	543	820	719
Glasgow	765	1099	862
Great Falls	621	1024	871
Havre (U)	677	1054	892
Helena	652	1113	1039
Kalispell	693	1321	1095
Miles City	664	928	729
Missoula	617	1122	994
NEBRASKA			
Grand Island	498	649	459
Lincoln (U)	414	525	396
Norfolk	539	712	561
North Platte	594	799	563
Omaha	490	608	424
Scottsbluff	585	847	593
Valentine	653	902	627
NEVADA			
Elko	521	895	809
Ely	580	984	855
Las Vegas	48	50	61
Reno	404	698	696
Tonopah	275	443	523
Winnemucca	469	795	705
NEW HAMPSHIRE			
Concord	484	686	787
Mt. Washington Obs.	1089	2558	
NEW JERSEY			
Atlantic City (U)	215	254	259
Newark	233	272	348
Trenton (U)	254	302	340
NEW MEXICO			
Albuquerque	250	270	228
Clayton	410	508	386
Roswell	191	205	164
NEW YORK			
Albany	423	574	606
Binghamton	433	593	789
Buffalo	288	401	601
NEW YORK (Cont'd.)			
New York (U)	244	284	302
New York	225	257	278
Rochester	407	536	616
Schenectady	389	500	612
Syracuse	393	512	542
NORTH CAROLINA			
Asheville (U)	204	225	312
Cape Hatteras (R)	41	41	63
Charlotte	153	155	154
Greensboro	222	248	231
Raleigh	189	212	165
Wilmington	76	77	73
Winston-Salem	201	218	210
NORTH DAKOTA			
Bismarck	749	1039	891
Devils Lake (U)	879	1255	1038
Fargo	746	988	867
Grand Forks	805	1107	
Pembina	843	1118	
Williston (U)	788	1128	937
OHIO			
Akron	403	494	478
Cincinnati (U)	242	271	264
Cincinnati	294	331	378
Cleveland	348	426	425
Columbus	336	398	414
Dayton	351	413	403
Sandusky (U)	359	420	393
Toledo	470	568	501
Youngstown	423	537	457
OKLAHOMA			
Oklahoma City	206	230	168
Tulsa	170	184	170
OREGON			
Astoria	343	933	733
Burns (U)	506	906	818
Eugene	317	547	592
Meacham	604	1314	1089
Medford	274	429	403
Pendleton	351	524	457
Portland (U)	234	382	392
Portland	326	526	482
Roseburg	309	499	
Salem	320	531	483
Sexton Summit (R)	437	1074	782
PENNSYLVANIA			
Allentown	311	377	464
Harrisburg	280	339	377
Philadelphia (U)	207	235	252
Philadelphia	246	292	316
Pittsburgh (U)	285	340	354
Pittsburg	374	448	491
Reading (U)	250	293	347
Scranton	372	470	522
Williamsport	343	432	494
RHODE ISLAND			
Block Island	282	366	445
Providence	354	461	514
SOUTH CAROLINA			
Charleston (U)	28	28	34
Charleston	38	38	52
Columbia	98	99	82
Florence	95	97	94
Greenville	167	170	141
Spartanburg	160	164	143
SOUTH DAKOTA			
Huron	656	845	647
Pierre	634	841	
Rapid City	630	899	749
Sioux Falls	623	818	664
TENNESSEE			
Bristol	217	224	297
Chattanooga	148	149	193
Knoxville	157	157	212
Memphis	111	111	143
Nashville	170	170	176
TEXAS			
Abilene	118	126	103
Amarillo	311	357	277
Austin	38	38	30
Brownsville	3	3	0
Corpus Christi	5	5	0
Dallas	73	73	53
Del Rio (U)	20	20	
El Paso	33	33	70
Ft. Worth	68	68	58
Galveston (U)	10	10	0
Galveston	8	8	0
Houston (U)	10	10	0
Houston	7	7	7
Laredo	5	5	0
Lubbock	223	254	196
Midland	110	119	
Port Arthur	20	20	20
San Angelo	87	91	72
San Antonio	27	27	25
Victoria	14	14	0
TEXAS (Cont'd.)			
Waco	53	53	44
Wichita Falls	139	148	120
UTAH			
Milford	450	632	576
Salt Lake City	423	594	469
VERMONT			
Burlington	525	723	759
VIRGINIA			
Lynchburg	250	287	285
Norfolk	132	142	161
Richmond	217	253	243
Roanoke	238	266	283
WASHINGTON			
Olympia	422	866	815
Seattle (U)	328	560	557
Seattle-Tacoma	396	759	749
Spokane	581	1031	758
Stampede Pass (R)	709	1910	1626
Tatoosh Island (R)	418	1277	1304
Walla Walla (U)	321	464	401
Yakima	446	727	603
WEST VIRGINIA			
Charleston	253	284	310
Huntington (U)	229	252	245
Parkersburg (U)	275	319	328
WISCONSIN			
Green Bay	642	859	788
La Crosse	577	738	630
Madison	566	709	653
Milwaukee	529	659	614
WYOMING			
Casper	654	1001	845
Cheyenne	675	1014	890
Lander	648	968	906
Sheridan	638	971	885
ALASKA			
Anchorage	998	2074	1939
Annette	536	1438	1397
Barrow	1499	4269	4126
Barter Island	1555	4324	
Bethel	1139	2499	2327
Cold Bay	724	2185	
Cordova	799	2105	1983
Fairbanks	1262	2504	2220
Juneau	757	1999	1850
King Salmon	926	2239	
Kotzebue	1331	2989	2775
McGrath	1284	2616	2352
Nome	1127	2841	2745
St. Paul	779	2500	2513
Yakutat	750	1998	1979

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

OCTOBER 1959

STATE	TORNADOES NUMBER	TORNADOES DAYS	TORNADOES DEATHS	TORNADOES INJURIES	TORNADOES †DAMAGE	HAILSTORMS DEATHS	HAILSTORMS INJURIES	HAILSTORMS †DAMAGE PROPERTY	HAILSTORMS †DAMAGE CROPS	WINDSTORMS DEATHS	WINDSTORMS INJURIES	WINDSTORMS †DAMAGE PROPERTY	WINDSTORMS †DAMAGE CROPS	LIGHTNING DEATHS	LIGHTNING INJURIES	LIGHTNING †DAMAGE PROPERTY	LIGHTNING †DAMAGE CROPS	‡ HEAVY SNOWSTORMS AND BLIZZARDS DEATHS	‡ HEAVY SNOWSTORMS AND BLIZZARDS INJURIES	‡ HEAVY SNOWSTORMS AND BLIZZARDS †DAMAGE PROPERTY	‡ HEAVY SNOWSTORMS AND BLIZZARDS †DAMAGE CROPS	# ICE STORMS DEATHS	# ICE STORMS INJURIES	# ICE STORMS †DAMAGE PROPERTY	# ICE STORMS †DAMAGE CROPS	∅ ALL OTHER DEATHS	∅ ALL OTHER INJURIES	∅ ALL OTHER †DAMAGE PROPERTY	∅ ALL OTHER †DAMAGE CROPS
Alaska										0	0	4	0																
Arizona																										7	50	6	6
California										3	6	5	5																
Colorado																		0	1	°5	C								
Connecticut										1	0	5	0																
Florida	3	2	0	Q																									
Georgia										0	1	5	0	1	1	0	0												
Idaho	1	1	0	0	0																								
Illinois	2	2	0	1	5	0	0	D	D	0	0	U4	0	0	0	D	0												
Indiana	1	1	0	0	4					0	1	3	0	2	0	4	0												
Iowa										0	3	4	3																
Kansas	1	1	0	0		0	0	3																					
Maine										0	0	4	0													0	1	5	0
Massachusetts										0	9	5	0	0	0	2	0									0	11	5	0
Michigan	1	1	0	0	2					0	0	4		0	0	4													
Minnesota										0	0	3	0					0	0	0	4								
Missouri	1	1	0	0	1					0	0	4	4	1	1	0	0									0	0	5	4
Nebraska										0	2	4	7																
New Hampshire										0	0	4	0													0	0	6	0
New York						0	0	4	0	0	0	5	0	0	0	4	0									3	0	5	0
North Carolina	1	1	0	1	4	0	0	0	2																	0	0	6	6
North Dakota																		1	0	5	4								
Ohio	1	1	0	0	5																								
Oklahoma	F2	2	0	0	4																					0	0	0	6
Oregon						0	0	3	3	0	1	5	2													0	0	5	3
Pennsylvania														1	0	0	0												
Rhode Island										1	5	5	0																
South Carolina	1	1	0	0	0																					0	0	5	7
South Dakota														0	0	0	2												
Texas	5	3	0	5	5	0	0	0	5	0	10	5	C	1	0	0	0												
Utah										0	7	6	0																
Vermont										0	0	3	0													0	0	4	0
Virginia	1	1	0	0	4																								
Wisconsin	2	1	0	2	4									1	0	0	0												

° Includes crop damage.
C Crop damage.
D Occurred; not estimated.
U Additional probable; not estimated.
F Also, 1 funnel aloft occurred on 1 day.
‡ Includes heavy sleet storm.
# Freezing drizzle and freezing rain, commonly known as glaze.
∅ For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000

TROPICAL CYCLONES IRENE AND JUDITH, OCTOBER 1959

Compiled by Howard C. Sumner
Marine Section, Office of Climatology
U. S. Weather Bureau

Both of the tropical cyclones occurring in October in the North Atlantic reached the coastline of the United States, but no deaths resulted and damage to property and crops was minor. No peak wind gusts over 56 m.p.h., were recorded over land areas affected by either of these storms, although hurricane force winds (74 m.p.h., or more) accompanied hurricane Judith for a short period prior to the time she reached the west coast of Florida and again for approximately a day and a half as the center moved eastward south of Burmuda. The tracks of these two tropical cyclones are shown on the accompanying chart.

TROPICAL STORM IRENE, OCTOBER 6-8.--This tropical storm had its beginning in a squally area which was centered some 300 miles south of New Orleans, La., at 3:00 p.m., c.s.t. on October 6 when winds up to 35 m.p.h., were observed in some of the heavier squalls. On the 7th this circulation reached tropical storm intensity with winds of 40 to 55 m.p.h., in squalls east of the center. At 4:00 p.m., c.s.t. the center was located about 150 miles south of Mobile, Ala., moving toward the north-northeast at about 15 m.p.h. The storm decreased in intensity before crossing the coastline in the vicinity of Pensacola at about 6 a.m., c.s.t. on the 8th accompanied by squalls and gusty winds of 40 to 50 m.p.h.

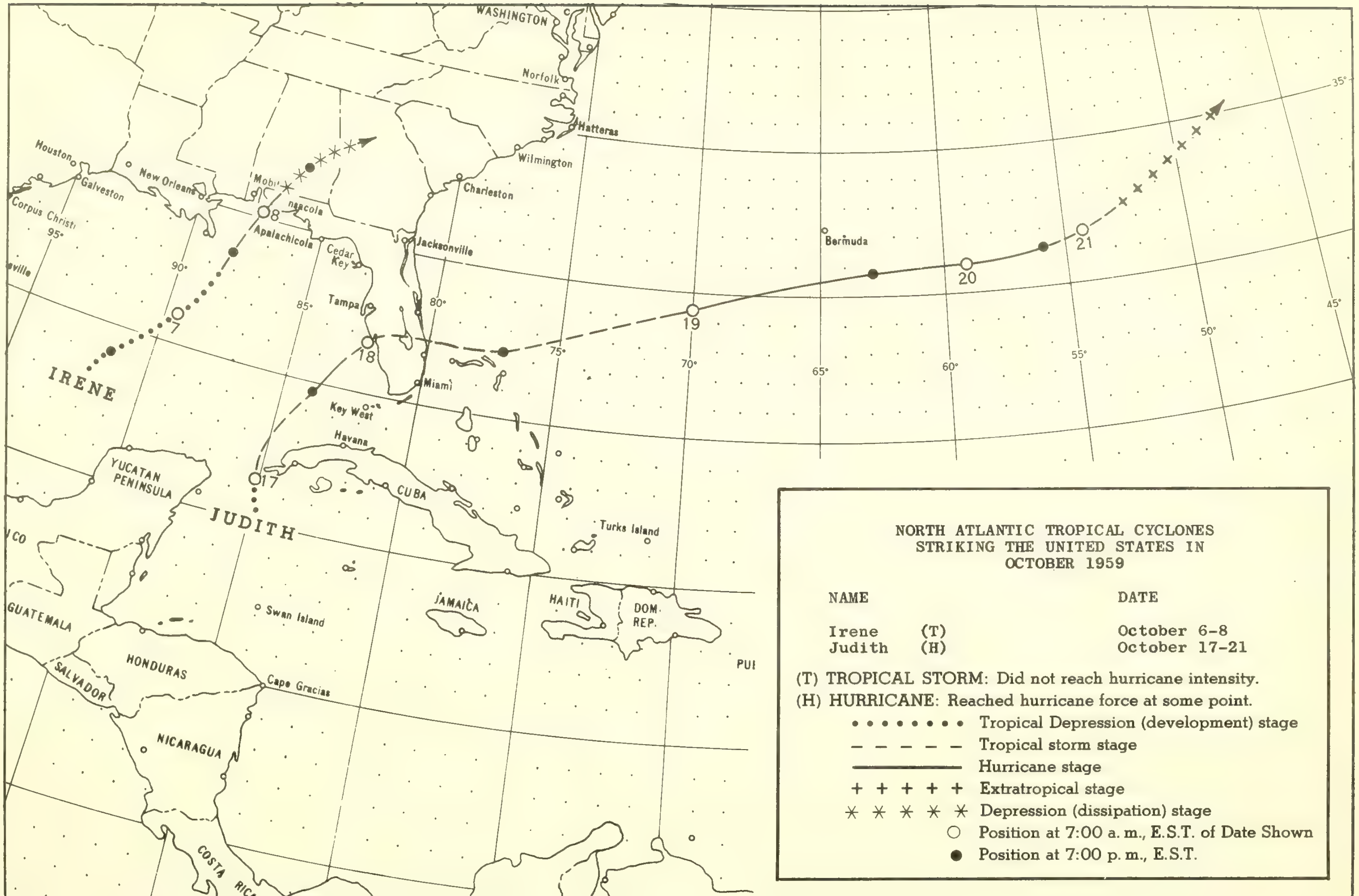
The fastest mile at Pensacola (City Office) was 28 m.p.h., from the southeast at 3:42 a.m., c.s.t. on the 8th. The lowest sea level pressure was 1003.6 mb. (29.64 in.) and the highest tide 3.4 feet above mean low water, which is 1.6 feet above normal. The peak gust at the Municipal Airport was 55 m.p.h., in a squall at 12:10 a.m., c.s.t. and gusts of 41 m.p.h., occurred as the storm moved inland later. Rainfall was heavy over northwest Florida with total amounts of 6 to 7 inches recorded at several stations during the 3-day period October 6-9. There were no deaths or injuries reported and damage was minor, being confined mainly to unharvested crops.

HURRICANE JUDITH, OCTOBER 17-21.--Squally conditions, with winds 25 to 35 m.p.h., and gusts to 40 to 50 m.p.h., were noted during the period October 15-17 in the area from approximately 15°N., 78°W. northward to the Cuban coast and northeastward to the southwestern tip of Haiti. By noon of October 17 a small tropical disturbance had formed and was located in the Yucatan Channel near the western tip of Cuba. Winds to 35 m.p.h., and gusts somewhat higher prevailed up to 200 miles to the east of the center, over western Cuba and the extreme southeast Gulf of Mexico.

At 4:00 p.m., c.s.t. the center had moved north-northeastward to a point about 200 miles west-southwest of Key West, and gale warnings were hoisted along the west coast of Florida. Four hours later there were indications of intensification and emergency hurricane warnings were ordered at 8:30 p.m., e.s.t. for the west coast of Florida from Punta Gorda to Cedar Keys. Although winds just above hurricane force were reported from a small area around the center while the storm was some 100 miles at sea, there was a sharp decrease in the winds as the center approached the coast and moved inland between Fort Myers and Venice. At this stage sustained winds had dropped to 35 to 40 m.p.h., and no gusts in excess of 56 m.p.h., were reported over land. At WBAS, Ft. Myers the maximum 1-minute wind speed was SSW-40 m.p.h., at 8:17 a.m., e.s.t. on October 18 and the peak gust there was SSW-53 m.p.h., at 8:30 a.m. Winds diminished as the storm crossed the State, but squalls were general over much of south Florida during the 18th. The storm reached the east coast shortly after noon in the vicinity of Fort Pierce.

A band of heavy rain extended across central Florida about a hundred miles on each side of the track followed by the storm center. At scattered locations in this area precipitation amounts of 4 to 7 inches were recorded during the 2-day rain associated with storm passage. These amounts, coming on the heels of an abnormally wet summer and consequent high ground water levels, caused some local flooding and washouts, along with inundation and damage to early planted crops. There were no deaths, and only one serious injury was reported when a pole toppled and struck a car.

After passing out over the Atlantic, movement to the eastward and east-northeastward accelerated to about 45 m.p.h., and by 7:00 a.m., e.s.t. of October 19 hurricane force winds were again reported near the center. At 5:00 p.m. on that date aircraft reconnaissance reports indicated winds of 80 m.p.h., near the center, with gales extending outward 300 miles in the southeast semicircle and 150 miles to the northwest. Hurricane Judith gradually lost intensity and, when located by reconnaissance at 11:00 a.m., e.s.t. on October 21, was moving slowly eastward in a frontal zone with no winds above gale force.


NORTH ATLANTIC TROPICAL CYCLONES STRIKING THE UNITED STATES IN OCTOBER 1959
NAME
DATE
Irene (T)
October 6-8
Judith (H)
October 17-21
(T) TROPICAL STORM: Did not reach hurricane intensity.
(H) HURRICANE: Reached hurricane force at some point.
Tropical Depression (development) stage
Tropical storm stage
Hurricane stage
Extratropical stage
Depression (dissipation) stage
Position at 7:00 a. m., E.S.T. of Date Shown
Position at 7:00 p. m., E.S.T.
IRENE
JUDITH
WASHINGTON
Norfolk
Hatteras
Wilmington
Charleston
Jacksonville
Houston
Galveston
New Orleans
Corpus Christi
Apalachicola
Cedar Key
Tampa
Miami
Key West
Havana
CUBA
Bermuda
Turks Island
YUCATAN PENINSULA
JAMAICA
HAITI
DOM. REP.
Swan Island
GUATEMALA
HONDURAS
SALVADOR
NICARAGUA
Cape Gracias
COSTA RICA
7
8
17
18
19
20
21
35°
45°
50°
55°
60°
65°
70°
75°
80°
85°
90°
95°

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

OCTOBER 1959

Near record flooding occurred along the main stem of the Arkansas River and record flooding on tributaries in the vicinity of Tulsa, Okla., during October. Several cities were severely damaged from flash flooding. The flood on the Pemigewasset, the Bakers and Mad Rivers in New Hampshire was considered by "old timers" as the greatest flood in the history of that area since 1936. Record flooding occurred on the Pedernales and the North Bosque Rivers and Cowhouse Creek in Texas. Flooding reported elsewhere was mostly minor.

ST. LAWRENCE DRAINAGE

Lake Michigan.--Minor flooding occurred on the Red Cedar River in Michigan between the 7th and 9th. Only minor damages resulted.

Lake Ontario.--The flooding on Canaseraga Creek at Groveland, N. Y., on the 7th was due to nearly 3 inches of rainfall in the headwaters area. Damages were light. The road between Mt. Morris and Groveland, N. Y., was closed for 3 days due to high water.

ATLANTIC SLOPE DRAINAGE

Heavy rains from the afternoon of the 23d through the morning of the 25th over the New England States caused flooding in streams in southern and western Maine and New Hampshire. Bankfull stage was just reached along the main stem of the Connecticut River at White River Junction, Vt., and minor lowland flooding occurred near Hartford, Conn. The rainfall was heaviest over Pinkham Notch in the White Mountains where nearly 10 inches was reported. Stations close to the Maine-New Hampshire border averaged around 6 inches, with totals tapering down to 2 inches in central Maine and lesser amounts in southernmost Maine. The principal damage on the Saco River was the flooding of the Swain's Falls generator room of the Public Service Company of New Hampshire at Fryeburg, Maine, which necessitated shutdown of equipment. Farther downstream the river remained within banks and no flooding took place. The torrential rains on the eastern slopes of the White Mountains brought heavy washouts at Pinkham Notch and Crawford Notch. Maine Central Railroad tracks were temporarily blocked by landslides. The upper Androscoggin River rose quickly and the intervale area around Bartlett, N. H., was soon inundated. Traffic between North Conway and Berlin ended because of water over New Hampshire's Route 16. At Gorham, N. H., a water main broke. In Bethel, Maine, there was flooding of garages and parking lots. Logs from a lumber mill were washed across a highway. At Newry, where the Bear River meets the Androscoggin, there was flooding of stores and cabins; some cabins were tilted off their foundations. Peak flow of the Androscoggin at Rumbord, Maine, was 44,654 c.f.s. about 3:00 p.m. on the 25th. The flatlands of Mexico, Maine, where the Swift River joins the Androscoggin, were inundated. About 100 families were evacuated from their homes as a precautionary measure. However, most of the flooding at Mexico was confined to cellars, although water did reach first floor levels of several homes, and one building was reportedly washed off its foundation. At Gulf Island Dam, near Lewiston, Maine, the Androscoggin River crested with a record flow of 53,921 c.f.s. late on the 25th. However, flood damage was negligible in the Lewiston and Auburn area. At Brunswick, a power company generator was shut down to prevent damage by debris in the river. At Byron, Maine, on the Swift River, there was road damage, and one end of a bridge structure was washed out. The Sandy River also rose swiftly. Roads were water-covered at Madrid, Maine. The Bear Brook bridge at Phillips was washed out. Several families in the vicinity were evacuated. Several business establishments were damaged by water at Farmington. There was no flooding of importance on the Kennebec, although water did rise into riverside basements bordering the municipal parking lot at Augusta, an occurrence common during spring river rises. At Skowhegan, the Kennebec crested at 48,888 c.f.s. late on the 25th. Although the Penobscot River rose sharply to a crest of 13.1 feet late on the 27th at West Enfield, no flood damage was reported. The rivers in northern and eastern Maine were not affected by this storm. At the end of October all Maine streams were well below flood stage and falling. The flood on the Pemigewasset, the Bakers and Mad Rivers in the White Mountain region of New Hampshire on the 24th and 25th was considered by "old timers" as the greatest flood in the history of the area since 1936. Heavy damages resulted to real and personal property, especially to houses and buildings in low areas. Damage along Amonoosuc River in New Hampshire was confined to bridge washouts and minor property damage.

Flash flooding occurred on tributaries of the James River in Virginia and light flooding along the main stem from Bremo Bluff to Richmond from the heavy precipitation accompanying hurricane Gracie on September 30. The rainfall was heaviest over the upper basin with most of the damage occurring in the upper Rivanna Basin.

Frequent rains during the month over eastern North Carolina caused the streams to remain at relatively high levels, with flooding spread out throughout the month. The rains on the 1st of the month were heaviest over the Roanoke Basin with the highest stages in several months occurring at Altavista and Randolph, Va. The rains of the 8th and 9th and the 14th and 15th caused minor flooding on all streams, except in the Roanoke Basin. Daily showers between these two periods made this a continuous flood in the lower reaches of the rivers. Flash floods washed out several bridges and sections of roads and highways, mainly in Alamance County, causing moderate heavy damage. Five inches of rain was reported in 2 hours on the evening of the 23d by an unofficial but reliable source near Clayton, N. C., in Johnston County, with additional rain before and after running the total to nearly 7 inches. This was the center of a pattern of heavy rainfall which covered a strip several miles wide from southern Wake County northeastward to Northampton County. Flash floods washed out about 100 separate sections of roads, highways, and bridges in Johnston County alone; a number of automobiles were driven or washed into deep water, but no deaths or serious injuries were reported. Damages to roads, bridges, highways, farm lands, and crops were moderately heavy.

Heavy rains on September 29 and 30, accompanying hurricane Gracie, caused considerable flooding in streams in South Carolina. Flood crests along most South Carolina streams occurred on October 1 and 2. Hurricane rains did not extend into the extreme northwestern part of the State so there was no flooding on the Saluda. Rainfall was nearly continuous after the 6th of the month over the

eastern part of the State. This was probably one of the rainiest Octobers in over 75 years in this area, with rainfall totals ranging from 7 to over 12 inches. There were two separate periods of flooding on the Yadkin, Saluda, and North Fork of the Edisto and three periods of flooding on the Rocky and Pee Dee Rivers.

Light flooding occurred on the Savannah and Ogeechee Rivers in Georgia from heavy precipitation from the 7th to the 11th and from the 22d to the 24th. No damage was reported.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The Wisconsin River was in minor flood from September 29 through October 2, from 2- to 3-inch rainfall on the morning of September 27. A description of this flood is given in the September issue of this publication. The Wisconsin River approached within 0.05 foot of bankfull stage at Portage, Wis., on the 28th from heavy rainfall on the 24th and 25th. Other Wisconsin streams rose to about three-quarters bankfull, a rise of 4 to 7 feet over river levels before the rains.

The Fox River at Wayland, Mo., rose to a stage of 15.2 feet on the 28th, 0.2 foot above flood stage. No damage was reported.

Minor flooding occurred on the Sangamon River at Riverton, Ill., between the 11th and 15th and along the main stem of the Mississippi between the 8th and 11th from heavy precipitation on the 2d, 5th, and 10th. The Sangamon River rose almost 8 feet at Riverton, Ill., in 24 hours following the unusually heavy rains over central Illinois on the 10th. No flood damage was reported along the Mississippi which is confined by levees. Some crop damage was reported along the river bottoms of the Sangamon in Illinois. Crops affected were primarily corn and soybeans which had not yet been harvested.

Missouri Basin.--Flooding in the Missouri Basin was due to almost daily rains during the first week of the month. The overflows were mostly minor and confined to streams in Kansas and Missouri. Damages were comparatively minor with some crop damage along the Osage and Sac Rivers in Missouri. Crops affected were primarily corn and soybeans which had not yet been harvested.

Ohio Basin.--The minor flooding on the New River at Radford, Va., from late on September 30 to October 1 was due to heavy rains associated with hurricane Gracie. Damages were light.

Arkansas Basin.--Excessive rainfall over central and eastern Kansas and northern Oklahoma during the last of September and the first part of October caused near record flooding on the main stem of the Arkansas and record flooding on tributaries in the vicinity of Tulsa, Okla. Stages were above flood stage at several points from 1 to 2 weeks. Damages ran heavy in several cities and to rural areas along the Arkansas River from Arkansas City, Kans., to Wagoner; the Cimarron from Dover, Okla., downstream; the Verdigris and Caney River Basins in Oklahoma; and on Pryor Creek, a tributary of the Grand River below Pensacola, Okla. The cities of Guthrie, Stillwater, and Tulsa, Okla., were severely damaged from flash flooding from creeks that overflow whenever there is excessive rainfall. Tulsa also suffered from overflow of the Arkansas River in the Brookside district of high value homes from backwater of the city sewers. The area in the vicinity of Skiatook, Sperry, Okla., on Bud Creek and Bixby on the Arkansas suffered great losses to homes, streets, bridges, stock, fall crops, and soil erosion. A comparison of October stages with previous maximum stages are given in the following table:

ARKANSAS BASIN - COMPARATIVE CRESTS

River and station	Flood stage	1959 Crests		Previous Maximum Crests of Record	
		Stage	Date	Stage	Date
	Ft.	Ft.		Ft.	
Walnut: Augusta, Kans.	23	26.6	3	33.75	June 30, 1951
Winfield, Kans.	30	31.75	4-5	40.61	Nov. 18, 1928
Chikaskia: Blackwell, Okla.	26	32.1	3	H34.0	June 10, 1923
		27.1	14		
Salt Fork: Tonkawa, Okla.	17	23.45	5	H26.8	June 10, 1923
Cimarron: Guthrie, Okla.	10	#12.55	2	18.58	May 17, 1957
Perkins, Okla.	12	#16.5	3	19.53	May 17, 1957
Manford, Okla.	18	#26.7	3	28.85	May 18, 1957
Caney: Bartlesville, Okla.	13	14.75	4	H25.3	Oct. 3, 1926
Bird Creek: Sperry, Okla.	21	32.7	3	31.68	May 18, 1943
Verdigris: Coyville, Kans.	28	33.65	4	41.5	July 12, 1951
		36.2	5		
		30.0	8		
Altoona, Kans.	23	24.8	7		

OCTOBER 1959

ARKANSAS BASIN - COMPARATIVE CRESTS (Cont'd.)

River and station	Flood stage	1959 Crests		Previous Maximum Crests of Record	
		Stage	Date	Stage	Date
	Ft.	Ft.		Ft.	
Verdigris (Cont'd.): Independence, Kans.	30	37.1	6	49.20	July 8, 1904
		30.35	13		
Lenapah, Okla.	30	30.65	5	40.44	May 20, 1943
Claremore, Okla.	38	45.8	5	50.05	May 21, 1943
Inola, Okla.	42	53.2	5	54.93	May 21, 1943
Neosho: Burlington, Kans.	27	28.45	5	41.53	July 12, 1951
LeRoy, Kans.	23	25.35	5	34.55	July 12, 1951
Iola, Kans.	15	16.6	6	33.26	July 13, 1951
Chanute, Kans.	20	23.1	5	38.6	July 13, 1951
Oswego, Kans.	17	20.6	7-8	32.50	July 14, 1951
North Canadian: Watonga, Okla.	7	9.2	2	8.7	May 19, 1955
Arkansas: Arkansas City, Kans.	16	19.8	4	H25.46	June 11, 1923
Ralston, Okla.	16	22.0	5	23.8	June 11, 1923
Tulsa, Okla.	19	22.0	5	22.8	June 13, 1923
Webbers Falls, Okla.	23	#32.3	7	39.0	May 22, 1943
Van Buren, Ark.	22	32.55	7	38.1	April 16, 1945
Ozark, Ark.	22	28.9	8	38.4	May 13, 24, 1943
Dardanelle, Ark.	22	28.1	9	34.1	May 25, 1943
Morrilton, Ark.	30	32.9	10	42.0	April 19, 1927
Little Rock, Ark.	23	23.8	10	H34.6	June 1833
Pine Bluff, Ark.	25	26.0	11	L33.9	April 21, 1927

H High water mark.
L Levee break.
Highest stage observed.

Red Basin.--The flooding on the Washita River in Oklahoma and the Sulphur River at Hagansport, Tex., between the 2d and 8th was due to locally heavy rains from September 30 through October 4. No damage was reported on the Sulphur River.

WEST GULF OF MEXICO DRAINAGE

Heavy rains beginning the evening of September 30 and continuing the first 4 days of October caused light to heavy flooding in many streams in Texas. As much as 18 inches of rainfall was reported in 24 hours. At Kerrville, Tex., where 14 inches of rainfall occurred on the 4th, several persons in that area were rescued from tree tops. Areas reporting record flooding include the Pedernales River at Fredericksburg, the North Bosque River near Clifton, and Cowhouse Creek at Pidcoke, Tex. The most seriously affected areas were along small streams and along the headwaters of the main rivers. A heavy localized rainstorm at the end of the month caused flooding on Brays Bayou and on Big and Dry Creeks in the Houston area.

The flooding in the Sabine Basin was minor with no known damage. The heaviest rainfall was centered at Emory with a 5-day total of 8.21 inches.

Flash flooding began in the Upper Trinity watershed in Texas early on October 1. Flooding continued in portions of the Trinity from the 1st through the 16th. Most extensive flooding occurred on the upper reaches of the West Fork and its tributaries, especially Big Sandy and Big Fossil Creeks. Since much of the runoff was contained in the reservoirs there was no great amount of flooding in the main stream. The upper Trinity reached 4 to 5 feet above flood stage from Dallas to Trinidad. A major portion of the flood damage occurred in Wise and Tarrant Counties. In Wise County the West Fork and Big Sandy Creek caused considerable agricultural damage and some industrial damage. In Tarrant County most of the damage resulted when Big Fossil Creek flooded a portion of South Richland Hills. The greatest damage occurred to residential property in that area with some damage to streets and equipment. Flooding on Chambers and Richland Creeks caused some loss of cotton crops in Ellis and Navarro Counties. There was no extensive damage caused by the main stream of the Trinity.

Rapid rises occurred on the Little and Brazos Rivers from the excessive rains during the 1st part of the month. The Little River at Cameron, Tex., rose from a stage of 3.3 feet on the 3d to 28.6 feet on the 4th, and crested at 37.1 feet (7.1 feet above flood stage) on the 6th. Sharp rises occurred on the Brazos at Rainbow, Tex., where it rose from a stage of 8.5 feet on the 3d to 22.8 feet on the 4th, and crested near 24.9 feet (4.9 feet above flood stage) on the 6th. This water was impounded at Whitney Dam on the Brazos. At Waco, Tex., the river rose from a

stage of 6.1 feet on the 3d to 15.1 feet on the 4th, to a crest of 29.0 feet (2 feet above flood stage) on the 5th.

Heavy rains over the Colorado River Basin in Texas during the first 4 days of the month caused flooding on the Concho, San Saba, Llano, and the Pedernales Rivers. The most extensive damage was in the San Angelo area with the flood waters from the middle and south Concho. These rises resulted in a rise in Buchanan to spillway level and a 20-foot rise in Lake Travis. No flooding occurred along the Colorado.

The flooding on the Guadalupe and Navidad Rivers in Texas was due to heavy rains of 4 to 8 inches which began falling during the afternoon of the 4th. Rises of 25 to 30 feet and occasional rises of 40 feet occurred in restricted canyons on both the Guadalupe and Blanco Rivers in the upper portions. Damage was confined mostly to the upper portions of the Guadalupe and Blanco Fivers and was mainly to fences, roads, pecan trees, and houses along the rivers. The heavy rains reached the Navidad-Lavaca Rivers by the afternoon of the 5th, causing a moderate rise in the Lavaca to slightly below flood stage at Edna, and to about 3 feet above flood stage on the Navidad at Ganado, Tex. Damage on both streams was minor.

The flooding on the Frio, Atascosa, and Nueces Rivers in Texas was due to heavy rains on the 3d and 4th. The heaviest rainfall occurred on the upper Nueces above Cotulla, Tex., with the greatest flooding on Turkey Creek. Rainfall amounts up to 16 inches were reported on Turkey Creek above Crystal City and up to 12 inches on the Nueces 30 miles northwest of Uvalde. A rain of 10.83 inches was reported in a 5-hour period at Big Wells just upstream from Cotulla. Elsewhere rainfall averaged 4 to 6 inches on the middle and upper Frio and on the upper Atascosa. Downstream rainfall was lighter, averaging from 1 to 3 inches. The majority of the flooding occurred on ranch- and farmlands, with the exception of lower Turkey Creek which flooded the south and west sections of Crystal City. The flood crest on Turkey Creek was the highest in the memory of local people. Many homes were flooded at Crystal City. There was extensive damage to crops in the area. Rapidly rising waters trapped a large number of livestock, but loss was very light. Highways, streets, and railroad embankments suffered considerable erosion, both from heavy rains and flooding.

The flooding on the Devil's Fiver at Bakers Crossing, Tex., was due to 2 to 6 inches of rainfall on the middle and upper portions of the basin on the night of September 30 and October 1. Additional rain on the 3d which gave a flow of almost 24,000 c.f.s. into the Rio Grande together with the 2- to 4-inch rain along the Rio Grande from Laredo to above Del Rio caused a minor overflow of the Fio Grande at Del Rio. Flood damage was minor.

PACIFIC SLOPE DRAINAGE

Columbia Basin.--Minor flooding occurred on the Cowlitz River at Randle, Wash., on the 12th, 23d, and 24th. No damage was reported. Fiver stages and discharges in the middle and lower Columbia and lower Willamette during October were the highest for several years. The average stage during October for the Willamette at Portland, Oreg., was 5.8 feet, compared to 2.7 feet the average October stage for 80 years. The average stage during October for the Columbia River at Vancouver, Wash., was 6.0 feet compared to 3.0 feet the average October stage for 55 years.

PUGET SOUND DRAINAGE

The minor flooding on the Snohomish River at Snohomish, Wash., and the Snoqualmie River near Carnation, Wash., between the 22d and 25th was due to heavy rains on the 21st and 22d which was followed by lighter rains through the 25th.

FLOOD STAGE DATA

(All dates in October unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From—	To—	Crest* Stage	Date
	Ft.			Ft.	
ST. LAWRENCE DRAINAGE					
Lake Michigan					
Red Cedar: Williamston, Mich.	7	7	8	8.7	7
East Lansing, Mich.	8	7	9	9.0	8
Lake Ontario					
Canaseraga Creek: Groveland, N.Y.	11	7	7	13.3	7
ATLANTIC SLOPE DRAINAGE					
Baker: West Rumney, N. H.	7	24	25	10.5	24
Pemigewasset: Woodstock, N. H.	8	24	25	16.1	24
Plymouth, N. H.	11	24	25	22.7	25
Bristol, N. H.	6	24	25	10.9	25
Connecticut: White River Junction, Vt.	18	25	25	18.0	25
Hartford, Conn.	16	26	28	17.2	27
James: Bremo Bluff, Va.	19	1	2	19.7	1
Columbia, Va.	18	1	2	20.9	1
Richmond, Va.	12	2	2	13.1	2
Dan: Danville, Va.	11	11	11	#11.65	11
Roanoke: Altavista, Va.	18	1	1	26.25	1
Randolph, Va.	21	2	3	23.75	2
Tar: Rocky Mount, N. C.	9	24	26	10.55	25
Tarboro, N. C.	19	15	19	20.15	18
		26	30	22.9	28
Greenville, N. C.	13	16	21	14.3	19
		27	Nov. 1	15.4	29
Neuse: Neuse, N. C.	14	16	17	15.0	17
		25	25	#14.0	25
Smithfield, N. C.	13	12	19	#16.9	17
		24	28	20.5	25
Goldsboro, N. C.	14	16	23	18.5	20
		27	Nov. 3	21.8	30
Kinston, N. C.	14	20	26	15.75	23
		29	Nov. 5	17.65	Nov. 2
Cape Fear: Elizabethtown, N. C.	20	12	19	27.3	17
Yadkin: Yakdin College, N. C.	18	1	2	E23.0	2
		11	12	20.1	11
Rocky: Norwood, N. C.	16	Sept. 30	2	23.6	1
		11	11	16.3	11
		14	16	23.5	15
Pee Dee: Cheraw, S. C.	30	1	2	30.5	1
		12	13	32.4	12
		15	17	35.3	16
Peedee, S. C.	19	3	8	20.8	6
		12	29	23.6	20
Black: Kingstree, S. C.	12	18	23	12.4	19-20
Saluda: Pelzer, S. C.	6	11	12	9.0	11
		15	15	6.5	15
Broad: Gaffney, S. C.	10	1	1	10.3	1
Blair, S. C.	14	Sept. 30	3	23.1	1
Catawba: Catawba, N. C.	8	Sept. 30	1	12.1	1
North Fork Edisto: Orangeburg, S. C.	8	Sept. 30	9	10.5	2
				10.3	5
		13	1/	9.4	16
				9.5	Nov. 1
Edisto: Givhans, S. C.	10	1	1/	11.8	3
				13.8	24
Savannah: Millhaven, Ga.	15	27	1/		
Clyo, Ga.	11	5	8	11.2	7
		19	1/		
Ogeechee: Dover, Ga.	7	21	27	7.5	24
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Wisconsin: Portage, Wis.	17	Sept. 29	2	17.65	1
Fox: Wayland, Mo.	15	28	28	15.2	28
Sangamon: Riverton, Ill.	13	11	15	E16.0	12
Mississippi: Clarksville, Mo.	23	8	10	24.6	9
Winfield, Mo.	23	8	11	24.4	10

River and station	Flood stage	Above flood stages -dates From—	To—	Crest* Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft	
Missouri Basin					
North Fork: Downs, Kans.	18	6	6	21.7	6
Solomon: Beloit, Kans.	20	7	8	21.65	8
Black Vermillion: Frankfort, Kans.	19	2	3	24.75	3
Big Blue: Blue Rapids, Kans.	20	6	7	21.8	6
Stranger Creek: Tonganoxie, Kans.	23	5	5	23.2	5
Grand: Pattonsburg, Mo.	25	5	7	27.2	6
Chillicothe, Mo.	24	5	8	28.7	6
Sumner, Mo.	26	5	11	32.7	8
Brunswick, Mo.	12	6	11	14.2	10
Chariton: Novinger, Mo.	20	5	8	22.3	7
Prairie Hill, Mo.	15	5	8	16.10	8
Sac: Stockton, Mo.	18	3	3	19.0	3
		4	6	20.8	5
Pottawatomie Creek: Garnett, Kans.	26	5	5	27.2	5
Marais des Cygnes: Quenema, Kans.	28	5	6	30.75	5
Osawatomie, Kans.	28	6	7	30.5	7
La Cygne, Kans.	26	6	9	27.4	8
Osage: Schell City, Mo.	25	5	12	28.3	9
Ohio Basin					
New River: Radford, Va.	14	30	Oct. 1	16.3	30
Arkansas Basin					
Walnut: Augusta, Kans.	23	2	3	26.6	3
Winfield, Kans.	30	4	5	31.75	4-5
Chikaskia: Blackwell, Okla.	26	2	6	32.1	3
		14	14	27.1	14
Salt Fork: Tonkawa, Okla.	17	2	7	23.45	5
Cimarron: Guthrie, Okla.	10	2	5	#12.55	2
Perkins, Okla.	12	2	6	#16.5	3
Manford, Okla.	18	2	6	#26.7	3
Caney: Bartlesville, Okla.	13	4	5	E14.75	4
Bird Creek: Sperry, Okla.	21	2	7	32.7	3
Verdigris: Coyville, Kans.	28	3	9	33.65	4
				36.2	5
				30.0	8
Altoona, Kans.	23	4	9	24.8	7
Independence, Kans.	30	4	7	37.1	6
		13	14	30.35	13
Lenapah, Okla.	30	5	7	30.65	5
Claremore, Okla.	38	2	11	45.8	5
Inola, Okla.	42	2	12	53.2	5
Neosho: Burlington, Kans.	27	5	5	28.45	5
LeRoy, Kans.	23	4	6	25.35	5
Iola, Kans.	15	5	7	16.6	6
Chanute, Kans.	20	4	8	23.1	5
Oswego, Kans.	17	4	10	20.6	7-8
North Canadian: Watonga, Okla.	7	2	2	9.2	2
Arkansas: Arkansas City, Kans.	16	3	5	19.8	4
Ralston, Okla.	16	2	8	22.0	5
Tulsa, Okla.	19	3	7	22.0	5
Webbers Falls, Okla.	23	3	11	#32.3	7
Van Buren, Ark.	22	4	17	32.55	7
Ozark, Ark.	22	5	11	28.9	8
Dardanelle, Ark.	22	5	12	28.1	9
Morrilton, Ark.	30	7	12	32.9	10
Little Rock, Ark.	23	9	11	23.8	10
Pine Bluff, Ark.	25	9	12	26.0	11

FLOOD STAGE DATA

(All dates in October unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
Red Basin					
Washita: Clinton, Okla.	20	2	2	21.35	2
Carnegie, Okla.	18	4	6	21.25	5
Sulphur: Hagansport, Tex.	38	5	8	41.9	5
WEST GULF OF MEXICO DRAINAGE					
Sabine: Quitman, Tex.	16	7	7	16.6	7
Mineola, Tex.	14	6	15	18.5	8
Gladewater, Tex.	26	15	20	28.25	17
Trinity: Dallas, Tex.	30	1 4	2 6	32.3 35.4	2 5
Rosser, Tex.	26	2	10	30.5	8
Trinidad, Tex.	28	5	16	31.8	11
Little: Cameron, Tex.	30	5 15	7 15	37.1 31.4	6 15
Brazos: Rainbow, Tex.	20	4	6	#24.9	6
Waco, Tex.	27	4	5	#29.0	5
Guadalupe: Gonzales, Tex.	20	6	8	30.1	7
Victoria, Tex.	21	9	11	22.5	10
Navidad: Ganado, Tex.	21	5	6	24.0	6
Frio: Derby, Tex.	6	5	8	12.2	6
Calliham, Tex.	12	6	13	19.0 24.6	8 11
WEST GULF OF MEXICO DRAINAGE (Cont'd.)					
Atascosa: Whitsett, Tex.	20	6	6	20.0	6
Nueces: Cotulla, Tex.	15	6	13	24.0	9
Tilden, Tex.	11		22	21.8	14
Three Rivers, Tex.	35	15	18	37.0	17
Wesley Seale Dam, Tex.	88	4	1/	90.2	20
Calallen, Tex.	7	8	27	9.3	23
Devils: Bakers Crossing, Tex.	12	1	1	17.8	1
Rio Grande: Del Rio, Tex.	15	5	5	15.7	5
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
Cowlitz: Randle, Wash.	10	12 23	12 24	11.1 14.35	12 23
PUGET SOUND DRAINAGE					
Snoqualmie: Carnation, Wash.	51	22 25	23 25	52.2 51.0	23 25
Snohomish: Snohomish, Wash.	23	23 25	23 25	23.3 24.5	23 25

* Tentative
1/ Continued at end of month
\# Highest stage observed
E Estimated

RAWINSONDE DATA

Average monthly values

OCTOBER 1959

ALBANY, N. Y. (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	80	7.5	86	215	1.4
1,000--	31	135			267	1.4
950----	31	558	7.9	75	237	4.7
900----	31	1,005	6.6	70	263	9.9
850----	31	1,473	4.8	69	267	15.5
800----	31	1,967	3.0	65	268	19.0
750----	31	2,486	1.8	55	266	24.5
700----	31	3,044	- .4	52	266	29.0
650----	31	3,631	- 3.2	50	265	32.3
600----	31	4,264	- 6.4	50	264	36.9
550----	31	4,935	-10.0	44	261	40.4
500----	31	5,669	-14.5	42	263	43.1
450----	31	6,452	-19.5	37	262	47.8
400----	31	7,324	-25.6	37	265	53.8
350----	31	8,280	-32.2		263	58.3
300----	31	9,351	-39.9		261	60.6
250----	31	10,575	-47.8		261	65.3
200----	31	12,026	-54.4		265	73.1
175----	31	12,877	-57.2		266	69.6
150----	31	13,850	-59.2		266	61.6
125----	31	14,988	-61.7		266	54.2
100----	29	16,366	-62.1		266	45.5
80-----	28	17,748	-60.1		271	37.7
60-----	28	19,552	-58.0		270	21.8
50-----	28	20,705	-56.9		271	16.9
40-----	28	22,123	-55.7		275	18.1
30-----	26	23,968	-53.8		282	15.2
25-----	26	25,142	-52.4		283	16.1
20-----	26	26,594	-50.1		280	19.6
15-----	26	28,485	-47.8		274	22.3
10-----	24	31,201	-44.6		266	41.0
7------	6	33,531	-43.7			

ALBUQUERQUE, N. MEX. (838 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,619	8.8	59	63	3.1
1,000--	31	124				
950----	31	559				
900----	31	1,018				
850----	31	1,497				
800----	31	2,002	10.4	46	195	.6
750----	31	2,535	8.1	45	287	6.8
700----	31	3,104	5.0	46	271	10.9
650----	31	3,702	1.4	43	288	13.0
600----	31	4,345	- 2.6	40	280	16.3
550----	31	5,025	- 6.4	34	293	18.7
500----	31	5,771	-11.1		294	17.7
450----	31	6,566	-17.1		296	18.8
400----	31	7,444	-23.7		277	17.1
350----	31	8,406	-30.9		273	16.9
300----	31	9,481	-39.1		296	15.9
250----	31	10,708	-47.5		276	25.1
200----	31	12,156	-54.9		274	31.3
175----	31	13,003	-58.4		277	30.7
150----	29	13,974	-62.2		274	30.1
125----	27	15,094	-66.4			
100----	19	16,422	-67.9			
80-----	12	17,759	-64.8			
60-----	11	19,525	-59.8			
50-----	8	20,669	-58.7			
40-----	8	22,077	-56.9			
30-----	8	23,909	-54.7			
25-----	8	25,083	-52.6			
20-----	8	26,531	-50.4			
15-----	6	28,417	-48.1			

AMARILLO, TEX. (891 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,095	7.5	72	292	2.1
1,000--	30	133				
950----	30	565				
900----	30	1,017				
850----	30	1,489	10.8	53	283	5.2
800----	30	1,995	10.8	48	265	7.2
750----	30	2,529	8.7	47	258	11.1
700----	30	3,099	5.7	46	261	14.4
650----	30	3,697	2.0	43	263	16.3
600----	30	4,343	- 2.1	39	258	20.2
550----	30	5,021	- 6.3	30	264	22.0
500----	30	5,768	-11.2	28	266	23.7
450----	30	6,559	-17.1		266	27.0
400----	30	7,441	-23.5		265	30.7
350----	30	8,404	-30.3		262	34.0
300----	30	9,483	-38.4		263	36.3
250----	29	10,712	-46.8		260	39.1
200----	29	12,163	-55.1		263	45.5
175----	29	13,008	-59.1		259	44.3
150----	29	13,965	-63.2		266	44.5
125----	27	15,073	-66.5		266	37.5
100----	22	16,411	-69.0		268	28.0
80-----	14	17,748	-65.4		264	16.7
60-----	11	19,520	-61.6		255	6.6
50-----	9	20,669	-59.4			
40-----	8	22,083	-57.4			
30-----	7	23,901	-55.0			
25-----	6	25,062	-53.4			
20-----	5	26,532	-50.0			
15-----	5	28,424	-47.6			

ANCHORAGE, ALASKA (1005 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	30	- 0.7	78	360	1.4
1,000--	31	66			32	1.7
950----	31	477	1.3	57	41	4.9
900----	31	914	.0	51	69	5.1
850----	31	1,370	- 2.4	51	86	6.2
800----	31	1,849	- 5.4	52	100	7.2
750----	31	2,351	- 8.4	53	118	7.0
700----	31	2,886	-11.3	54	126	5.8
650----	31	3,446	-14.8	52	143	2.7
600----	31	4,053	-18.4	47	211	1.6
550----	31	4,692	-22.4	43	220	2.1
500----	31	5,391	-27.2	39	235	3.3
450----	31	6,133	-32.7		256	6.8
400----	31	6,962	-38.7		264	10.3
350----	31	7,867	-45.0		257	12.6
300----	31	8,883	-50.7		265	15.9
250----	30	10,053	-53.9		253	20.2
200----	30	11,488	-52.8		252	22.7
175----	30	12,353	-51.5		249	25.5
150----	30	13,355	-51.3		245	25.8
125----	30	14,540	-51.3		251	26.0
100----	30	15,989	-51.1		247	27.2
80-----	30	17,439	-51.5		248	24.7
60-----	26	19,315	-52.7		254	[illegible]
50-----	25	20,488	-54.1		257	27.4
40-----	20	21,899	-55.8		269	28.6
30-----	16	23,752	-55.8		270	29.5
25-----	11	24,950	-55.8		279	32.8
20-----	8	26,388	-55.4			
15-----	5	28,131	-57.5			

ANNETTE, ALASKA (1009 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	37	7.8	83	120	5.2
1,000--	31	114			55	3.1
950----	31	532	5.9	77	133	4.1
900----	31	977	3.2	79	173	6.2
850----	31	1,439	.5	77	223	7.4
800----	31	1,924	- 1.7	69	234	10.5
750----	30	2,431	- 4.6	66	252	14.2
700----	30	2,976	- 7.6	62	258	15.9
650----	30	3,543	-11.2	58	257	19.0
600----	30	4,160	-14.8	53	264	20.4
550----	30	4,805	-19.0	50	263	17.5
500----	30	5,517	-23.5	48	264	21.4
450----	30	6,270	-28.9	48	269	22.3
400----	29	7,116	-34.6	50	263	20.8
350----	28	8,039	-40.7		274	24.1
300----	28	9,075	-47.7		273	31.1
250----	28	10,264	-52.8			
200----	25	11,685	-54.0			
175----	24	[illegible]	-53.0			
150----	22	13,530	-53.3			
125----	21	14,705	-54.1			
100----	18	16,115	-54.1			
80-----	15	17,548	-54.2			
60-----	10	19,395	-54.2			
50-----	[illegible]	20,559	-54.7			
40-----	9	21,984	-55.5			
30-----	[illegible]	23,861	-54.2			
25-----	5	25,032	-53.9			

ATHENS, GA. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	246	14.7	93	58	2.3
1,000--	31	137				
950----	31	575	15.8	77	87	6.0
900----	31	1,034	14.7	75	157	2.7
850----	31	1,517	12.9	74	220	7.4
800----	31	2,025	10.7	63	231	8.2
750----	31	2,560	8.7	59	248	11.9
700----	31	3,130	5.6	58	248	15.3
650----	31	3,730	2.3	55	251	16.1
600----	31	4,377	- 1.3	49	256	18.1
550----	31	5,058	- 5.1	42	263	20.4
500----	31	5,810	- 9.5	37	263	22.0
450----	31	6,612	-14.8		261	25.6
400----	31	7,499	-20.8		260	28.8
350----	31	8,474	-27.4		264	36.1
300----	31	9,566	-35.2		264	41.8
250----	30	10,810	-43.9		264	50.9
200----	30	12,277	-53.4		266	54.2
175----	30	13,126	-59.0		267	52.5
150----	30	14,080	-64.5		267	48.4
125----	28	15,179	-69.0		266	39.8
100----	27	16,509	-71.1		270	30.3
80-----	27	17,836	-68.2		272	17.3
60-----	26	19,587	-62.5		271	6.6
50-----	25	20,721	-59.3		290	5.8
40-----	24	22,129	-56.3		280	6.4
30-----	24	23,975	-52.0		282	8.9
25-----	23	25,158	-50.2		280	11.5
20-----	20	26,623	-48.2		272	11.9
15-----	16	28,529	-45.7		279	20.6
10-----	7	31,215	-42.2			

BARROW, ALASKA (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	- 8.5	85	162	1.2
1,000--	31	127	- 8.9	86	93	3.7
950----	31	521	- 9.9	84	62	4.5
900----	31	940	-11.0	80	53	6.6
850----	31	1,379	-12.3	72	35	6.6
800----	31	1,841	-13.7	62	19	7.4
750----	31	2,327	-15.8	58	348	6.4
700----	31	2,849	-18.0	53	335	8.0
650----	31	3,396	-20.7	50	291	8.4
600----	31	3,989	-24.0	47	279	12.6
550----	31	4,613	-27.7	46	265	15.2
500----	31	5,300	-31.8	45	265	20.8
450----	31	6,030	-36.7		262	25.5
400----	31	6,845	-42.2		265	24.9
350----	31	7,737	-48.5		265	26.8
300----	31	8,736	-55.0		257	20.2
250----	31	9,892	-57.7		235	18.1
200----	31	11,308	-54.7		263	14.0
175----	31	12,164	-54.1		253	12.4
150----	30	13,145	-53.4		269	13.0
125----	30	14,318	-53.5			
100----	29	15,758	-53.9			
80-----	28	17,194	-54.8			
60-----	26	19,045	-56.2			
50-----	25	20,209	-57.2			
40-----	15	21,656	-57.4			
30-----	11	23,470	-58.7			
25-----	9	24,589	-60.0			
20-----	7	26,006	-59.9			
15-----	5	27,874	-58.6			

BARTER IS., ALASKA (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	- 9.3	87	323	1.4
1,000--	30	121	- 9.4	84	297	3.5
950----	30	517	- 9.9	79	299	2.9
900----	30	935	-10.0	76	283	3.7
850----	29	1,370	-10.6	73	290	5.2
800----	29	1,835	-12.1	69	284	6.2
750----	29	2,321	-14.1	62	290	6.6
700----	29	2,848	-16.3	60	291	8.5
650----	29	3,396	-19.0	56	293	8.9
600----	29	3,996	-22.1	52	290	11.5
550----	29	4,622	-25.9	52	283	14.0
500----	29	5,315	-30.1	50	285	17.5
450----	29	6,048	-35.0	46	275	20.6
400----	29	6,870	-40.5		273	21.8
350----	29	7,767	-46.9		270	23.1
300----	29	8,773	-53.6		272	24.3
250----	29	9,934	-56.8		278	25.1
200----	27	11,356	-53.9		271	24.7
175----	27	12,217	-52.5		270	23.9
150----	26	13,215	-52.3		270	24.3
125----	26	14,395	-51.9		268	23.3
100----	26	15,841	-52.3		266	26.2
80-----	26	17,282	-53.3		268	25.5
60-----	25	19,120	-54.7		267	26.6
50-----	21	20,304	-56.0		269	29.1
40-----	[illegible]	21,700	-57.1		264	32.1
30-----	17	23,537	-58.2		264	36.3
25-----	15	24,693	-58.1		262	40.8
20-----	11	26,089	-58.5		260	47.0
15-----	8	27,940	-59.2			

BETHEL, ALASKA (1003 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	- 3.1	87	20	7.0
1,000--	31	64			35	8.5
950----	31	474	- .8	64	55	11.5
900----	31	905	- 2.0	59	62	8.7
850----	31	1,359	- 3.5	55	71	5.6
800----	31	1,836	- 5.7	48	65	5.6
750----	31	2,340	- 8.3	46	63	5.4
700----	31	2,873	-11.3	45	48	5.1
650----	31	3,437	-14.6	41	54	5.4
600----	31	4,041	-18.2	40	70	3.9
550----	31	4,683	-22.4	38	55	6.0
500----	31	5,380	-27.4	38	26	4.7
450----	31	6,127	-32.6	40	348	2.9
400----	31	6,951	-38.7		302	10.3
350----	31	7,857	-44.7		2	5.6
300----	31	8,874	-51.2		304	6.0
250----	31	10,044	-56.1		299	8.4
200----	30	11,453	-54.9		244	10.5
175----	30	12,310	-53.2		237	13.6
150----	30	13,306	-52.2		234	18.1
125----	29	14,482	-51.8		243	18.8
100----	28	15,929	-51.4		246	21.4
80-----	27	17,383	-51.8		236	23.7
60-----	26	19,256	-52.6		242	23.1
50-----	26	20,433	-53.4		255	22.2
40-----	25	21,870	-54.0		248	24.5
30-----	21	23,717	-54.3			
25-----	17	24,844	-54.9			
20-----	16	26,241	-55.4			
15-----	11	28,061	-56.0			

BISMARCK, N. DAK. (955 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	505	0.8	85	338	2.7
1,000--	31	135				
950----	31	552			326	1.4
900----	31	986	2.3	71	272	5.2
850----	31	1,447	1.4	66	299	10.7
800----	31	1,934	.5	59	290	11.3
750----	31	2,449	- 1.2	52	288	15.2
700----	31	2,998	- 3.9	48	288	17.7
650----	31	3,578	- 6.8	46	283	20.0
600----	31	4,202	-10.3	43	280	23.7
550----	31	4,861	-14.3	46	276	27.0
500----	31	5,585	-19.0	41	275	29.9
450----	31	6,358	-24.5	40	271	32.8
400----	31	7,211	-30.3	39	269	37.9
350----	31	8,148	-37.1		268	44.5
300----	31	9,196	-45.0		268	43.3
250----	31	10,395	-52.4		262	48.8
200----	31	11,828	-54.3			
175----	31	12,684	-54.6			
150----	31	13,670	-55.2			
125----	31	14,831	-56.5			
100----	31	16,246	-57.0			
80-----	30	17,655	-57.1			
60-----	29	19,476	-57.0			
50-----	27	20,628	-56.9			
40-----	26	22,045	-56.7			
30-----	22	23,879	-55.1			
25-----	21	25,042	-54.5			
20-----	9	26,446	-54.4			

BOISE, IDAHO (918 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	868	6.1	81	148	3.1
1,000--	31	156				
950----	31	583				
900----	31	1,029	9.5	65	249	.8
850----	31	1,505	9.5	51	310	5.1
800----	31	2,006	6.8	51	296	10.1
750----	31	2,532	3.5	51	298	13.0
700----	31	3,092	.9	47	298	15.7
650----	31	3,681	- 1.9	43	297	18.7
600----	31	4,318	- 5.8	39	301	19.0
550----	31	4,986	-10.1	39	296	22.5
500----	31	5,723	-14.6	39	313	19.0
450----	30	6,514	-19.9	41	308	20.6
400----	29	7,377	-26.4	40	315	20.8
350----	29	8,329	-33.4		317	17.5
300----	29	9,394	-41.4			
250----	29	10,610	-49.5			
200----	28	12,045	-55.5			
175----	28	12,894	-57.3			
150----	26	13,866	-58.8			
125----	25	15,002	-61.6			
100----	21	16,385	-62.5			
80-----	18	17,762	-60.8			
60-----	17	19,559	-59.3			
50-----	17	20,703	-58.5			
40-----	15	22,107	-57.4			
30-----	15	23,932	-55.7			
25-----	12	25,094	-54.1			
20-----	8	26,546	-52.6			
15-----						
10-----						

BROWNSVILLE, TEX. (1011 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	21.4	89	360	1.0
1,000--	31	103	22.9	83	98	1.2
950----	31	547	21.4	77	144	7.0
900----	31	1,018	19.3	70	154	7.6
850----	31	1,509	17.2	62	162	8.0
800----	31	2,025	14.6	58	165	6.4
750----	31	2,565	12.2	53	179	5.4
700----	31	3,145	9.1	51	205	4.3
650----	31	3,751	5.6	49	229	4.7
600----	31	4,407	2.0	50	230	7.8
550----	31	5,094	- 2.3	52	228	9.7
500----	31	5,856	- 6.3	47	232	11.3
450----	31	6,668	-11.6	43	242	15.2
400----	31	7,566	-17.7	40	243	19.2
350----	31	8,552	-24.4		248	19.8
300----	31	9,657	-32.6		249	24.3
250----	31	10,916	-42.6		253	29.3
200----	30	12,390	-54.2		258	29.9
175----	30	13,234	-60.8		263	30.3
150----	29	14,175	-67.7		264	27.4
125----	24	15,253	-74.7		265	24.7
100----	16	16,543	-77.7			
80-----	12	17,853	-72.4			
60-----	11	19,586	-63.9			
50-----	11	20,714	-59.8			
40-----	11	22,124	-55.6			
30-----	11	23,979	-50.9			
25-----	11	25,173	-48.1			
20-----	11	26,654	-45.5			
15-----	9	28,597	-42.0			

BUFFALO, N. Y. (993 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	182	9.7	82	214	3.5
1,000--	31	121				
950----	31	545	8.9	78	238	8.0
900----	31	994	6.9	75	251	14.2
850----	31	1,463	4.7	73	257	17.1
800----	31	1,956	3.0	67	261	19.8
750----	31	2,478	1.2	61	264	22.5
700----	31	3,032	- 1.2	57	263	26.0
650----	31	3,616	- 4.0	54	263	30.3
600----	31	4,250	- 7.3	54	264	33.6
550----	31	4,917	-11.1	52	264	37.3
500----	31	5,651	-15.4	46	263	41.8
450----	31	6,435	-20.7	43	267	44.7
400----	31	7,301	-26.8	40	268	47.8
350----	31	8,251	-33.8	36	268	52.3
300----	31	9,315	-41.5		264	57.3
250----	31	10,532	-48.8		261	63.1
200----	31	11,982	-53.8		263	71.7
175----	30	12,843	-56.4		264	69.4
150----	30	13,816	-59.0		262	60.4
125----	30	14,954	-60.7		264	48.6
100----	28	16,341	-61.2		264	37.1
80-----	28	17,730	-59.7		267	25.1
60-----	28	19,535	-58.0		272	16.7
50-----	26	20,696	-56.7		275	11.3
40-----	23	22,125	-55.1		275	10.3
30-----	23	23,972	-53.0		279	12.2
25-----	21	25,149	-51.6		276	13.4
20-----	21	26,604	-49.6		273	16.3
15-----	18	28,487	-47.9		272	20.4
10-----	8	31,129	-46.3			

BURRWOOD, LA. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	3	23.4	89	50	1.7
1,000--	29	114	23.5	86	69	2.5
950----	29	562	21.0	83	141	3.3
900----	29	1,029	18.6	77	176	5.2
850----	29	1,519	16.2	72	201	5.6
800----	29	2,034	13.7	65	210	6.0
750----	29	2,574	11.6	55	221	8.0
700----	29	3,151	8.6	53	227	9.9
650----	29	3,758	5.3	55	234	11.5
600----	29	4,412	1.6	51	236	11.1
550----	28	5,101	- 2.4	45	245	12.8
500----	28	5,858	- 7.1	46	249	13.2
450----	28	6,669	-12.3	42	256	14.8
400----	28	7,565	-18.2	36	260	17.7
350----	28	8,548	-25.4	36	255	21.2
300----	27	9,650	-33.3		256	26.0
250----	27	10,907	-43.0		259	31.5
200----	27	12,375	-54.3		263	34.8
175----	27	13,220	-60.6		261	32.6
150----	27	14,166	-67.0		262	30.5
125----	26	15,255	-72.9		263	25.8
100----	26	16,553	-74.9		261	16.9
80-----	26	17,858	-71.2		188	3.7
60-----	26	19,590	-63.4		109	4.1
50-----	26	20,719	-59.9		208	1.7
40-----	26	22,122	-56.5		339	1.9
30-----	26	23,959	-53.5		35	4.5
25-----	26	25,139	-50.7		276	2.9
20-----	26	26,599	-48.2		316	4.1
15-----	21	28,502	-44.3		316	8.0
10-----	6	31,232	-41.3			

CAPE HATTERAS, N. C. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	19.6	83	8	2.7
1,000--	31	132	19.8	78	22	4.1
950----	31	566	17.1	76	272	1.4
900----	31	1,032	14.5	72	238	5.8
850----	31	1,514	12.3	63	244	10.3
800----	31	2,021	10.1	61	244	12.0
750----	31	2,555	8.1	53	247	13.4
700----	31	3,124	5.6	45	249	16.5
650----	31	3,722	2.7	39	251	19.2
600----	31	4,371	- 1.0	38	252	21.8
550----	31	5,054	- 5.0	37	253	25.3
500----	31	5,804	- 9.5	39	252	29.7
450----	30	6,600	-14.8	39	253	33.8
400----	30	7,489	-20.9		259	36.1
350----	30	8,463	-27.9		258	41.6
300----	30	9,553	-35.5		261	49.9
250----	30	10,800	-43.8		263	55.4
200----	30	12,268	-53.8		265	59.7
175----	30	13,115	-59.2		265	60.8
150----	30	14,071	-63.7		266	52.7
125----	29	15,177	-68.1		266	40.8
100----	29	16,509	-70.0		267	29.9
80-----	28	17,846	-67.0		269	17.7
60-----	27	19,610	-61.6		291	5.6
50-----	25	20,746	-58.6		285	6.6
40-----	25	22,158	-55.8		300	5.6
30-----	24	24,011	-51.8		300	5.1
25-----	23	25,199	-49.8		291	9.1
20-----	22	26,670	-46.7		278	10.3
15-----	19	28,589	-44.5		275	12.8
10-----	14	31,324	-40.7			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

OCTOBER 1959

CARIBOU, ME. (992 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	191	3.7	90	245	4.5
1,000	31	126				
950	31	543	3.0	78	255	8.0
900	31	980	.8	76	267	11.5
850	31	1,438	-.6	70	275	13.8
800	31	1,922	-1.9	65	277	16.3
750	31	2,433	-3.9	57	277	20.6
700	31	2,976	-6.1	52	272	25.8
650	31	3,553	-8.5	48	266	27.8
600	31	4,172	-11.6	44	263	33.0
550	31	4,832	-15.2	38	264	37.7
500	31	5,549	-19.5	37	265	42.6
450	31	6,322	-24.3		264	47.8
400	31	7,175	-29.9		263	52.7
350	31	8,115	-36.1		267	62.4
300	31	9,170	-43.0		265	66.8
250	31	10,383	-48.9		267	71.5
200	30	11,838	-53.8		269	72.9
175	30	12,694	-54.9		268	72.3
150	29	13,670	-55.8		270	63.0
125	28	14,835	-57.2		263	48.6
100	27	16,247	-57.7		263	42.9
80	26	17,663	-57.0		266	35.2
60	25	19,488	-55.2		265	24.7
50	22	20,654	-54.5		272	21.8
40	20	22,087	-53.7		276	20.4
30	19	23,950	-52.7		273	14.4
25	19	25,131	-51.5		269	15.5
20	18	26,584	-49.9		283	19.0
15	13	28,485	-47.0		276	21.8
10	11	31,174	-44.5			
7	6	33,543	-43.5			

CHARLESTON, S. C. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	13	17.3	92	5	2.9
1,000	29	139	18.4	87	41	4.3
950	29	578	17.9	77	113	1.0
900	29	1,042	15.8	78	222	4.5
850	29	1,526	13.8	67	230	6.0
800	29	2,036	11.6	63	241	9.5
750	29	2,575	9.3	56	242	12.0
700	29	3,144	6.5	52	244	13.0
650	29	3,747	3.0	51	245	14.2
600	29	4,393	-.7	47	252	17.9
550	29	5,079	-4.9	44	254	20.2
500	29	5,827	-9.0	45	254	24.1
450	29	6,631	-13.6	41	256	27.0
400	29	7,522	-19.8	40	258	30.3
350	29	8,498	-26.5	43	258	33.0
300	29	9,593	-34.5	35	262	42.0
250	29	10,846	-43.2		263	48.2
200	28	12,314	-53.7		268	50.7
175	28	13,162	-59.3		267	46.2
150	28	14,115	-65.0		268	47.4
125	28	15,212	-70.2		268	35.8
100	27	16,530	-72.3		268	25.8
80	26	17,855	-68.6		271	14.0
60	25	19,606	-62.4		260	5.1
50	25	20,742	-58.9		293	4.7
40	24	22,157	-55.4		288	4.7
30	24	24,009	-51.9		270	8.5
25	23	25,195	-49.7		266	11.1
20	22	26,664	-47.6		273	12.4
15	20	28,576	-45.2		277	16.9
10	15	31,312	-41.9		275	24.9
7	8	33,783	-37.1			

COLD BAY, ALASKA (1001 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	27	4.3	84	120	0.8
1,000	31	36			295	.6
950	31	447	2.8	76	295	3.7
900	31	889	-.1	75	323	3.9
850	31	1,345	-2.3	69	345	2.9
800	31	1,826	-3.8	56	323	4.5
750	31	2,329	-6.0	48	313	4.7
700	31	2,876	-8.9	45	278	4.5
650	31	3,435	-12.6	43	289	3.7
600	31	4,050	-16.3	41	281	4.1
550	31	4,692	-20.4	40	249	6.4
500	31	5,400	-25.1	40	273	5.2
450	31	6,145	-30.5	38	259	6.0
400	31	6,985	-36.9		259	8.4
350	31	7,897	-43.6		221	7.0
300	31	8,919	-50.0		235	8.9
250	31	10,096	-54.8		240	18.1
200	31	11,520	-54.5		241	21.0
175	30	12,379	-52.5		228	21.8
150	29	13,383	-51.7		235	22.0
125	29	14,568	-51.4		229	22.3
100	28	16,011	-51.4		232	22.0
80	25	17,468	-51.6		228	20.2
60	24	19,334	-52.3		233	20.2
50	23	20,517	-52.6		236	21.6
40	22	21,965	-52.8		231	18.8
30	19	23,839	-52.6		236	15.9
25	13	25,026	-53.2		224	11.7
20	12	26,473	-53.0			
15	8	28,398	-51.9			

COLUMBIA, MO. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	238	9.3	88	200	0.6
1,000	31	131				
950	31	558	10.7	73	247	7.4
900	31	1,009	9.6	68	268	12.4
850	31	1,483	8.5	61	268	14.8
800	31	1,983	7.0	53	269	15.2
750	31	2,510	4.8	51	269	16.7
700	31	3,073	2.1	50	266	19.0
650	31	3,662	-1.1	45	269	22.0
600	31	4,303	-4.8	45	267	27.6
550	31	4,970	-8.8	39	264	29.3
500	31	5,715	-13.5	39	265	32.1
450	31	6,497	-18.9	34	268	35.2
400	31	7,376	-25.1		267	40.0
350	31	8,333	-31.9		265	45.7
300	31	9,405	-39.7		266	46.2
250	31	10,632	-47.1		261	54.0
200	31	12,084	-54.4		259	63.7
175	31	12,934	-57.4		259	64.1
150	31	13,901	-60.4		260	56.9
125	28	15,028	-63.5		260	48.0
100	25	16,399	-64.6		259	35.9
80	25	17,765	-63.1		259	24.9
60	25	19,549	-60.4		275	11.1
50	22	20,690	-58.8		270	8.2
40	22	22,097	-56.7		291	5.8
30	21	23,931	-53.9		275	8.4
25	19	25,087	-52.4		277	11.1
20	15	26,509	-51.3		271	15.7
15	8	28,304	-51.1			

DAYTON, OHIO (981 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	297	8.3	84	239	0.6
1,000	31	133				
950	31	565	10.2	74	237	4.9
900	31	1,013	9.3	68	255	10.9
850	31	1,487	7.8	58	259	14.6
800	31	1,986	6.2	52	256	16.7
750	31	2,512	4.0	47	258	19.0
700	31	3,073	1.3	44	261	21.6
650	31	3,664	-1.7	45	260	26.8
600	31	4,300	-5.0	41	261	29.7
550	31	4,975	-9.1	35	264	31.5
500	31	5,711	-13.7	31	263	35.4
450	31	6,497	-19.1	30	263	39.8
400	31	7,372	-25.1		261	43.1
350	31	8,328	-32.1		263	49.0
300	31	9,400	-39.7		259	54.4
250	31	10,628	-46.6		257	62.0
200	31	12,084	-53.6		260	68.8
175	31	12,936	-57.2		260	67.6
150	30	13,906	-60.7		260	61.4
125	30	15,032	-63.5		261	52.5
100	30	16,399	-64.2		261	37.5
80	29	17,770	-62.5		265	26.6
60	28	19,561	-59.3		267	13.0
50	28	20,708	-57.6		270	9.9
40	28	22,122	-55.9		275	7.0
30	27	23,962	-52.9		290	9.1
25	26	25,142	-51.2		284	9.1
20	26	26,599	-49.5		274	14.2
15	23	28,489	-47.4		270	22.0
10	12	31,172	-44.3			

DENVER, COLO. (838 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,611	2.5	77	181	2.7
1,000	31	155				
950	31	578				
900	31	1,025				
850	31	1,493				
800	31	1,989	6.0	56	298	1.2
750	31	2,518	4.7	52	311	4.9
700	31	3,077	1.8	49	308	10.7
650	31	3,673	-1.8	50	300	15.0
600	31	4,304	-5.0	48	297	19.6
550	31	4,979	-9.4	47	291	21.2
500	31	5,713	-14.2	40	290	23.1
450	31	6,495	-19.9	39	287	25.6
400	31	7,365	-26.6	38	285	29.9
350	31	8,315	-34.1		284	35.0
300	31	9,377	-42.1		282	39.6
250	31	10,590	-49.9		278	42.9
200	31	12,029	-55.6		279	44.5
175	31	12,876	-57.7		280	41.4
150	30	13,844	-60.5		281	39.8
125	29	14,978	-63.5		282	34.0
100	27	16,353	-64.2		285	22.9
80	26	17,730	-62.1		284	14.8
60	25	19,522	-60.0		291	5.8
50	25	20,667	-58.2		285	4.5
40	23	22,077	-56.7		299	5.1
30	18	23,906	-54.3		273	3.9
25	13	25,084	-52.3			
20	8	26,504	-50.3			

DODGE CITY, KANS. (925 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	792	6.5	82	295	2.5
1,000	31	140				
950	31	568				
900	31	1,014	9.4	64	283	3.1
850	31	1,489	10.3	52	299	7.2
800	31	1,992	9.1	48	266	7.8
750	31	2,525	6.9	46	253	8.2
700	31	3,089	3.8	43	264	10.3
650	31	3,686	.3	42	255	15.9
600	31	4,326	-3.4	40	263	19.6
550	31	5,005	-7.7	39	254	22.3
500	31	5,745	-12.4	37	264	21.8
450	31	6,534	-18.2	37	257	26.2
400	31	7,411	-24.5	33	259	31.3
350	31	8,370	-31.3		267	33.4
300	31	9,443	-39.6		256	38.3
250	31	10,666	-48.2		273	38.7
200	30	12,111	-54.8		289	44.9
175	30	12,959	-58.1		273	36.3
150	30	13,922	-61.3			
125	29	15,045	-64.5			
100	29	16,405	-65.5			
80	28	17,767	-63.6			
60	27	19,550	-60.2			
50	27	20,693	-58.1			
40	24	22,110	-56.2			
30	22	23,951	-52.8			
25	20	25,135	-50.7			
20	15	26,597	-48.0			
15	5	28,528	-46.6			

EL PASO, TEX. (880 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,197	14.2	50	109	0.6
1,000	31	100				
950	31	537				
900	31	1,004				
850	31	1,491	16.2	41	247	.6
800	31	2,004	13.9	41	246	4.5
750	31	2,539	10.6	41	247	8.2
700	31	3,116	6.7	41	244	9.3
650	31	3,715	3.1	37	251	11.7
600	31	4,365	-.6		256	10.7
550	31	5,045	-4.6		270	10.7
500	31	5,799	-9.7		275	10.9
450	31	6,595	-15.7		273	10.9
400	31	7,481	-22.6		283	10.1
350	31	8,447	-30.0		288	13.2
300	31	9,527	-38.1		283	17.9
250	31	10,761	-46.0		273	22.5
200	31	12,220	-54.3		267	37.9
175	30	13,071	-59.0		265	39.6
150	30	14,026	-64.2		272	32.8
125	29	15,132	-68.5		271	33.4
100	26	16,455	-70.8		267	14.6
80	24	17,782	-68.1		297	8.0
60	22	19,535	-62.7		97	1.7
50	22	20,667	-59.7		265	4.7
40	22	22,070	-57.2		275	5.4
30	22	23,905	-53.8		286	7.6
25	22	25,082	-51.6		284	10.3
20	20	26,535	-48.9		284	10.1
15	17	28,453	-45.6		273	16.1
10	11	31,206	-40.2			

ELY, NEV. (810 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,908	0.3	60	186	7.2
1,000	31	177				
950	31	600				
900	31	1,045				
850	31	1,513				
800	31	2,005	6.3	50	199	4.3
750	31	2,534	7.1	42	336	5.1
700	31	3,100	3.7	43	333	11.5
650	31	3,695	.3	41	316	14.6
600	31	4,337	-3.0	37	303	17.7
550	31	5,013	-7.5	37	302	19.4
500	31	5,756	-12.4	33	301	18.8
450	31	6,549	-17.8	28	289	24.3
400	31	7,425	-24.4		299	22.3
350	31	8,383	-32.2		308	22.0
300	31	9,453	-40.3			
250	31	10,676	-48.1			
200	30	12,112	-54.8			
175	30	12,961	-57.6			
150	30	13,928	-60.4			
125	30	15,057	-63.1			
100	29	16,425	-65.0			
80	29	17,788	-63.7			
60	28	19,566	-60.9			
50	28	20,703	-59.5			
40	27	22,102	-57.5			
30	26	23,932	-54.7			
25	25	25,099	-53.8			
20	25	26,538	-52.0			
15	16	28,387	-50.9			

FAIRBANKS, ALASKA (995 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	135	-5.8	78	28	3.1
1,000	31	97			42	1.7
950	31	504	-3.1	61	80	2.1
900	31	929	-4.3	58	129	2.7
850	31	1,379	-5.6	56	187	2.9
800	31	1,854	-7.4	55	217	4.5
750	31	2,355	-9.6	56	228	6.8
700	31	2,885	-12.5	52	237	7.4
650	31	3,444	-16.0	51	228	5.6
600	31	4,047	-20.0	48	249	6.0
550	31	4,683	-24.2	45	268	4.9
500	31	5,376	-29.1	43	248	8.7
450	31	6,116	-34.7	43	251	8.5
400	31	6,935	-40.9		262	11.9
350	30	7,834	-47.0		256	12.4
300	30	8,841	-53.2		273	12.0
250	30	10,007	-55.8		268	15.9
200	30	11,430	-54.2		259	19.2
175	30	12,290	-52.7		260	22.2
150	30	13,287	-52.1		257	27.8
125	30	14,468	-52.0		251	26.0
100	30	15,914	-52.0		250	28.8
80	30	17,359	-52.7		257	29.3
60	28	19,216	-54.2		255	28.2
50	27	20,388	-55.2		260	28.8
40	24	21,821	-55.3			
30	15	23,614	-56.1			
25	8	24,794	-54.8			
20	8	26,224	-54.1			

FLINT, MICH. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	234	6.7	87	229	1.7
1,000	31	125				
950	31	549	7.2	78	239	5.1
900	31	992	5.5	73	259	10.1
850	31	1,459	4.6	62	265	15.0
800	31	1,952	3.1	61	265	19.4
750	31	2,471	.7	59	264	21.6
700	31	3,025	-1.5	55	265	25.5
650	31	3,611	-4.1	53	264	29.1
600	31	4,241	-7.2	54	261	33.6
550	31	4,910	-11.2	53	261	36.7
500	31	5,641	-15.6	49	261	39.6
450	31	6,421	-20.7	41	263	42.7
400	31	7,289	-27.0	38	264	47.6
350	31	8,238	-34.0		264	52.1
300	31	9,299	-42.2		263	54.2
250	31	10,509	-49.5		263	63.1
200	31	11,957	-53.5		263	72.1
175	31	12,811	-55.7		264	68.4
150	31	13,789	-57.7		264	60.4
125	30	14,932	-59.7		264	51.9
100	29	16,324	-60.9		266	38.7
80	29	17,717	-59.6		270	27.0
60	26	19,530	-57.5		272	19.0
50	26	20,685	-56.4		276	14.0
40	26	22,106	-54.9		276	13.6
30	24	23,957	-52.4		280	13.6
25	24	25,141	-50.6		278	13.0
20	24	26,601	-49.0		278	20.8
15	20	28,519	-47.1		271	25.5
10	9	31,210	-43.5			

FORT WORTH, TEX. (994 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	180	14.6	84		0.0
1,000	31	124				
950	31	562	16.0	71	191	5.4
900	31	1,020	15.2	62	226	6.6
850	31	1,504	14.2	53	244	8.2
800	31	2,014	12.2	44	260	8.5
750	31	2,552	9.8	39	254	9.7
700	31	3,124	6.6	38	260	10.9
650	31	3,724	3.1	35	254	13.4
600	31	4,373	-.4	32	258	15.3
550	30	5,056	-4.4		261	17.3
500	30	5,809	-9.3		258	20.4
450	30	6,608	-15.0		263	21.4
400	30	7,497	-21.5		264	24.5
350	30	8,467	-28.5		260	30.5
300	30	9,555	-36.5		259	37.9
250	30	10,797	-44.9		257	48.8
200	30	12,261	-53.6		256	58.5
175	29	13,108	-58.7		259	58.5
150	28	14,065	-63.5		262	52.1
125	27	15,175	-68.1		265	42.2
100	23	16,511	-71.0		265	31.7
80	23	17,838	-68.4		266	16.3
60	23	19,585	-62.9		266	3.9
50	23	20,717	-59.6		276	2.5
40	22	22,126	-56.4		278	3.9
30	20	23,964	-52.8		267	5.8
25	20	25,148	-50.7		283	9.1
20	18	26,615	-48.1		280	13.2
15	16	28,511	-45.4		274	15.9
10	13	31,208	-42.3		270	34.4
7	7	33,590	-41.9			
5	5	35,931	-38.6			

GLASGOW, MONT. (934 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	696	1.3	88	332	1.2
1,000	31	135				
950	31	552				
900	31	991	3.1	71	313	2.3
850	31	1,455	2.6	64	291	7.0
800	31	1,943	.5	63	290	11.5
750	31	2,458	-1.8	62	295	14.6
700	31	3,006	-4.7	57	282	17.3
650	31	3,579	-7.8	53	287	20.8
600	31	4,205	-11.1	48	290	25.1
550	31	4,857	-15.5	43	291	29.0
500	31	5,580	-20.3	42	293	29.0
450	31	6,345	-25.6	42	285	28.4
400	31	7,196	-31.6	38	285	29.7
350	31	8,128	-38.0		282	25.8
300	31	9,174	-45.0		279	26.0
250	31	10,373	-51.9			
200	30	11,814	-54.9			
175	30	12,667	-55.2			
150	29	13,655	-56.1			
125	28	14,807	-57.3			
100	27	16,220	-58.5			
80	27	17,626	-57.8			
60	27	19,444	-57.4			
50	27	20,596	-57.3			
40	27	22,007	-57.2			
30	27	23,830	-56.1			
25	26	24,995	-55.2			
20	24	26,420	-54.4			
15	15	28,253	-53.9			

GRAND JUNCTION, COLO. (852 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,474	6.7	56	118	5.6
1,000	31	136				
950	31	564				
900	31	1,019				
850	31	1,494			115	6.2
800	31	1,996	8.8	43	148	4.7
750	31	2,525	6.1	43	259	3.1
700	31	3,090	2.3	46	276	7.6
650	31	3,680	-1.2	44	294	11.9
600	31	4,320	-4.9	47	294	15.3
550	31	4,992	-9.1	42	296	18.5
500	31	5,731	-13.6	36	295	21.0
450	31	6,518	-19.1		294	24.7
400	31	7,392	-25.7		299	27.0
350	31	8,345	-33.3		298	25.6
300	31	9,409	-41.4		308	22.7
250	31	10,623	-49.8		315	23.7
200	31	12,066	-54.7		298	23.9
175	31	12,916	-57.3		290	25.8
150	31	13,883	-60.5		286	27.4
125	30	15,013	-64.0		288	28.4
100	27	16,381	-65.8		297	22.3
80	25	17,739	-64.4			
60	23	19,511	-61.2			
50	22	20,650	-59.2			
40	20	22,059	-57.7			
30	12	23,860	-55.4			
25	10	25,006	-54.1			
20	5	26,476	-51.4			

GREAT FALLS, MONT. (887 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,123	4.4	70	234	5.6
1,000	31	131				
950	31	554				
900	31	1,003				
850	31	1,469	5.0	60	255	13.4
800	31	1,962	3.2	60	273	14.2
750	31	2,477	.4	60	283	14.6
700	31	3,033	-2.8	61	289	19.0
650	31	3,615	-6.1	58	294	25.5
600	31	4,239	-10.1	59	290	27.2
550	31	4,899	-13.9	52	294	29.9
500	31	5,624	-18.2	47	294	33.8
450	31	6,397	-23.2	43	300	38.9
400	31	7,256	-29.3	44	305	39.6
350	31	8,196	-36.3	42	300	46.6
300	31	9,249	-43.9		291	54.8
250	31	10,455	-50.6		291	60.4
200	31	11,893	-55.1		288	53.6
175	31	12,744	-55.9		290	49.4
150	31	13,723	-57.1		292	46.0
125	31	14,874	-58.5		289	40.2
100	31	16,274	-58.8		286	33.4
80	31	17,675	-58.6		289	29.0
60	31	19,487	-57.5		288	21.2
50	30	20,638	-57.7		291	18.1
40	27	22,055	-57.1		294	15.5
30	26	23,878	-56.4		294	14.6
25	25	25,038	-55.6		291	16.5
20	25	26,461	-55.0		288	16.3
15	17	28,275	-54.2		276	27.0
10	5	30,865	-53.2			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

OCTOBER 1959

GREEN BAY, WIS. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	210	5.4	92	322	2.1
1,000	31	115				
950	31	535	5.1	80	297	2.3
900	31	975	3.0	77	291	4.3
850	31	1,437	1.5	74	285	8.2
800	31	1,926	.9	64	282	9.9
750	31	2,441	- .6	58	272	13.2
700	31	2,993	- 3.0	54	270	16.7
650	31	3,573	- 5.7	52	274	20.4
600	31	4,202	- 9.0	48	272	27.6
550	30	4,863	-13.2	47	266	30.5
500	30	5,588	-17.8	44	264	35.2
450	30	6,361	-23.1	40	263	34.8
400	30	7,221	-29.4	40	261	36.9
350	30	8,161	-36.3	38	262	40.0
300	30	9,213	-44.1		254	35.8
250	30	10,415	-51.3		258	36.7
200	30	11,857	-53.3			
175	30	12,715	-54.3			
150	30	13,700	-55.8			
125	30	14,856	-57.5			
100	30	16,264	-58.3			
80	30	17,668	-57.8			
60	27	19,484	-56.5			
50	27	20,641	-56.0			
40	27	22,063	-55.0			
30	27	23,906	-53.4			
25	26	25,078	-52.7			
20	24	26,523	-51.7			
15	12	28,398	-50.8			
10						
7						
5						

GREENSBORO, N. C. (985 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	273	12.4	93	344	2.1
1,000	31	148				
950	31	582	14.2	77	337	2.9
900	31	1,036	12.7	72	276	3.5
850	31	1,516	11.4	66	262	6.2
800	31	2,022	9.6	57	266	9.9
750	31	2,555	7.3	52	259	14.0
700	31	3,122	4.7	47	254	17.7
650	31	3,720	1.5	45	250	19.8
600	31	4,364	- 2.5	45	258	19.4
550	31	5,046	- 6.2	38	255	20.2
500	31	5,790	-10.7		262	22.3
450	31	6,588	-16.0		261	26.6
400	31	7,471	-22.3		255	29.0
350	31	8,438	-29.2		248	34.6
300	30	9,520	-36.8		253	36.3
250	30	10,761	-44.8		253	42.9
200	30	12,224	-53.8		256	34.4
175	30	13,073	-58.5		255	34.4
150	30	14,031	-63.6		256	28.2
125	30	15,139	-67.7		251	19.2
100	30	16,477	-68.7		251	13.8
80	30	17,822	-65.4			
60	29	19,594	-60.6			
50	28	20,731	-58.2			
40	27	22,144	-55.4			
30	25	23,990	-52.2			
25	25	25,176	-50.2			
20	24	26,644	-48.2			
15	20	28,544	-45.3			
10	8	31,259	-42.7			

HILO, T. H. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	21.1	86	233	5.2
1,000	31	131	22.9	77	233	4.1
950	31	578	20.1	81	117	3.5
900	31	1,043	16.9	84	96	4.5
850	31	1,529	13.9	85	88	5.1
800	31	2,040	13.1	63	102	4.7
750	31	2,584	11.7	40	99	6.6
700	31	3,156	9.2		87	7.0
650	31	3,766	6.0		77	6.0
600	31	4,417	2.2		73	5.6
550	31	5,110	- 1.7		47	4.7
500	31	5,866	- 6.6		49	5.4
450	31	6,676	-12.4		24	3.3
400	31	7,570	-19.1		350	5.1
350	31	8,549	-26.4		313	6.4
300	31	9,645	-34.8		288	10.3
250	31	10,892	-44.6		271	14.8
200	31	12,350	-55.6		271	18.7
175	31	13,191	-61.0		271	17.7
150	31	14,136	-66.5		285	10.5
125	31	15,226	-71.4		319	3.9
100	31	16,533	-74.5		46	4.9
80	31	17,836	-71.8		79	6.2
60	30	19,562	-65.0		90	9.9
50	30	20,683	-61.0		100	9.3
40	29	22,083	-57.1		78	6.6
30	27	23,914	-53.1		78	7.2
25	23	25,096	-51.1		97	5.6

INTERNAT. FALLS, MINN. (970 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	360	2.1	79	346	0.8
1,000	31	114				
950	31	531	1.7	78	232	1.0
900	31	964	.3	77	273	4.7
850	31	1,421	- 1.1	69	282	7.4
800	31	1,904	- 2.1	64	280	10.5
750	31	2,413	- 3.7	59	277	13.0
700	31	2,958	- 5.9	51	279	16.1
650	31	3,526	- 8.9	48	285	18.8
600	31	4,151	-12.3	46	288	21.4
550	31	4,803	-16.3	47	283	24.3
500	31	5,523	-21.0	49	284	28.4
450	31	6,282	-26.4	48	280	29.9
400	31	7,136	-31.9	44	281	35.9
350	31	8,066	-38.5		283	40.6
300	31	9,109	-46.1		282	44.7
250	31	10,302	-52.8		277	51.5
200	31	11,736	-53.7		274	51.1
175	29	12,597	-52.9		272	50.1
150	29	13,591	-53.5		270	49.2
125	25	14,775	-54.7		270	44.5
100	25	16,200	-55.9		273	38.1
80	25	17,620	-55.6		272	28.4
60	23	19,454	-55.4		273	24.3
50	21	20,620	-55.5		276	23.5
40	19	22,040	-55.5		279	17.9
30	17	23,875	-55.1		277	16.1
25	16	25,038	-55.0		283	16.1
20	15	26,457	-54.4		280	16.9
15	11	28,355	-51.9		280	22.0
10	10	31,004	-49.5			
7	5	33,410	-46.0			

JACKSON, MISS (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	101	16.3	91	14	0.8
1,000	31	125			93	2.1
950	31	565	16.8	80	132	2.5
900	31	1,026	16.0	70	198	1.6
850	31	1,510	14.0	63	240	2.1
800	31	2,020	11.7	56	259	5.6
750	31	2,558	9.2	51	256	8.2
700	31	3,127	6.4	46	249	11.1
650	31	3,729	3.5	39	250	13.6
600	31	4,377	- .2	34	244	15.3
550	31	5,065	- 4.1		252	17.1
500	31	5,814	- 8.7		253	20.4
450	31	6,618	-14.3		251	24.7
400	31	7,506	-20.4		251	30.9
350	31	8,482	-27.0		251	39.2
300	31	9,577	-34.7		250	47.0
250	31	10,828	-43.1		250	55.4
200	31	12,298	-53.5		252	58.5
175	31	13,147	-59.0		255	58.7
150	31	14,101	-65.0		258	51.9
125	31	15,199	-69.8		259	44.9
100	29	16,519	-71.8		260	26.2
80	28	17,842	-69.1		258	14.0
60	27	19,591	-61.8		240	2.5
50	26	20,731	-58.6		261	2.3
40	26	22,141	-55.9		282	3.3
30	25	23,988	-51.0		286	5.6
25	25	25,178	-49.3		271	7.8
20	20	26,635	-47.3		263	13.6
15	18	28,547	-44.8		274	13.8
10	13	31,284	-41.3		262	17.1
7	9	33,782	-38.0			
5	6	36,068	-37.0			

JACKSONVILLE, FLA. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	20.5	94	352	1.4
1,000	31	131	21.6	[illegible]	43	1.9
950	31	573	20.2	78	144	2.1
900	31	1,043	17.9	76	210	4.5
850	31	1,531	15.6	69	227	7.2
800	31	2,044	13.2	63	240	8.4
750	31	2,580	10.7	57	250	10.7
700	31	3,158	7.8	52	253	11.7
650	31	3,758	4.4	50	252	13.8
600	30	4,412	.4	53	247	17.3
550	30	5,119	- 3.4	52	254	20.4
500	30	5,855	- 7.9	47	255	21.2
450	30	6,659	-12.7	43	256	25.1
400	30	7,558	-18.5	40	258	29.1
350	30	8,540	-25.4	37	258	32.1
300	30	9,641	-33.5		258	36.1
250	30	10,898	-42.8		263	41.2
200	28	12,364	-53.9		265	42.6
175	28	13,210	-59.8		270	42.9
150	28	14,160	-65.6		278	37.5
125	28	15,254	-71.1		279	28.8
100	25	16,560	-73.4		275	20.6
80	25	17,873	-70.4		278	12.4
60	24	19,609	-63.9		133	.8
50	24	20,737	-59.8		295	3.7
40	24	22,142	-56.9		301	4.9
30	24	23,980	-53.0		311	2.1
25	24	25,159	-51.5		302	3.5
20	23	26,621	-48.7		288	6.2
15	21	28,517	-46.1		273	11.9
10	14	31,241	-42.6			
7	5	33,596	-41.9			

KING SALMON, ALASKA (1004 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	15	- 0.5	87	52	2.9
1,000	31	47			7	3.3
950	31	466	1.3	71	82	4.3
900	31	895	- .7	63	99	4.5
850	31	1,350	- 2.6	55	113	4.9
800	31	1,829	- 4.7	50	126	4.1
750	31	2,335	- 7.2	48	135	2.1
700	31	2,870	-10.3	49	171	.8
650	31	3,436	-13.6	50	196	.8
600	31	4,042	-17.5	47	234	1.9
550	31	4,688	-21.6	44	243	5.1
500	31	5,385	-26.2	40	242	4.3
450	31	6,134	-31.4	38	258	9.1
400	31	6,965	-37.4		250	11.1
350	31	7,874	-44.1		249	14.4
300	31	8,894	-50.5		251	17.5
250	31	10,069	-55.0		245	18.7
200	31	11,497	-53.7		244	22.3
175	30	12,363	-52.4		244	24.5
150	30	13,362	-51.8		240	24.9
125	29	14,547	-51.6		243	23.9
100	27	16,001	-51.7		241	22.9
80	26	17,448	-51.5		244	18.7
60	22	19,331	-51.8		246	22.5
50	19	20,526	-52.0		246	21.2
40	18	21,973	-52.9		253	20.6
30	15	23,840	-54.4		258	20.0
25	13	25,033	-53.9		266	17.1
20	10	26,492	-53.4			
15	6	28,301	-53.6			

KOTZEBUE, ALASKA (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	- 6.4	85	45	4.5
1,000	31	107			59	4.1
950	31	509	- 5.0	67	75	2.1
900	31	934	- 6.5	64	285	.6
850	31	1,380	- 7.7	58	319	3.1
800	31	1,851	- 8.9	53	315	4.3
750	31	2,345	-11.0	46	326	3.5
700	31	2,877	-13.5	41	296	5.1
650	31	3,430	-16.6	41	293	4.5
600	30	4,040	-19.8	39	285	6.6
550	30	4,671	-23.6	40	287	8.4
500	30	5,372	-28.3	43	281	10.7
450	30	6,106	-33.5		266	12.6
400	30	6,938	-39.6		249	13.8
350	30	7,838	-46.3		242	17.1
300	30	8,846	-53.6		239	17.9
250	30	10,003	-58.9		240	17.1
200	30	11,406	-57.6		244	19.8
175	29	12,257	-55.5		235	22.0
150	29	13,244	-54.3		236	21.6
125	28	14,413	-53.6		232	24.9
100	27	15,839	-53.0		234	24.3
80	26	17,280	-53.4		235	29.7
60	21	19,125	-54.7		243	32.1
50	21	20,292	-55.4		244	34.2
40	20	21,724	-56.1		242	38.1
30	19	23,567	-56.3		244	45.3
25	14	24,771	-56.4			
20	13	26,213	-56.5			
15	12	28,020	-56.5			

LAKE CHARLES, LA. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	17.9	90	33	3.3
1,000	31	120	19.0	81	44	4.7
950	31	565	18.7	72	67	3.5
900	31	1,026	16.9	66	163	.6
850	31	1,513	15.0	56	233	2.7
800	31	2,026	13.1	46	253	4.7
750	31	2,562	10.5	40	255	7.0
700	31	3,139	7.6	43	253	9.1
650	31	3,742	4.4	39	253	10.1
600	31	4,395	.8		255	13.4
550	31	5,083	- 3.3		256	14.6
500	31	5,839	- 7.8		253	18.3
450	31	6,646	-13.1		247	22.5
400	31	7,540	-19.2		248	30.3
350	31	8,519	-26.1		245	36.3
300	30	9,618	-33.8		249	44.1
250	30	10,874	-42.7		250	49.4
200	29	12,345	-53.7		253	51.3
175	29	13,192	-59.8		259	52.1
150	29	14,141	-66.1		255	46.6
125	29	15,231	-71.9		257	41.6
100	25	16,538	-73.6			
80	24	17,853	-70.7			
60	24	19,594	-62.8			
50	24	20,729	-59.3		69	5.6
40	24	22,140	-55.5		98	6.2
30	23	23,995	-50.8		120	2.1
25	21	25,187	-49.1			
20	17	26,670	-47.3			
15	5	28,552	-44.8			

LANDER, WYO. (829 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,696	2.4	71	248	1.4
1,000	31	148				
950	31	565				
900	31	1,015				
850	31	1,488				
800	31	1,982	5.5	53	326	1.7
750	31	2,504	3.4	50	321	5.8
700	31	3,065	.3	48	309	12.8
650	31	3,649	- 3.2	46	309	19.2
600	31	4,285	- 6.8	43	307	22.7
550	31	4,952	-10.7	38	304	25.8
500	31	5,687	-15.4	36	298	26.0
450	31	6,466	-20.6	34	282	22.5
400	31	7,336	-27.3	35	282	22.5
350	31	8,283	-34.5		286	24.5
300	31	9,343	-42.7		270	28.8
250	31	10,551	-50.6		269	24.7
200	31	11,988	-55.4			
175	31	12,838	-56.5			
150	29	13,810	-58.4			
125	27	14,950	-60.8			
100	21	16,326	-61.1			
80	18	17,711	-60.3			
60	15	19,509	-58.3			
50	13	20,652	-58.1			
40	13	22,060	-57.0			
30	10	23,890	-55.4			
25	7	25,048	-54.4			

LAS VEGAS, NEV. (936 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	660	14.4	35	276	3.7
1,000	31	96				
950	31	534				
900	31	998	19.6	26	353	6.6
850	31	1,488	17.2	26	356	8.2
800	31	2,001	13.7	29	360	8.2
750	31	2,537	10.1	31	360	6.4
700	31	3,110	6.2	32	345	4.3
650	31	3,707	2.7	31	332	6.2
600	31	4,355	- 1.1	30	323	8.0
550	31	5,031	- 5.7	28	312	11.1
500	31	5,782	-10.9	28	312	12.6
450	31	6,574	-17.1		312	15.2
400	31	7,455	-23.9		318	15.3
350	31	8,414	-31.7		317	17.1
300	31	9,487	-39.5		315	20.4
250	31	10,714	-46.9		312	24.3
200	30	12,169	-54.3		307	29.7
175	30	13,018	-57.8		303	29.9
150	30	13,982	-61.8		299	26.6
125	30	15,101	-65.6		299	25.5
100	29	16,453	-68.4		296	20.0
80	29	17,794	-66.7		311	13.6
60	28	19,543	-63.1		332	7.4
50	27	20,672	-60.9		318	4.5
40	27	22,066	-58.5		331	4.9
30	26	23,886	-55.9		299	4.1
25	26	25,050	-54.3		284	6.2
20	22	26,479	-52.6		282	7.8
15	16	28,352	-50.8		277	11.3
10						

LITTLE ROCK, ARK. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	79	13.1	87	357	2.1
1,000	31	135			41	3.1
950	31	574	14.2	70	213	1.6
900	31	1,025	13.4	65	238	2.9
850	31	1,506	12.5	54	236	6.2
800	31	2,014	10.2	50	260	8.5
750	31	2,552	7.8	45	279	9.7
700	31	3,115	4.8	39	249	8.4
650	31	3,716	1.9	33	243	11.7
600	31	4,359	- 1.3		244	14.4
550	31	5,043	- 5.6		250	19.0
500	31	5,790	-10.8		255	19.8
450	31	6,587	-16.4		254	22.7
400	31	7,469	-22.9		255	28.0
350	31	8,435	-29.8		254	28.4
300	31	9,517	-37.4		255	24.9
250	30	10,755	-45.4		256	38.7
200	29	12,210	-54.4		259	50.1
175	26	13,048	-59.0		261	44.3
150	26	14,005	-63.3			
125	25	15,111	-67.3			
100	22	16,447	-69.3			
80	20	17,789	-65.8			
60	20	19,557	-60.8			
50	20	20,698	-58.1			
40	19	22,114	-55.3			
30	17	23,967	-51.3			
25	13	25,149	-49.5			
20	11	26,602	-47.4			
15	8	28,490	-45.6			
10	8	31,212	-42.1			

McGRATH, ALASKA (998 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	103	- 6.6	86	243	0.8
1,000	31	86			1	3.3
950	31	489	- 4.1	74	60	4.9
900	31	916	- 3.8	65	84	6.0
850	31	1,368	- 4.4	57	100	3.3
800	31	1,843	- 6.4	54	152	2.1
750	31	2,342	- 8.7	51	191	.8
700	31	2,878	-11.9	49	219	1.7
650	31	3,431	-15.6	49	257	2.9
600	31	4,040	-19.3	45	261	3.5
550	31	4,670	-23.6	41	261	3.9
500	31	5,371	-28.3	39	269	4.7
450	31	6,109	-33.6	39	267	4.5
400	31	6,934	-39.9		269	7.0
350	31	7,834	-46.4		272	6.0
300	31	8,843	-52.4		282	9.5
250	31	10,013	-55.4		270	11.9
200	31	11,437	-54.4		257	13.6
175	31	12,296	-53.1		255	17.1
150	31	13,291	-52.4		248	18.3
125	31	14,471	-52.0		246	22.0
100	31	15,917	-51.9		246	21.4
80	31	17,364	-52.2		247	25.3
60	30	19,228	-53.2		254	26.0
50	30	20,401	-54.0		250	31.3
40	29	21,831	-55.2		257	30.5
30	24	23,700	-55.4		255	29.9
25	20	24,908	-55.1		255	28.4
20	14	26,424	-53.3			
15	10	28,315	-53.8			

MEDFORD, OREG. (971 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	401	7.1	88	175	0.6
1,000	31	161				
950	31	593	10.9	74	305	1.9
900	31	1,038	11.8	65		.0
850	31	1,516	10.6	55	184	1.9
800	31	2,019	8.2	48	272	3.5
750	31	2,550	6.3	38	300	8.5
700	31	3,114	3.7	31	300	14.6
650	31	3,710	.6		313	15.0
600	31	4,351	- 3.0		298	14.6
550	31	5,028	- 7.3		283	17.7
500	31	5,771	-12.3	33	281	16.5
450	31	6,562	-17.8	31	270	20.4
400	31	7,440	-24.6		282	21.2
350	31	8,398	-32.3		300	18.5
300	31	9,467	-40.9		303	20.6
250	31	10,684	-49.8			
200	30	12,119	-57.0			
175	30	12,961	-59.1			
150	30	13,922	-61.8			
125	30	15,042	-65.0			
100	30	16,397	-66.5			
80	30	17,758	-63.6			
60	30	19,536	-60.9			
50	29	20,671	-59.8			
40	29	22,071	-58.1			
30	29	23,892	-55.9			
25	27	25,056	-54.8			
20	24	26,502	-52.8			
15	14	28,349	-51.1			

MIAMI, FLA. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	24.6	90	135	1.7
1,000	31	123	25.1	82	128	4.5
950	31	574	22.5	81	148	7.8
900	31	1,044	19.6	80	158	7.8
850	31	1,535	16.9	75	176	7.2
800	31	2,052	14.3	71	185	5.4
750	31	2,593	11.8	63	201	6.0
700	31	3,172	9.1	52	209	7.2
650	31	3,778	5.5	53	214	7.2
600	31	4,433	1.7	49	230	5.4
550	31	5,121	- 2.6	48	234	6.6
500	31	5,881	- 7.0	48	228	6.2
450	31	6,690	-11.9	45	247	7.0
400	31	7,590	-17.9	42	256	7.6
350	31	8,575	-24.9	42	251	8.7
300	31	9,677	-33.2	39	271	8.2
250	31	10,930	-43.5		279	11.9
200	31	12,391	-55.6		296	17.9
175	31	13,230	-62.0		307	18.1
150	31	14,170	-67.8		318	13.6
125	30	15,250	-73.9		324	10.7
100	29	16,541	-77.1		332	6.8
80	29	17,838	-71.6		39	4.7
60	28	19,569	-64.0		92	4.7
50	28	20,696	-60.3		83	4.5
40	28	22,101	-56.6		53	7.0
30	24	23,949	-53.2		83	5.6
25	22	25,126	-50.7		80	2.7
20	22	26,592	-47.5		19	4.9
15	17	28,495	-44.1		304	3.9
10	8	31,249	-37.8			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

OCTOBER 1959

MIDLAND, TEX. (915 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	871	11.8	80	47	1.9
1,000	30	121				
950	30	556				
900	30	1,013	14.0	67	134	2.5
850	30	1,497	15.4	52	195	6.0
800	30	2,010	13.3	46	233	7.4
750	30	2,545	10.3	46	243	9.1
700	30	3,121	6.9	41	254	9.1
650	30	3,722	3.3	38	260	11.1
600	30	4,371	- .6	35	269	12.6
550	30	5,052	- 4.6		269	14.4
500	30	5,805	- 9.5		264	16.3
450	30	6,604	-15.0		265	18.1
400	30	7,492	-21.6		267	18.8
350	30	8,462	-29.0		257	22.0
300	30	9,547	-36.8		264	28.2
250	30	10,787	-44.9		273	35.4
200	29	12,253	-54.1		265	49.5
175	28	13,101	-59.1		264	54.0
150	28	14,057	-64.1		269	47.8
125	27	15,166	-68.7			
100	24	16,491	-71.4			
80	23	17,814	-68.8			
60	22	19,565	-63.2			
50	21	20,690	-60.0			
40	21	22,096	-56.3			
30	21	23,938	-53.1			
25	18	25,122	-51.2			
20	15	26,586	-48.8			
15	14	28,490	-45.5			
10	13	31,219	-40.6			
7						

MONTGOMERY, ALA. (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	17.1	92	59	3.3
1,000	31	126	17.1	90	79	4.3
950	31	565	17.5	78	128	4.5
900	31	1,029	16.4	77	195	6.2
850	31	1,515	14.4	71	222	5.4
800	31	2,026	12.4	64	229	8.0
750	31	2,561	9.5	62	247	11.5
700	31	3,136	6.2	56	255	13.0
650	31	3,737	2.8	55	257	15.2
600	31	4,385	- .4	46	260	15.9
550	31	5,071	- 4.3	43	259	17.3
500	31	5,821	- 8.7	36	259	18.8
450	31	6,626	-13.8		260	22.5
400	31	7,515	-19.4		263	26.8
350	31	8,493	-26.4		262	33.8
300	31	9,590	-34.3		260	39.2
250	31	10,842	-43.1		260	47.6
200	31	12,310	-53.5		264	48.6
175	30	13,158	-59.1		263	49.5
150	30	14,111	-64.9		266	42.9
125	26	15,206	-70.0		263	36.5
100	25	16,522	-71.9		263	28.6
80	24	17,845	-69.5		268	16.3
60	24	19,592	-62.5		269	7.4
50	24	20,726	-59.4		277	8.4
40	24	22,134	-56.1		301	5.2
30	23	23,983	-51.6		285	3.9
25	23	25,172	-49.5		274	5.8
20	22	26,641	-46.9		275	9.9
15	20	28,560	-44.0		272	13.6
10	7	31,239	-41.4			
7						

NANTUCKET, MASS. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	14	12.0	82	346	1.7
1,000	31	140	12.1	77	317	4.7
950	31	570	10.7	73	295	8.0
900	31	1,019	9.0	63	282	11.5
850	31	1,492	7.2	57	275	16.5
800	31	1,990	5.8	53	273	21.2
750	31	2,516	3.7	49	274	25.5
700	31	3,075	1.1	45	273	28.4
650	31	3,666	- 1.4	42	273	29.9
600	31	4,302	- 4.9	42	269	30.3
550	31	4,978	- 8.5		265	34.4
500	31	5,715	-13.1		268	36.3
450	31	6,502	-18.4		270	36.7
400	31	7,379	-24.5		274	34.4
350	31	8,338	-31.6			
300	31	9,410	-39.5			
250	31	10,636	-47.4			
200	31	12,083	-55.5			
175	31	12,927	-59.2			
150	31	13,888	-61.7			
125	31	15,008	-65.1			
100	31	16,365	-65.0			
80	31	17,730	-62.7			
60	30	19,519	-59.7			
50	28	20,664	-58.1			
40	28	22,073	-56.7			
30	28	23,906	-54.2			
25	28	25,078	-53.0			
20	26	26,519	-51.5			
15	22	28,409	-49.2			
10	7	31,064	-45.8			
7						

NASHVILLE, TENN. (995 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	177	12.3	92	287	1.0
1,000	31	136				
950	31	567	13.8	75	203	4.1
900	31	1,025	12.4	72	231	6.0
850	31	1,504	10.9	67	254	8.4
800	31	2,008	8.9	60	254	10.7
750	31	2,540	6.3	55	260	13.8
700	31	3,105	3.4	52	259	16.1
650	31	3,701	.6	43	259	16.3
600	31	4,343	- 2.9	33	264	17.3
550	31	5,022	- 6.7	32	269	18.3
500	31	5,766	-11.3	31	260	22.5
450	31	6,560	-16.8		258	27.2
400	31	7,442	-23.1	28	259	30.7
350	31	8,408	-29.8		260	31.5
300	31	9,491	-37.4		258	35.2
250	31	10,729	-45.3		253	47.6
200	31	12,193	-53.6		256	51.7
175	31	13,044	-58.2		261	46.8
150	30	14,001	-63.1		259	44.3
125	27	15,106	-66.5			
100	25	16,449	-68.5			
80	23	17,799	-65.9			
60	20	19,573	-61.1			
50	20	20,712	-59.2			
40	20	22,120	-56.3			
30	19	23,960	-52.6			
25	17	25,152	-50.6			
20	14	26,611	-48.3			
15	12	28,514	-45.7			
10	7	31,257	-41.3			
7						

N. Y. INT. AP, IDLEWILD (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	12.8	79	314	2.9
1,000	31	140	12.1	75	314	3.7
950	31	571	10.5	72	264	4.9
900	31	1,018	8.7	70	263	8.5
850	31	1,490	7.0	67	264	12.8
800	31	1,988	5.8	58	259	17.9
750	31	2,515	3.7	53	262	21.4
700	31	3,072	1.4	48	264	25.6
650	31	3,667	- 1.5	42	263	31.7
600	31	4,300	- 4.8	40	262	33.8
550	31	4,975	- 8.8	35	260	34.2
500	31	5,712	-13.3		260	37.9
450	31	6,501	-18.6		261	41.6
400	31	7,373	-24.5		259	47.4
350	31	8,333	-31.4		258	50.9
300	31	9,407	-39.2		257	57.1
250	31	10,636	-46.8		262	68.0
200	30	12,080	-54.6		264	72.9
175	30	12,928	-58.1		272	64.9
150	30	13,893	-61.2		270	59.8
125	30	15,017	-63.7		272	51.9
100	29	16,378	-64.5		272	36.1
80	29	17,749	-62.3		270	29.1
60	28	19,538	-59.3		271	15.3
50	28	20,684	-57.8		275	11.9
40	28	22,098	-55.9		272	9.1
30	27	23,928	-53.9		274	11.1
25	26	25,102	-52.4		274	12.8
20	26	26,553	-50.2		272	16.7
15	26	28,442	-47.9		266	17.1
10	16	31,141	-45.5		270	28.2
7	12	33,536	-43.3			

NOME, ALASKA (1011 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	- 2.3	76	19	7.0
1,000	31	94			13	5.1
950	31	504	- 1.9	61	20	6.4
900	31	932	- 3.9	57	15	6.0
850	31	1,382	- 5.7	54	2	4.1
800	31	1,856	- 7.4	48	349	5.8
750	31	2,355	- 9.6	46	11	4.7
700	31	2,887	-12.4	46	339	4.9
650	31	3,448	-15.3	44	333	5.4
600	31	4,051	-18.8	42	316	5.8
550	31	4,688	-22.8	42	302	5.1
500	31	5,388	-27.7	41	312	4.7
450	31	6,128	-33.2	41	301	7.0
400	31	6,956	-39.4		293	9.3
350	31	7,857	-46.0		282	9.5
300	31	8,867	-53.3		255	14.6
250	31	10,027	-57.9		246	17.5
200	31	11,436	-56.9		249	19.0
175	31	12,286	-54.8		243	19.2
150	31	13,275	-53.8		249	19.2
125	31	14,450	-52.8		238	19.8
100	31	15,893	-52.2		242	23.3
80	31	17,337	-52.6		239	25.6
60	31	19,193	-53.5		239	28.6
50	31	20,365	-54.2		241	30.9
40	31	21,794	-54.9		241	31.7
30	29	23,631	-55.5		245	42.9
25	28	24,783	-55.3		251	40.6
20	24	26,216	-55.7			
15	17	28,141	-55.0			
10	5	30,822	-54.9			

NORFOLK, VA. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	9	16.0	90	24	1.4
1,000	31	142	17.0	79	17	2.3
950	31	577	15.0	73	273	3.9
900	31	1,036	12.9	64	261	6.6
850	31	1,515	11.2	59	250	9.9
800	31	2,020	9.2	55	244	13.4
750	31	2,554	6.9	49	248	16.1
700	31	3,118	4.4	49	254	18.7
650	31	3,714	1.5	46	258	21.0
600	31	4,360	- 2.2	45	258	24.1
550	31	5,040	- 6.1	42	262	25.6
500	31	5,788	-10.7	36	259	29.0
450	31	6,584	-16.1		255	32.3
400	31	7,468	-22.2		257	37.3
350	31	8,437	-28.9		255	46.2
300	31	9,523	-36.5		256	49.9
250	31	10,764	-44.9		260	56.5
200	30	12,220	-53.7		261	60.2
175	30	13,069	-58.4		264	60.0
150	30	14,028	-63.1		266	55.0
125	30	15,138	-67.4		265	41.6
100	29	16,479	-68.7		263	32.1
80	28	17,828	-65.6		265	19.4
60	27	19,593	-61.0		269	9.3
50	27	20,734	-58.6		277	7.6
40	27	22,146	-55.8		283	6.6
30	24	23,992	-52.4		282	7.0
25	23	25,177	-50.5		279	7.8
20	23	26,641	-48.1		275	11.5
15	21	28,559	-45.7		276	15.9
10	13	31,298	-42.4			

NORTH PLATTE, NEBR. (917 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	848	2.0	83	343	3.3
1,000	30	135				
950	30	551				
900	30	995	5.5	69	323	3.9
850	30	1,465	7.0	55	320	7.8
800	30	1,962	5.3	51	312	10.3
750	30	2,485	3.7	48	299	9.9
700	30	3,046	.8	46	282	13.0
650	30	3,635	- 2.3	46	272	20.0
600	30	4,271	- 6.0	45	262	18.5
550	30	4,941	-10.3	46	265	21.6
500	30	5,675	-15.2	47	263	23.7
450	30	6,456	-20.8	44	256	26.0
400	30	7,323	-26.9	41	252	26.8
350	30	8,273	-33.8	36	253	34.4
300	30	9,337	-41.8		259	35.9
250	30	10,549	-50.4		261	38.3
200	29	11,983	-55.5			
175	27	12,828	-58.1			
150	26	13,794	-59.4			
125	26	14,932	-61.7			
100	24	16,307	-63.0			
80	23	17,684	-61.9			
60	21	19,476	-60.1			
50	20	20,618	-59.0			
40	20	22,023	-57.6			
30	18	23,853	-55.5			
25	18	25,019	-53.8			
20	16	26,471	-52.1			
15	13	28,357	-50.0			
10	9	31,006	-46.6			

OAKLAND, CALIF. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	13.8	77	300	1.6
1,000	31	116	15.8	67	307	2.1
950	31	558	17.0	51	351	6.0
900	31	1,015	17.5	34	357	9.7
850	31	1,502	15.6	30	348	9.1
800	31	2,014	13.0	28	341	8.7
750	31	2,553	10.3	26	339	9.7
700	31	3,125	6.9	25	331	9.5
650	31	3,728	3.3		328	10.1
600	31	4,376	- .5		330	15.2
550	31	5,061	- 4.5	28	322	20.0
500	31	5,811	- 9.7		316	21.0
450	31	6,612	-15.7		313	22.0
400	31	7,496	-22.8		314	20.2
350	31	8,461	-30.4		308	20.6
300	31	9,539	-38.8		311	22.3
250	31	10,767	-47.6		305	27.4
200	31	12,214	-55.7		299	30.3
175	31	13,059	-58.8		299	30.9
150	31	14,019	-62.4		296	28.2
125	31	15,136	-65.8		294	23.5
100	31	16,483	-67.9		298	20.0
80	31	17,830	-65.7		307	15.7
60	31	19,590	-62.2		329	8.0
50	31	20,721	-60.3		353	5.6
40	31	22,117	-58.5		349	3.3
30	30	23,939	-55.6		313	5.1
25	28	25,101	-54.0		299	6.8
20	25	26,527	-52.5		288	10.1
15	19	28,389	-51.0		273	16.9
10	5	31,067	-48.9			

OKLAHOMA CITY, OKLA. (969 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	392	10.5	88		0.0
1,000	31	129				
950	31	559	12.3	73	174	3.3
900	31	1,013	12.6	64	215	6.2
850	31	1,493	12.0	57	242	7.4
800	31	2,000	10.6	52	248	8.7
750	31	2,530	8.1	47	263	11.1
700	31	3,102	5.0	47	269	13.8
650	31	3,699	1.6	46	269	16.5
600	31	4,344	- 1.9	40	268	18.7
550	31	5,025	- 5.9	34	269	21.0
500	31	5,772	-10.6		263	25.5
450	31	6,567	-16.1		258	28.2
400	31	7,452	-22.6		259	30.7
350	31	8,417	-30.0		265	34.0
300	31	9,496	-38.2		264	36.5
250	31	10,727	-47.0		254	41.2
200	29	12,177	-54.9		263	45.5
175	[illegible]	13,022	-58.6			
150	25	13,976	-62.1			
125	23	15,088	-65.8			
100	17	16,436	-68.1			
80	14	17,779	-65.7			
60	14	19,547	-61.5			
50	13	20,687	-59.8			
40	13	22,092	-56.8			
30	13	23,933	-53.0			
25	11	25,133	-50.7			
20	10	26,591	-48.9			
15	8	28,516	-45.6			
10						

OMAHA, NEBR. (967 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	403	5.5	83	314	2.5
1,000	31	125				
950	31	548	7.1	74	319	3.7
900	31	993	7.5	62	303	9.9
850	31	1,464	6.7	53	291	10.7
800	31	1,962	5.7	49	290	12.6
750	31	2,483	3.4	49	283	14.6
700	31	3,046	.5	50	277	20.6
650	31	3,634	- 2.5	48	278	24.1
600	31	4,270	- 6.1	43	278	26.6
550	31	4,944	-10.1	38	282	26.2
500	31	5,676	-15.0	38	275	27.6
450	31	6,459	-20.4	39	272	31.7
400	31	7,329	-26.5		270	36.5
350	30	8,280	-33.6		269	42.6
300	30	9,345	-41.2		265	46.2
250	30	10,561	-49.2		264	50.5
200	30	12,005	-54.5		259	56.5
175	30	12,857	-56.6		263	54.2
150	29	13,831	-58.9		268	48.6
125	28	14,969	-60.8		270	42.9
100	27	16,348	-62.1		271	33.2
80	20	17,728	-60.8		274	26.4
60	15	19,523	-59.0		267	20.4
50	14	20,670	-57.3		260	15.3
40	13	22,088	-56.5		271	9.7
30	10	23,938	-54.2		265	11.1
25	9	25,102	-52.9			
20	7	26,551	-50.9			
15						
10						
7						
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PEORIA, ILL. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	201	7.9	86	247	1.0
1,000	31	126				
950	31	552	9.1	72	248	8.2
900	31	999	8.0	65	263	13.2
850	31	1,470	6.6	63	264	16.5
800	31	1,967	5.1	62	270	19.6
750	31	2,492	3.4	54	269	22.3
700	31	3,052	.8	55	270	23.9
650	31	3,639	- 2.2	55	269	25.3
600	31	4,276	- 5.7	47	268	27.6
550	31	4,947	- 9.9	47	269	30.1
500	31	5,683	-14.6	42	265	35.2
450	31	6,467	-19.9	36	263	37.7
400	31	7,338	-26.1	35	261	42.9
350	31	8,291	-33.2		261	47.8
300	31	9,357	-40.9		261	55.0
250	31	10,577	-48.4		258	63.5
200	31	12,027	-54.1		260	68.8
175	29	12,875	-56.6		261	67.4
150	29	13,846	-59.5		260	64.7
125	29	14,981	-61.8		262	52.3
100	27	16,361	-62.7		264	35.2
80	25	17,742	-60.8		269	26.4
60	24	19,541	-58.9		278	15.0
50	23	20,691	-57.7		278	9.5
40	23	22,105	-56.2		276	10.5
30	23	23,946	-53.5		280	10.9
25	22	25,121	-52.3		279	12.6
20	22	26,571	-50.6		278	16.1
15	20	28,466	-48.5		278	18.5
10	10	31,159	-45.4			
7						
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PITTSBURGH, PA. (975 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	353	7.8	87	222	1.9
1,000	31	141				
950	31	568	10.2	74	235	6.8
900	31	1,016	9.0	72	257	12.8
850	31	1,488	7.1	66	265	15.3
800	31	1,986	5.1	62	264	17.1
750	31	2,508	3.4	54	262	20.4
700	31	3,069	.6	53	263	24.5
650	31	3,659	- 2.3	48	262	28.0
600	31	4,293	- 5.7	38	264	30.7
550	31	4,966	- 9.1	33	261	32.1
500	31	5,703	-13.6	33	261	36.3
450	31	6,489	-19.2		262	41.8
400	31	7,363	-25.5		260	45.5
350	31	8,318	-32.4		260	47.2
300	31	9,389	-39.9		259	54.2
250	31	10,615	-47.2		260	59.7
200	31	12,070	-54.1		260	65.9
175	31	12,920	-57.3		261	61.8
150	31	13,888	-60.5		260	57.9
125	30	15,019	-63.6		260	50.5
100	30	16,384	-64.4		261	35.4
80	30	17,758	-62.6		262	22.7
60	30	19,542	-60.2		267	12.2
50	29	20,687	-58.7		268	9.9
40	29	22,095	-57.1		291	9.5
30	29	23,925	-54.6		271	6.4
25	29	25,098	-52.7		283	10.5
20	28	26,547	-50.7		278	13.4
15	27	28,426	-49.4		269	19.8
10	22	31,091	-46.5		265	31.9
7	17	33,485	-44.4		273	37.1
5	6	35,773	-42.3			

POINT ARGUELLO, CALIF. (999 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	113	12.6	88	45	2.1
1,000	31	105			16	2.7
950	31	550	18.5	46	1	10.1
900	31	1,005	18.5	31	8	11.3
850	31	1,493	16.9	26	2	11.9
800	31	2,007	14.4	24	1	9.3
750	31	2,545	11.2	24	342	7.0
700	31	3,120	7.7		336	4.5
650	31	3,720	3.8		329	8.0
600	31	4,372	.3		332	13.8
550	31	5,057	- 3.9		335	18.1
500	31	5,810	- 9.1		330	18.5
450	31	6,611	-15.5		323	15.2
400	31	7,493	-22.3		322	16.5
350	31	8,460	-29.7		325	19.0
300	31	9,542	-37.8		324	20.0
250	31	10,776	-46.3		312	20.6
200	31	12,231	-54.6		306	26.0
175	31	13,078	-58.7		305	25.1
150	31	14,036	-63.1		301	24.3
125	31	15,148	-66.9		294	22.3
100	31	16,487	-69.2		302	15.0
80	31	17,822	-67.6		317	14.6
60	29	19,568	-63.6		340	7.0
50	29	20,694	-61.1		356	3.9
40	29	22,085	-59.0		356	4.1
30	29	23,901	-56.1		340	2.9
25	28	25,066	-54.4		308	4.1
20	28	26,501	-52.7		293	7.6
15	26	28,365	-50.9		297	11.1
10	20	31,002	-49.3		287	25.8
7	18	33,342	-48.4		291	29.0
5	12	35,534	-47.6			

PORTLAND, ME. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	20	5.9	90	279	1.0
1,000	30	142	7.0	76	291	2.1
950	30	570	6.6	70	284	5.8
900	30	1,008	4.9	66	272	8.4
850	30	1,473	3.9	55	277	12.2
800	30	1,965	2.4	52	274	16.9
750	30	2,487	.7	50	269	23.5
700	30	3,038	- 1.6	43	266	30.1
650	30	3,622	- 4.3	42	266	35.8
600	30	4,253	- 7.6	45	267	40.2
550	29	4,916	-11.5	45	266	45.1
500	28	5,645	-15.8	40	265	51.7
450	28	6,424	-21.0		267	58.9
400	28	7,293	-27.0		265	60.6
350	28	8,243	-33.7		268	69.8
300	28	9,309	-40.9		267	76.0
250	28	10,530	-48.1		266	83.7
200	28	11,981	-54.2		267	81.4
175	27	12,839	-56.8		267	76.6
150	27	13,812	-58.8		268	68.4
125	27	14,951	-61.1		268	58.1
100	27	16,336	-61.5		266	46.2
80	27	17,726	-59.9		270	29.9
60	27	19,535	-58.0		268	19.4
50	27	20,687	-56.7		267	17.3
40	27	22,107	-55.5		279	15.0
30	26	23,950	-54.1		282	14.8
25	25	25,127	-52.7		282	15.9
20	25	26,575	-50.6		279	16.1
15	21	28,474	-48.4		266	23.3
10	11	31,173	-44.7			
7						
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

OCTOBER 1959

RAPID CITY, S. DAK. (904 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	966	2.3	70	341	5.4
1,000	31	140				
950	31	557				
900	31	1,001			337	6.2
850	31	1,468	5.4	56	307	11.7
800	31	1,962	3.5	52	309	13.0
750	31	2,481	1.1	49	315	16.3
700	31	3,036	- 2.0	48	313	18.1
650	31	3,615	- 5.2	48	303	18.7
600	31	4,247	- 8.4	44	290	20.4
550	31	4,911	-12.5	45	283	25.1
500	31	5,640	-17.1	46	285	28.4
450	31	6,417	-22.2	41	285	31.1
400	31	7,279	-28.5	42	284	33.2
350	31	8,221	-35.8		283	36.3
300	31	9,275	-44.1		284	42.7
250	31	10,477	-51.7		288	45.7
200	31	11,912	-54.9		283	46.6
175	31	12,764	-55.8		275	44.1
150	31	13,741	-57.6		275	41.8
125	31	14,888	-59.4		275	37.9
100	29	16,278	-60.6		280	29.0
80	27	17,668	-60.3		279	22.9
60	25	19,470	-59.5		282	18.7
50	22	20,611	-59.1		278	13.8
40	18	22,019	-58.3		282	12.4
30	12	23,847	-55.4			
25	10	24,995	-54.5			
20	[illegible]	26,424	-53.0			
15	6	28,285	-50.5			
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ST. CLOUD, MINN. (976 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	316	2.9	90	274	0.8
1,000	31	118				
950	31	534	3.1	84	262	2.1
900	31	972	2.4	76	268	5.8
850	31	1,434	1.8	68	279	9.3
800	31	1,922	.7	59	285	12.8
750	31	2,438	- 1.3	55	276	12.6
700	31	2,986	- 3.8	53	278	15.2
650	31	3,564	- 6.8	53	278	17.5
600	31	4,189	-10.4	49	280	20.2
550	31	4,851	-14.5	46	276	22.0
500	31	5,571	-19.2	45	277	25.1
450	31	6,339	-24.7	42	283	28.4
400	31	7,193	-31.0	40	285	32.6
350	31	8,127	-37.7		280	32.3
300	31	9,173	-45.5		273	34.2
250	31	10,368	-52.4		267	45.7
200	31	11,801	-54.6			
175	31	12,656	-55.0			
150	31	13,638	-56.5			
125	29	14,797	-58.0			
100	29	16,201	-58.9			
80	28	17,599	-58.9			
60	26	19,416	-58.3			
50	24	20,564	-57.7			
40	24	21,975	-57.1			
30	18	23,809	-56.0			
25	17	24,971	-54.9			
20	14	26,397	-54.0			
15	5	28,302	-52.5			
10						

ST. PAUL IS., ALASKA (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	4.1	85	70	6.4
1,000	31	53			78	4.7
950	31	466	1.5	81	39	5.6
900	31	902	- .7	75	46	4.3
850	31	1,357	- 3.3	71	21	4.1
800	31	1,835	- 5.2	58	351	3.7
750	31	2,339	- 7.5	53	3	4.9
700	31	2,875	-10.3	44	357	5.6
650	31	3,438	-13.8	44	308	4.7
600	31	4,047	-17.5	42	309	3.7
550	31	4,685	-21.6	44	302	2.1
500	31	5,389	-26.3	44	241	6.6
450	31	6,135	-31.6	44	222	5.6
400	31	6,968	-37.6		231	6.6
350	31	7,876	-44.4		264	3.9
300	31	8,893	-51.5		252	6.6
250	31	10,060	-57.2		230	9.1
200	30	11,479	-55.9		235	14.2
175	30	12,333	-53.9		239	17.7
150	30	13,326	-52.8		238	16.7
125	30	14,505	-52.2		241	16.1
100	30	15,952	-51.4		245	16.9
80	30	17,400	-51.8		249	16.3
60	29	19,258	-52.6		244	14.0
50	29	20,436	-52.7		251	14.8
40	27	21,889	-52.9		252	14.4
30	23	23,764	-53.9		252	10.9
25	19	24,958	-53.8		272	10.5
20	15	26,437	-52.9		288	7.6
15	8	28,263	-53.0			
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SALEM, OREG. (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	9.2	94	194	2.5
1,000	31	155	10.6	86	201	1.9
950	31	580	11.0	75	254	2.3
900	31	1,034	9.8	67	252	3.7
850	31	1,508	7.8	63	258	6.0
800	31	2,007	6.0	54	271	9.5
750	31	2,532	4.2	47	282	11.5
700	31	3,092	1.5	40	286	16.3
650	31	3,682	- 1.6	38	288	21.4
600	31	4,319	- 5.2	38	291	25.1
550	31	4,990	- 9.4	37	289	28.2
500	31	5,727	-14.1	38	290	31.5
450	31	6,512	-19.5	38	290	36.5
400	31	7,385	-25.8	42	292	40.0
350	31	8,338	-32.9	41	292	44.7
300	31	9,403	-41.2		290	46.8
250	31	10,618	-49.8		288	48.8
200	31	12,055	-56.0		287	46.2
175	31	12,900	-58.5		287	44.5
150	31	13,864	-60.8		284	43.9
125	30	14,987	-63.5		283	40.4
100	30	16,355	-64.2		284	32.6
80	29	17,728	-61.8		281	26.2
60	27	19,511	-59.6		282	14.2
50	26	20,653	-59.6		285	12.0
40	25	22,052	-58.4		284	9.7
30	23	23,864	-57.3		291	9.9
25	23	25,020	-56.0		290	9.9
20	22	26,450	-55.0		293	9.1
15	20	28,297	-53.6		298	10.3
10	9	30,948	-51.9			

SALT LAKE CITY, UTAH (872 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,288	6.4	67	150	4.5
1,000	31	150				
950	31	573				
900	31	1,027				
850	31	1,502	10.7	45	166	3.3
800	31	2,006	8.7	41	267	3.1
750	31	2,536	5.2	44	294	7.0
700	31	3,098	1.9	45	302	11.5
650	31	3,690	- 1.5	45	300	14.0
600	31	4,327	- 5.3	47	296	16.7
550	31	5,001	- 9.6	45	299	21.0
500	31	5,736	-14.1	38	298	24.1
450	31	6,522	-19.6	34	299	27.4
400	31	7,394	-25.8		299	30.3
350	31	8,347	-33.2		298	31.7
300	31	9,412	-41.4		298	32.4
250	31	10,629	-49.3		307	39.2
200	31	12,071	-54.8		303	35.6
175	31	12,921	-57.1		294	33.2
150	31	13,891	-59.5		291	31.1
125	31	15,023	-62.6		290	28.2
100	31	16,393	-64.1		289	23.9
80	29	17,759	-62.5		289	16.9
60	28	19,543	-59.9		289	8.4
50	28	20,684	-59.2		297	8.5
40	28	22,088	-57.4		298	8.4
30	24	23,920	-55.4		304	5.4
25	23	25,081	-54.0		299	5.8
20	21	26,509	-53.1		299	9.3
15	12	28,367	-51.6			
10						

SAN ANTONIO, TEX. (986 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	243	16.4	85	7	3.5
1,000	31	117				
950	31	562	17.9	73	100	4.5
900	31	1,020	16.7	66	161	6.0
850	31	1,507	15.6	52	189	6.0
800	31	2,019	13.3	51	215	5.2
750	31	2,561	10.6	47	248	5.4
700	31	3,132	7.1	45	261	7.6
650	31	3,734	3.7	36	264	8.2
600	31	4,384	.2		259	9.1
550	31	5,074	- 3.5		246	12.2
500	31	5,825	- 8.0		251	15.7
450	31	6,634	-13.5		250	23.5
400	31	7,523	-19.7		255	28.6
350	31	8,500	-26.5		260	37.1
300	30	9,595	-34.1		255	47.6
250	29	10,849	-42.9		258	54.2
200	29	12,318	-54.0		261	61.8
175	29	13,164	-59.7		263	63.0
150	29	14,114	-65.9			
125	25	15,212	-71.2			
100	24	16,521	-73.9			
80	18	17,847	-69.8			
60	18	19,589	-62.7			
50	18	20,723	-59.0			
40	17	22,130	-55.6			
30	16	23,981	-50.6			
25	15	25,174	-48.6			
20	15	26,649	-46.3			
15	14	28,569	-44.0			
10	7	31,302	-39.5			

SAN DIEGO, CALIF. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	124	14.9	89	28	0.6
1,000	31	93				
950	31	534	17.9	61	355	2.1
900	31	995	18.6	38	352	4.9
850	31	1,483	17.2	30	346	4.7
800	31	1,998	14.3	28	351	3.9
750	31	2,532	10.7	29	11	4.3
700	31	3,111	7.1	28	11	5.8
650	31	3,710	3.8	25	349	6.8
600	31	4,363	- .3	23	333	7.2
550	31	5,044	- 4.9		332	9.3
500	31	5,799	-10.0		327	12.2
450	31	6,593	-16.1		331	12.2
400	31	7,481	-22.7		324	13.0
350	31	8,447	-29.8		320	15.0
300	31	9,529	-37.5		313	17.5
250	31	10,765	-45.7		309	21.0
200	31	12,225	-54.2		300	25.3
175	31	13,073	-58.6		299	25.6
150	31	14,032	-63.1		294	22.9
125	31	15,144	-66.9		288	19.6
100	31	16,481	-69.7		289	16.3
80	31	17,814	-68.5		317	9.7
60	31	19,557	-63.7		341	3.9
50	30	20,682	-60.7		358	2.9
40	29	22,079	-58.1		354	2.1
30	27	23,902	-55.5		309	2.1
25	27	25,068	-53.8		281	4.1
20	25	26,511	-51.7		286	6.4
15	24	28,388	-49.5		281	11.9
10	16	31,065	-47.6		284	14.0

SAN JUAN, P. R. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	24.9	86	105	2.1
1,000	31	131	25.3	77	103	7.8
950	31	587	22.7	76	99	14.8
900	31	1,051	19.8	72	106	15.7
850	31	1,543	17.0	66	107	15.5
800	31	2,058	14.4	60	111	15.0
750	31	2,603	11.5	55	104	13.2
700	31	3,176	8.5	51	103	13.0
650	31	3,786	5.2	50	99	12.4
600	31	4,436	1.4	47	85	10.5
550	31	5,130	- 2.5	44	93	10.3
500	31	5,883	- 6.9	40	86	10.3
450	31	6,695	-12.2	38	80	10.1
400	31	7,590	-18.1	38	68	8.9
350	31	8,573	-25.7	38	65	8.5
300	31	9,671	-34.3		44	7.6
250	31	10,919	-44.5		22	12.2
200	31	12,374	-56.5		18	15.7
175	31	13,210	-62.3		13	18.3
150	30	14,149	-68.6		13	16.5
125	30	15,231	-72.4		14	11.5
100	30	16,532	-75.1		31	8.0
80	30	17,836	-71.6		55	5.1
60	30	19,567	-64.2		51	4.7
50	29	20,691	-60.7		63	6.8
40	29	22,096	-56.1		78	8.7
30	28	23,945	-51.3		100	7.4
25	23	25,143	-48.9		108	7.2
20	20	26,622	-45.2		105	9.7
15	10	28,562	-40.1			
10						

SANTA MONICA, CALIF. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	38	17.1	75	29	2.1
1,000	30	96	17.0	74	40	2.1
950	30	536	17.6	60	20	3.1
900	30	998	18.6	36	8	4.1
850	30	1,486	16.7	31	350	4.1
800	30	2,000	14.4	26	11	4.1
750	30	2,534	10.8	28	4	5.4
700	30	3,112	7.0	29	3	5.6
650	30	3,712	3.4	28	346	6.8
600	30	4,362	- .8	28	330	9.7
550	30	5,044	- 5.2	25	324	11.5
500	30	5,793	-10.3		323	14.2
450	30	6,587	-16.3		321	15.0
400	30	7,474	-22.8		317	15.7
350	30	8,439	-30.1		321	17.5
300	30	9,518	-38.0		319	20.2
250	30	10,753	-46.1		316	23.7
200	30	12,209	-54.5		305	24.7
175	29	13,067	-59.1		302	25.5
150	29	14,023	-63.3		299	23.1
125	27	15,132	-67.3		301	21.0
100	26	16,468	-69.5		299	15.7
80	25	17,802	-68.2		320	11.3
60	25	19,542	-64.5		3	6.2
50	23	20,663	-61.5		353	5.6
40	21	22,055	-59.0		4	4.1
30	18	23,869	-55.9		322	3.9
25	16	25,026	-54.4		289	5.8
20	16	26,459	-52.9		283	8.5
15	13	28,324	-50.9		275	14.6
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SAULT STE. MARIE, MICH. (998 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	221	4.1	85	49	2.9
1,000	31	122				
950	31	539	3.2	84	62	.6
900	31	976	1.1	84	258	3.7
850	31	1,435	- .4	77	271	8.0
800	31	1,919	- 2.0	68	276	10.9
750	31	2,432	- 3.3	59	275	14.2
700	31	2,975	- 5.6	59	272	17.5
650	31	3,551	- 8.0	57	272	22.9
600	31	4,174	-11.0	55	272	27.8
550	31	4,833	-14.9	52	273	33.6
500	31	5,553	-19.4	50	270	36.1
450	31	6,322	-24.7	49	271	43.1
400	31	7,176	-30.6	47	267	47.2
350	31	8,111	-37.8		268	52.7
300	31	9,156	-45.7		264	58.9
250	31	10,350	-52.4		262	60.2
200	29	11,780	-53.6		262	62.2
175	29	12,638	-54.3		263	63.5
150	26	13,620	-55.3		263	56.2
125	26	14,779	-56.3		265	47.8
100	24	16,193	-57.4		265	40.8
80	23	17,604	-57.1		270	30.9
60	21	19,429	-56.7		273	20.0
50	21	20,583	-56.7		276	17.5
40	20	22,000	-55.7		280	14.4
30	17	23,847	-55.1		278	15.0
25	16	25,017	-54.0		282	14.2
20	16	26,452	-52.9		283	14.8
15	8	28,322	-50.0			
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SEATTLE, WASH. (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	125	9.0	93	132	2.7
1,000	31	147			82	2.5
950	31	574	9.2	79	191	5.1
900	31	1,022	7.6	74	227	8.0
850	31	1,492	5.7	66	236	11.1
800	31	1,987	3.9	54	253	12.2
750	31	2,507	1.6	49	270	15.2
700	31	3,063	- 1.1	48	276	17.7
650	31	3,650	- 4.0	45	281	22.7
600	31	4,280	- 7.4	38	284	26.6
550	31	4,946	-11.4	41	287	32.3
500	31	5,678	-16.1	43	288	37.5
450	31	6,456	-21.5	46	288	39.8
400	31	7,323	-27.4	46	289	45.9
350	31	8,271	-34.3	42	288	51.9
300	31	9,331	-42.1		289	56.5
250	31	10,544	-49.9		290	59.5
200	30	11,982	-55.7		287	56.7
175	30	12,830	-57.0		286	54.2
150	30	13,802	-58.7		287	48.6
125	30	14,943	-60.5		286	41.6
100	30	16,328	-61.5		288	35.9
80	30	17,716	-59.7		287	28.4
60	30	19,520	-58.8		289	17.9
50	30	20,665	-58.1		289	15.2
40	28	22,072	-58.0		294	11.9
30	26	23,892	-56.4		299	11.1
25	25	25,053	-55.8		299	10.5
20	25	26,475	-55.1		288	13.0
15	19	28,337	-53.6		297	15.5
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SHEMYA, ALASKA (1001 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	37	5.8	85	30	6.2
1,000	31	40			54	7.0
950	31	456	3.1	87	57	4.5
900	31	896	.3	87	40	3.1
850	31	1,353	- 2.2	82	19	3.7
800	31	1,833	- 4.5	72	17	2.9
750	31	2,335	- 6.8	62	8	2.3
700	31	2,875	- 9.7	53	345	3.5
650	31	3,437	-13.0	53	333	3.3
600	31	4,051	-16.7	49	338	3.3
550	31	4,692	-21.0	47	297	3.9
500	31	5,398	-25.7	48	278	7.4
450	31	6,144	-31.2	47	272	7.0
400	31	6,979	-37.2		266	8.9
350	31	7,889	-43.7		257	12.4
300	31	8,909	-50.6		258	13.2
250	29	10,088	-55.3		275	19.8
200	29	11,513	-53.7		274	22.7
175	28	12,383	-52.3		276	25.3
150	28	13,383	-51.5		271	26.0
125	28	14,566	-51.6		272	24.3
100	28	16,015	-51.4		268	23.3
80	28	17,465	-51.3		271	24.7
60	27	19,327	-51.9		262	20.8
50	27	20,511	-51.4		266	20.8
40	27	21,961	-51.3		260	18.7
30	27	23,833	-51.3		266	20.4
25	26	25,020	-50.8		269	19.6
20	22	26,485	-50.4		272	14.6
15	22	28,365	-49.7		282	15.7
10	18	31,046	-48.4		289	20.6
7	11	33,430	-46.1			

SHREVEPORT, LA. (1006 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	76	14.6	87	53	2.1
1,000	31	124	15.2	83	57	2.5
950	31	563	16.3	70	150	2.1
900	31	1,022	15.3	63	218	2.9
850	31	1,505	13.7	52	238	3.9
800	31	2,014	11.3	46	251	5.8
750	31	2,548	9.2	40	265	6.4
700	31	3,120	6.3	33	270	7.8
650	31	3,721	3.5	28	265	9.3
600	31	4,370	.0		259	11.9
550	31	5,055	- 4.1		268	15.0
500	31	5,807	- 9.0		265	19.0
450	31	6,609	-14.6		263	23.7
400	31	7,497	-21.0		259	29.7
350	31	8,470	-27.8		258	35.8
300	31	9,559	-35.6		257	43.5
250	31	10,806	-44.0		255	52.8
200	31	12,272	-53.8		257	61.0
175	31	13,119	-59.0		259	61.4
150	30	14,075	-64.6		260	52.7
125	30	15,173	-69.6		260	44.9
100	25	16,497	-72.1		265	32.8
80	23	17,824	-69.3		265	16.1
60	23	19,569	-62.7		271	5.2
50	23	20,702	-59.6		255	3.9
40	23	22,108	-56.4		264	5.1
30	23	23,949	-52.4		285	6.0
25	21	25,136	-49.8		280	5.2
20	18	26,588	-48.1		273	12.6
15	18	28,496	-45.1		274	17.7
10	11	31,209	-41.5			
7	5	33,605	-40.4			

SPOKANE, WASH. (933 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	722	4.9	86	188	2.3
1,000	31	148				
950	31	569				
900	31	1,015	7.3	72	188	3.7
850	31	1,485	5.8	62	257	7.2
800	31	1,979	3.7	58	269	12.6
750	31	2,497	.9	57	269	13.8
700	31	3,053	- 1.9	53	280	18.1
650	31	3,635	- 4.9	52	282	21.4
600	31	4,265	- 8.3	44	285	25.5
550	31	4,929	-12.3	43	287	27.2
500	31	5,658	-16.6	42	294	32.6
450	31	6,432	-22.0	40	292	36.9
400	31	7,299	-27.9	40	293	41.8
350	31	8,246	-34.3	37	296	48.0
300	31	9,308	-42.1		299	55.0
250	31	10,521	-49.8		299	55.6
200	31	11,961	-55.0		293	53.6
175	31	12,812	-56.2		295	53.8
150	30	13,783	-57.6		294	49.2
125	29	14,923	-59.1		294	40.4
100	29	16,321	-59.5		292	33.8
80	29	17,720	-58.5		296	22.7
60	28	19,530	-57.9		292	18.7
50	28	20,681	-57.1		287	17.1
40	27	22,090	-57.2		295	11.3
30	25	23,909	-56.3		299	13.4
25	23	25,071	-55.5		299	16.3
20	23	26,495	-54.7		290	15.2
15	18	28,335	-54.0		291	23.9
10	13	30,947	-52.3			
7	5	33,211	-53.2			

SWAN ISLAND, W. I. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	27.1	91	108	8.5
1,000	31	98	26.5	90	107	9.5
950	31	548	23.2	86	115	12.6
900	31	1,020	20.2	79	117	14.4
850	31	1,513	17.7	71	116	14.0
800	31	2,031	14.8	67	116	12.0
750	31	2,573	12.0	63	117	11.5
700	31	3,150	8.9	59	115	11.1
650	31	3,759	5.5	57	113	9.1
600	31	4,412	1.7	56	112	8.5
550	31	5,105	- 2.4	54	101	8.0
500	31	5,860	- 6.7	50	109	7.0
450	31	6,671	-11.6	48	106	6.8
400	31	7,571	-17.4	44	92	6.2
350	31	8,558	-24.1	38	95	7.6
300	31	9,664	-32.4		79	5.6
250	31	10,923	-42.5		72	7.8
200	31	12,393	-54.8		65	8.9
175	31	13,233	-61.5		46	8.7
150	30	14,172	-68.4		37	8.2
125	29	15,249	-74.6		38	9.5
100	27	16,536	-76.9		41	8.7
80	27	17,834	-72.1		83	6.6
60	23	19,560	-64.4		79	7.6
50	22	20,683	-60.9		64	8.0
40	22	22,086	-56.2		73	8.2
30	21	23,931	-52.4		76	8.5
25	18	25,106	-50.2		76	7.2
20	10	26,572	-46.5			
15						
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7						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

OCTOBER 1959

TAMPA, FLA. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	[illegible]	22.5	92	79	4.3
1,000	31	125	23.2	84	105	5.2
950	31	574	22.0	80	160	6.6
900	31	1,042	19.1	77	179	6.8
850	31	1,533	16.4	73	200	6.4
800	31	2,047	13.9	67	204	6.6
750	31	2,591	11.3	61	225	6.0
700	31	3,164	8.5	55	220	6.2
650	31	3,773	4.9	52	239	6.6
600	31	4,422	1.0	52	249	7.4
550	31	5,116	- 3.2	51	253	8.9
500	31	5,866	- 7.7	49	253	9.3
450	31	6,677	-12.6	46	259	10.3
400	30	7,575	-18 3	42	250	13.4
350	29	8,558	-25.6	41	260	16.1
300	29	9,658	-33.9		261	17.1
250	29	10,910	-44.0		266	20.8
200	28	12,374	-55.7		283	24.3
175	26	13,209	-62.2		296	23.3
150	24	14,149	-68.6		306	18.1
125	21	15,223	-73.9		313	15.7
100	19	16,517	-75.5		321	5.8
80	18	17,819	-71.8		20	2.3
60	16	19,538	-63.4		64	4.7
50	16	20,669	-59.4		67	3.7
40	15	22,072	-57.3		63	9.9
30	13	23,922	-52.0		63	7.6
25	13	25,107	-50.4		77	5.8
20	13	26,570	-47.9		62	6.4
15	9	28,470	-44.1			
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TATOOSH IS., WASH. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	31	10.2	92	123	4.5
1,000	31	138	10.4	86	133	4.9
950	31	561	9.1	79	199	6.0
900	31	1,011	7.2	75	239	6.6
850	31	1,480	4.9	68	255	8.7
800	31	1,973	3.5	57	270	13.2
750	31	2,490	1.2	51	273	16.9
700	31	3,048	- 1.5	46	273	20.0
650	31	3,627	- 4.5	43	275	25.3
600	31	4,262	- 7.9	44	281	29.7
550	31	4,922	-12.1	43	278	34.6
500	31	5,657	-16.5	44	276	35.0
450	31	6,427	-22.0	44	271	39.4
400	31	7,298	-28.0	44	273	45.9
350	31	8,244	-34.7	43	269	53.6
300	31	9,302	-42.7		271	58.3
250	31	10,512	-50.5		271	58.7
200	30	11,943	-56.1		269	60.6
175	29	12,795	-57.1		267	57.1
150	29	13,767	-58.6		271	50.3
125	27	14,898	-59.9		269	42.2
100	25	16,291	-60.1		271	34.4
80	25	17,686	-59.3		269	24.7
60	25	19,488	-58.4		275	21.8
50	23	20,630	-58.0		281	18.5
40	22	22,040	-57 8		285	15.2
30	22	23,860	-56.6		284	10.7
25	21	25,024	-55.7		291	14.6
20	17	26,461	-54.5		300	10.9
15	15	28,300	-54.0			
10	6	30,946	-52.9			
7						

TOPEKA, KANS. (984 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	269	8.0	86	293	1.4
1,000	31	134				
950	31	560	10.2	70	259	4.3
900	31	1,0'0	9.3	62	271	7.4
850	31	1,483	8.1	56	283	8.5
800	31	1,983	7.1	49	284	12.0
750	31	2,506	5.1	44	282	13.4
700	31	3,073	2.1	44	277	16.7
650	31	3,664	- 1.3	49	276	21.0
600	31	4,303	- 4.6	44	275	25.6
550	31	4,974	- 8.9	42	271	27.6
500	31	5,715	-13.4	41	270	31.9
450	31	6,499	-18.7		269	37.1
400	31	7,376	-24.9		274	41.8
350	30	8,336	-31.8		271	48.2
300	30	9,407	-40.0		268	50.7
250	30	10,629	-48.2		266	56.2
200	29	12,079	-54.9		264	61.4
175	26	12,916	-57.8		258	64.5
150	23	13,884	-60.1		271	49.7
125	20	15,007	-62.9		264	40.6
100	16	16,380	-64.9		272	33.4
80	14	17,742	-62.5		277	23.1
60	13	19,532	-60.0		274	13.6
50	13	20,675	-58.3		269	5.2
40	13	22,086	-56.4		256	4.1
30	13	23,924	-53.7		279	6.6
25	13	25,101	-52.1		272	8.4
20	13	26,552	-50.1		280	15.2
15	11	28,431	-47.8			
10	5	31,081	-46.4			
7						

TUCSON, ARIZ. (921 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	781	15.2	48	145	7.4
1,000	31	84				
950	31	521				
900	31	989	19.9	39	149	6.8
850	31	1,480	17.9	37	154	3.3
800	31	1,996	14.6	39	193	4.3
750	31	2,532	10.9	38	213	7.2
700	31	3,110	7.1	36	224	8.2
650	31	3,708	3.6	32	234	8.9
600	31	4,362	- .1	29	248	7.8
550	31	5,043	- 4.3		264	9.3
500	31	5,798	- 9.1		266	12.4
450	31	6,596	-15.0		264	14.8
400	31	7,486	-21.8		260	16.9
350	31	8,456	-29.0		260	18.5
300	31	9,540	-36.9		268	22.3
250	31	10,779	-45.2		267	29.9
200	31	12,241	-53.4		270	32.3
175	31	13,092	-57.8		266	32.8
150	31	14,054	-62.6		265	31.1
125	31	15,165	-67.0		269	26.8
100	31	16,503	-69.4		274	20.2
80	31	17,836	-68.3		286	10.1
60	30	19,583	-63.3		312	3.1
50	30	20,711	-60.6		323	1.9
40	29	22,111	-57.6		308	.6
30	25	23,936	-54.6		292	3.9
25	25	25,105	-53.5		293	4.9
20	24	26,547	-51.5		283	7.2
15	19	28,407	-50.0		269	13.8
10						
7						

WASHINGTON, D. C. (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	88	13.0	85	160	0.8
1,000	31	142			117	.6
950	31	571	12.5	73	263	2.7
900	31	1,027	10.8	69	282	7.4
850	31	1,503	9.4	63	272	10.7
800	31	2,005	7.9	52	263	14.0
750	31	2,533	5.8	46	265	17.1
700	31	3,098	3.2	42	260	20.4
650	31	3,690	.0	41	259	24.7
600	31	4,334	- 3.2	35	260	26.8
550	31	5,010	- 7.1	31	260	29.7
500	31	5,754	-11.9		263	32.6
450	31	6,545	-17.3		263	35.6
400	31	7,425	-23.7		260	37.7
350	31	8,388	-30.4		258	41.6
300	31	9,467	-37.7		256	46.8
250	31	10,704	-45.3		259	52.3
200	31	12,166	-53.5		264	58.3
175	31	13,016	-58.1		264	56.3
150	31	13,977	-62.3		265	50.1
125	31	15,094	-65.6		266	46.6
100	31	16,446	-66.4		265	34.0
80	31	17,804	-64.0		267	21.8
60	31	19,582	-60.4		269	13.0
50	30	20,724	-58.7		274	11.5
40	30	22,132	-56.7		282	9.3
30	29	23,975	-53.4		281	8.4
25	29	25,155	-51.1		285	10.1
20	28	26,621	-48.5		275	13.2
15	25	28,537	-46.3		275	15.3
10	14	31,232	-43.9			
7	[illegible]	33,687	-40.5			

WINNEMUCCA, NEV. (871 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,310	2.5	60	110	1.0
1,000	31	172				
950	31	595				
900	31	1,042				
850	31	1,512	10.5	45	89	1.6
800	31	2,017	9.2	41	298	2.1
750	31	2,544	6.2	41	305	6.4
700	31	3,112	3.0	41	299	9.3
650	31	3,704	- .4	38	301	12.2
600	31	4,345	- 4.4	34	303	15.3
550	31	5,018	- 8.7	32	308	18.7
500	31	5,759	-13.2	30	307	22.0
450	31	6,545	-18.6		304	24.5
400	31	7,423	-24.5		314	27.0
350	31	8,382	-31.7		318	29.5
300	31	9,454	-39.7		310	30.9
250	31	10,677	-48.4		301	34.0
200	31	12,120	-55.8		295	39.6
175	30	12,967	-57.5		293	38.5
150	30	13,934	-60.3		290	34.0
125	30	15,061	-63.9		289	30.1
100	30	16,421	-65.2		295	25.5
80	30	17,784	-63.9		297	17.3
60	30	19,558	-61.1		314	9.1
50	29	20,693	-59.5		305	6.6
40	29	22,092	-58.2		324	8.2
30	27	23,912	-56.2		303	8.5
25	27	25,073	-55.0		298	10.7
20	23	26,503	-54.0		299	11.3
15	15	28,348	-52.6		350	4.1
10	6	30,964	-51.8			

YAKUTAT, ALASKA (1009 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	12	2.8	83	89	3.9
1,000	30	87			94	4.3
950	30	505	3.2	63	132	5.2
900	30	941	.2	63	130	3.1
850	30	1,397	- 2.6	61	164	3.3
800	30	1,876	- 5.3	59	192	3.1
750	30	2,380	- 8.2	56	232	3.5
700	30	2,914	-10.9	49	246	6.0
650	30	3,478	-14.6	44	252	8.9
600	30	4,082	-18.4	42	254	14.4
550	30	4,723	-22.6	41	259	19.8
500	30	5,420	-27.4	42	264	21.0
450	30	6,163	-32.5	42	272	25.3
400	30	6,993	-38.1		274	30.9
350	30	7,901	-44.1		278	35.2
300	30	8,921	-50.3		282	32.4
250	30	10,099	-54.3		275	32.3
200	30	11,536	-51.7		273	38.3
175	30	12,403	-51.5		279	33.4
150	30	13,403	-51.8			
125	30	14,583	-52.3			
100	29	16,029	-52.0			
80	29	17,472	-52.6			
60	27	19,332	-53.7			
50	25	20,485	-54.5			
40	25	21,912	-54.7			
30	24	23,743	-55.7			
25	20	24,895	-56.0			
20	17	26,344	-55.8			
15	11	28,196	-54.6			
10						

YUCCA FLAT, NEV. (880 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,196	6.4	33	340	2.7
1,000	31	130				
950	31	559				
900	31	1,014				
850	31	1,492	15.3	25	357	7.2
800	31	2,003	12.8	26	4	6.2
750	31	2,536	9.2	29	4	5.4
700	31	3,109	5.3	33	353	5.2
650	31	3,706	1.7	34	315	6.6
600	31	4,351	- 2.5	35	311	9.5
550	31	5,031	- 6.5		313	13.6
500	31	5,775	-11.5		307	15.3
450	31	6,562	-17.6		308	16.1
400	31	7,446	-24.4		306	17.3
350	31	8,404	-32.0		319	17.3
300	31	9,476	-39.7		316	22.0
250	31	10,704	-46.8		311	26.8
200	31	12,159	-53.8		310	31.5
175	31	13,010	-57.2		304	32.8
150	31	13,976	-60.9		302	29.5
125	31	15,101	-64.5		299	27.0
100	31	16,456	-66.4		302	22.2
80	31	17,808	-65.3		308	13.6
60	31	19,573	-61.8		325	7.0
50	31	20,706	-60.0		333	5.6
40	31	22,105	-58.3		326	5.4
30	27	23,923	-55.8		358	2.7
25	27	25,089	-54.4		327	3.5
20	24	26,532	-52.4		293	7.6
15	14	28,394	-50.6		278	15.5
10						

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun

OCTOBER 1959

Sun's zenith distance

ALBUQUERQUE, N. MEX.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
October									
2	----	----	1.11	1.23	1.39	1.23	1.06	0.99	0.86
3	----	----	----	---		1.29	----	----	----
4	0.91	1.01	1.14	----	----		----	---	----
5	.97	1.08	1.19	1.31	1.43	1.33	1.19	1.09	.99
7	.97	1.09	1.20	----	----	1.29	1.11	1.02	.93
8	.99	1.08	1.17	1.34	1.41	1.32	1.07	.96	.83
10	----	----	1.15	1.31	1.43	1.31	1.16	1.04	.92
11	.97	1.09	1.18	1.32	1.42	1.31	1.16	1.07	.93
12	----	----	1.13	1.28	1.43	----	----	----	----
13	----	.99	1.10	----	1.37	1.25	1.04	.96	.99
14	.97	1.09	1.18	1.34	1.40	1.31	----	----	----
15	.98	1.08	1.15	1.31	1.43	1.34	1.15	1.09	.98
16	.98	1.12	1.19	1.33	1.45	1.35	1.21	1.12	1.01
17	.90	1.03	1.14	1.30	1.41	1.27	1.13	1.01	.86
18	.98	1.09	1.19	1.33	1.45	1.37	1.22	1.13	1.01
19	1.02	1.11	1.18	1.30	1.45	1.36	1.22	1.11	1.00
20	.93	1.05	1.13	1.29	1.39	1.31	1.14	1.02	.89
21	.92	1.05	1.14	1.29	1.41	1.28	1.09	.99	.87
22	.99	1.09	1.19	----	----	----	----	----	----
23	.95	1.06	1.17	1.33	1.41	1.32	1.22	1.13	1.02
24	.95	1.06	1.17	1.31	1.39	1.31	1.18	1.08	.97
25	.99	1.12	1.21	1.35	1.43	1.33	1.18	1.06	.93
26	----	----	----	1.32	1.36	----	----	----	---
31	----	----	----	----	----	1.28	1.14	----	.83
Averages	0.96	1.07	1.17	1.32	1.42	1.32	1.15	1.06	0.95

BLUE HILL, MASS.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
October									
2	----	----	----	----	----	1.14	0.97	0.86	0.70
4	----	----	M 0.65	M 0.92	----	----	----	----	----
10	0.89	0.97	1.11	1.30	----	----	----	----	----
12	.91	1.01	1.19	1.24	1.32	1.21	1.04	.89	.81
13	.89	----	1.10	1.18	----	----	----	----	----
15	----	----	----	----	----	----	----	.81	.71
16	----	----	----	----	1.29	1.21	.95	.84	.69
17	I .54	I .66	I .74	I .94	----	----	----	----	----
18	.97	1.05	1.14	1.26	1.31	----	----	----	----
19	----	----	1.18	1.33	1.38	1.36	1.11	1.06	.99
20	.81	.92	1.06	1.21	1.26	1.15	.92	.69	.57
21	.96	1.06	1.18	1.32	1.42	1.34	1.19	1.07	.97
28	1.01	1.11	1.18	1.32	1.36	1.30	1.17	1.06	.95
29	.96	1.06	1.18	1.29	1.34	1.29	1.12	1.01	.91
30	.86	1.02	1.06	1.12	1.25	----	----	----	----
Averages	0.88	0.98	1.06	1.20	1.33	1.25	1.06	0.92	0.81

LINCOLN, NEBR.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
October									
6	----	----	----	----	1.20	----	----	----	----
13	----	----	----	----	----	1.11	0.99	0.89	0.74
14	----	----	----	----	----	----	.99	----	----
18	----	----	----	----	1.25	1.19	----	----	----
19	----	----	1.00	1.13	1.20	1.08	.91	.80	.72
20	0.64	0.74	.84	.99	----	----	----	----	----
21	.64	.74	.82	.97	----	----	----	----	----
24	----	----	----	----	1.20	1.15	1.00	.90	.81
25	----	----	----	----	----	1.10	----	----	----
27	S .84	S .92	S 1.10	M 1.12	M1.20	S 1.12	1.00	.90	.80
Averages	0.71	0.80	0.94	1.05	1.21	1.13	0.98	0.87	0.77

MADISON, WIS.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
October									
17	----	S 1.18	S 1.29	S 1.44	S1.50	S 1.42	S 1.26	S 1.12	S 0.90
18	S 0.99	S 1.10	S 1.23	S 1.39	S1.42	S 1.37	S 1.21	----	----
19	S .96	S 1.06	S 1.20	M 1.34	M1.34	S 1.23	M 1.07	M .91	M .86
Averages	0.98	1.11	1.24	1.39	1.42	1.34	1.18	1.02	0.88

* Values corresponding to true solar noon.
‡ Shadow obstruction.
\# Data should be considered doubtful due to moisture in instrument.
H Haze.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.
I Intense haze - indeterminable.

TUCSON, ARIZ.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
October									
4	1.03	1.11	1.22	1.36	1.46	1.34	1.21	1.08	0.99
5	1.07	1.11	1.22	1.36	1.47	1.33	H 1.16	H 1.04	H .93
7	.99	H 1.04	H 1.14	H 1.34	H 1.42	H 1.31	H 1.13	H 1.01	H .91
8	H .94	H 1.02	H 1.14	H 1.30	H 1.42	----	----	----	----
10	H .92	H 1.01	H 1.13	H 1.27	----	----	----	----	----
11	H .93	H 1.03	H 1.15	H 1.29	1.43	H 1.29	H 1.11	H .99	H .89
13	H .85	H .95	H 1.07	H 1.23	----	----	----	----	----
14	H .93	H 1.05	H 1.16	----	H 1.39	H 1.25	H 1.08	H .99	H .89
15	H .96	H 1.08	H 1.18	H 1.25	H 1.43	H 1.28	H 1.11	----	----
16	H .97	H 1.07	H 1.18	H 1.28	H 1.42	----	----	----	----
17	H .93	H 1.03	H 1.14	H 1.26	----	----	----	----	----
18	.98	1.09	1.20	1.36	1.49	1.38	1.21	1.10	.99
19	H .89	H 1.01	H 1.13	H 1.27	----	----	----	----	----
20	H .94	H 1.00	H 1.11	----	H 1.42	----	----	----	----
21	H .89	H .98	H 1.11	H 1.25	H 1.39	H 1.23	H 1.08	H .91	H .82
24	H .94	1.05	1.18	1.30	1.40	1.25	H 1.08	H .93	H .81
25	.92	1.02	1.14	1.29	1.38	1.26	1.08	H .97	H .84
26	----	----	----	----	1.39	----	----	----	----
Averages	0.94	1.04	1.15	1.29	1.42	1.29	1.12	1.00	0.90

OMAHA, NEBR.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
October									
6	----	----	----	----	S 1.37	----	S 1.06	S 0.92	----
10	----	----	----	----	----	----	----	S 1.09	‡
11	1.04	1.13	1.24	1.37	1.46	----	----	----	----
12	----	----	----	----	1.33	----	----	----	----
13	----	----	----	----	----	S 1.31	S 1.14	S 1.06	‡
14	----	----	----	S 1.28	S 1.37	----	----	----	----
15	----	----	----	----	----	H 1.23	H 1.06	H .96	‡
17	S 1.04	S 1.12	S 1.24	S 1.37	S 1.44	S 1.38	S 1.23	S 1.11	‡
18	S .97	S 1.09	S 1.20	S 1.35	S 1.40	S 1.33	S 1.21	S 1.09	‡
19	M .90	M 1.01	M 1.14	M 1.31	M 1.35	H 1.27	‡	H .99	H 0.84
20	I .69	I .81	I .94	----	----	----	----	----	----
23	S .93	S 1.02	M 1.13	----	----	----	----	----	----
24	----	S 1.08	S 1.19	----	----	----	----	----	----
Averages	0.93	1.04	1.15	1.33	1.39	1.30	1.14	1.03	0.84

MAUNA LOA OBS., HAWAII

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
October									
1	1.22	1.30	1.38	1.50	----	----	----	----	----
2	1.22	1.29	1.39	1.51	----	----	----	----	1.14
3	1.19	1.27	1.37	1.48	1.61	----	----	----	----
4	1.21	1.28	1.38	1.49	---	----	----	----	----
8	1.33	1.40	1.48	1.58	1.69	1.56	1.45	1.36	1.28
9	1.31	1.38	1.48	1.58	1.64	1.51	1.40	1.31	1.23
10	1.32	1.40	----	----	----	----	----	----	----
11	----	----	----	----	----	----	1.37	----	----
12	1.21	1.31	1.40	1.52	1.62	1.47	1.36	1.27	1.20
13	1.23	1.31	1.40	1.52	1.64	1.50	1.39	1.31	1.23
14	1.27	1.35	1.43	1.55	----	1.53	1.43	----	----
15	1.28	1.35	1.44	1.55	1.68	----	----	----	----
16	----	----	----	---	----	1.54	1.43	1.34	1.28
17	1.31	1.38	1.47	1.58	1.69	1.55	1.47	1.38	1.31
18	1.33	1.40	1.49	1.59	1.68	1.55	1.46	1.38	1.30
19	----	----	----	----	----	1.52	1.42	1.33	1.27
20	1.33	1.40	1.49	1.59	1.62	1.51	1.40	1.31	1.25
21	1.31	1.38	1.48	1.59	1.65	1.53	1.42	1.34	1.27
22	1.28	1.36	1.46	1.57	1.67	----	----	----	----
23	1.24	1.33	1.43	1.55	1.65	1.54	1.42	1.33	1.24
24	1.27	1.35	1.44	1.55	1.66	1.51	1.40	1.29	1.22
25	1.26	1.35	1.44	1.55	1.66	1.54	1.42	1.32	1.25
26	1.29	1.37	1.45	1.56	1.67	1.51	1.39	1.26	1.16
27	1.29	1.37	1.47	1.58	----	1.56	1.44	1.37	1.29
28	1.28	1.37	1.46	1.57	1.66	----	----	----	----
30	1.25	1.32	1.39	----	----	----	----	----	----
Averages	1.27	1.35	1.44	1.55	1.66	1.53	1.42	1.33	1.25

GUAM, M. I.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
October									
11	----	M 0.91	M 1.03	S 1.17	----	----	----	----	----
12	S 0.87	S .89	S 1.50	S 1.27	S 1.40	----	----	----	----
22	----	----	----	----	----	S 1.21	----	----	----
30	----	S .86	----	----	----	----	----	----	----
Averages	0.87	0.89	1.27	1.22	1.40	1.21	----	----	----

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

NET RADIATION

Net radiation in langleys per day (midnight to midnight) at Mauna Loa Obs., Hawaii during the month

OCTOBER 1959

Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys. . .	---	---	---	---	---	---	---	---	---	---	---	---	---	---	340	331	245	259	288	284	248	---	264	302	303	394	395	403	---	---	---	---

The measurements are made with a Beckman and Whitley net exchange radiometer mounted at a height of 46 inches over black, crushed lava. The temperature of the plate of the radiometer is assumed to be identical with that of the plate of a hemispheric radiometer similarly mounted and exposed.

Readings are omitted during precipitation periods.

These data are of an experimental nature and are published as received from the Weather Bureau Observatory at Mauna Loa, T. H.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

OCTOBER 1959

1959	Albuquerque, N. Mex.	Ames, Iowa	Apalachicola, Fla.	Annette, Alaska	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.
Oct. 1------	192	93	522	120	402	491	32	120	346	209	464	166
Oct. 2------	565	63	522	307	402	480	42	64	384	341	415	330
Oct. 3------	166	384	515	199	---	428	104	160	425	279	444	336
Oct. 4------	446	135	521	323	56	355	44	156	414	365	420	367
Oct. 5------	553	207	466	332	180	363	36	233	412	351	291	362
Oct. 6------	365	178	487	342	171	283	56	228	361	132	221	113
Oct. 7------	497	248	48	83	165	257	33	227	114	86	408	66
Average-------	398	187	440	244	229	380	50	170	351	252	380	248
Oct. 8------	549	124	100	109	31	84	38	222	160	110	129	97
Oct. 9------	501	421	387	329	214	244	48	219	198	124	243	118
Oct. 10------	523	232	510	262	61	76	39	---	---	365	---	402
Oct. 11------	517	427	243	267	148	309	51	207	237	96	221	81
Oct. 12------	493	310	508	2	254	455	39	205	141	398	399	414
Oct. 13------	503	361	500	41	289	293	58	177	202	268	383	259
Oct. 14------	510	339	61	85	123	29	102	87	198	119	380	128
Average-------	514	316	330	156	160	213	53	186	189	211	293	214
Oct. 15------	506	310	91	272	334	100	65	152	122	256	357	243
Oct. 16------	506	251	96	22	351	140	34	209	371	358	381	365
Oct. 17------	498	393	186	16	318	38	(35)	222	351	323	377	286
Oct. 18------	502	361	390	45	68	427	45	219	348	328	336	335
Oct. 19------	498	355	373	54	113	434	22	165	314	375	348	383
Oct. 20------	481	315	107	26	164	151	85	76	279	339	336	344
Oct. 21------	471	322	---	35	68	30	25	54	267	369	168	377
Average-------	494	329	207	67	202	188	(44)	157	293	335	329	333
Oct. 22------	410	206	186	131	44	76	41	70	269	290	127	266
Oct. 23------	462	144	369	32	134	---	17	173	119	128	246	121
Oct. 24------	457	---	451	50	40	338	17	84	314	30	313	40
Oct. 25------	455	---	506	130	262	350	31	103	169	260	335	251
Oct. 26------	401	---	478	64	276	420	15	56	---	230	267	279
Oct. 27------	400	95	427	125	139	374	17	81	259	29	320	23
Oct. 28------	290	169	108	158	214	239	27	17	310	333	229	340
Average-------	411	153	361	99	158	299	24	84	240	186	263	189
Oct. 29------	171	(256)	145	12	286	242	10	36	72	322	301	323
Oct. 30------	131	116	440	39	267	59	8	47	93	279	323	282
Oct. 31------	275	88	226	150	---	85	12	113	184	38	294	25
Nov. 1------	404	268	329	18	---	309	23	145	249	88	305	67
Nov. 2------	241	285	448	199	---	385	8	52	191	193	292	---
Nov. 3------	219	---	462	199	---	385	37	81	160	304	51	305
Nov. 4------	421	31	431	69	286	316	36	52	85	177	---	177
Average-------	266	(174)	354	98	---	255	19	75	148	200	261	196

1959	Brownsville, Tex.	Canton Island Pacific Area	Cape Hatteras, N.C.	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Davis, Calif.	Dodge City, Kans.	El Paso, Tex.	Ely, Nev.	Flaming Gorge, Utah	Fort Worth, Tex.	Fresno, Calif.
Oct. 1------	461	673	---	35	490	203	208	466	97	535	509	195	228	451
Oct. 2------	453	---	---	295	484	377	66	473	225	194	507	448	317	447
Oct. 3------	315	683	---	146	475	340	75	348	183	545	516	538	136	444
Oct. 4------	267	695	---	210	358	171	86	438	213	584	518	506	90	436
Oct. 5------	309	611	---	329	390	191	124	404	138	551	423	497	526	319
Oct. 6------	467	640	---	290	380	43	235	407	501	---	439	---	543	395
Oct. 7------	508	641	---	39	299	109	153	460	420	554	501	259	528	414
Average-------	397	657	---	192	411	205	135	428	254	494	488	407	338	415
Oct. 8------	500	605	---	153	289	84	204	342	511	---	306	417	508	378
Oct. 9------	429	464	---	---	295	419	483	408	479	518	247	130	510	360
Oct. 10------	455	693	---	347	384	385	13	389	489	538	464	391	499	390
Oct. 11------	497	687	---	198	408	396	467	324	480	527	465	454	480	385
Oct. 12------	430	669	---	248	479	79	301	470	469	381	472	221	332	395
Oct. 13------	273	729	---	154	456	59	220	429	450	506	476	461	61	383
Oct. 14------	81	705	---	378	---	160	392	427	470	479	461	399	427	388
Average-------	381	650	---	246	385	226	297	398	478	491	413	353	402	383
Oct. 15------	290	708	---	280	48	291	418	398	462	508	457	432	513	388
Oct. 16------	143	701	---	158	46	351	404	397	467	506	446	420	503	382
Oct. 17------	117	733	---	68	163	62	369	376	492	495	458	462	492	376
Oct. 18------	296	706	---	178	370	408	437	416	473	500	438	442	528	366
Oct. 19------	386	736	---	191	451	358	432	397	446	499	425	264	507	387
Oct. 20------	437	724	479	95	122	339	413	381	424	493	409	376	495	348
Oct. 21------	308	757	110	285	21	303	392	266	(410)	491	359	398	469	268
Average-------	282	724	---	179	175	302	409	376	(453)	499	427	399	501	359
Oct. 22------	315	750	205	357	123	282	177	384	295	478	400	281	469	335
Oct. 23------	443	595	---	45	162	106	168	365	208	481	405	225	456	344
Oct. 24------	346	749	445	90	202	96	279	346	427	476	401	384	490	346
Oct. 25------	463	762	443	49	353	16	320	345	408	464	390	391	469	326
Oct. 26------	448	---	475	61	(431)	68	274	343	428	451	332	396	460	255
Oct. 27------	53	---	(320)	94	181	21	67	306	414	463	276	114	260	326
Oct. 28------	269	---	435	169	235	139	379	356	391	404	404	---	468	(298)
Average-------	334	714	(387)	124	(241)	104	238	349	367	459	372	298	439	(319)
Oct. 29------	366	---	213	206	22	405	358	374	297	273	158	209	349	270
Oct. 30------	238	678	90	260	68	246	73	267	---	400	367	109	58	322
Oct. 31------	363	713	367	48	241	13	64	267	267	239	373	380	52	308
Nov. 1------	324	607	429	92	356	131	362	326	396	252	376	374	203	318
Nov. 2------	423	674	439	249	403	110	349	313	387	398	373	359	199	287
Nov. 3------	365	---	455	194	405	142	104	213	371	439	285	269	192	285
Nov. 4------	415	---	378	125	314	53	201	334	(338)	441	329	151	448	204
Average-------	356	668	339	168	258	157	216	299	(343)	349	323	264	215	285

1959	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Las Vegas, Nev.
Oct. 1------	563	(346)	---	423	430	536	440	562	77	423	193	317
Oct. 2------	490	(439)	283	286	466	469	427	606	93	442	409	538
Oct. 3------	479	410	288	391	393	459	341	602	372	321	426	537
Oct. 4------	413	(420)	479	320	469	425	315	592	198	---	483	529
Oct. 5------	455	---	478	202	469	413	149	554	212	187	454	491
Oct. 6------	536	81	311	83	432	370	318	561	65	133	400	493
Oct. 7------	351	153	259	142	214	211	195	551	196	512	205	516
Average-------	470	(308)	350	264	410	412	312	576	173	386	367	489
Oct. 8------	307	311	446	190	210	105	228	522	328	487	377	447
Oct. 9------	500	162	215	115	306	192	466	488	321	446	299	442
Oct. 10------	550	(311)	430	235	107	114	316	526	390	456	458	475
Oct. 11------	458	279	455	170	367	350	457	521	133	269	396	470
Oct. 12------	335	185	367	190	475	521	447	521	39	336	234	469
Oct. 13------	533	317	458	285	234	308	46	---	114	256	347	491
Oct. 14------	245	229	414	220	72	64	191	551	173	142	367	481
Average-------	418	(256)	398	201	253	236	307	522	214	342	354	468
Oct. 15------	198	215	450	195	198	84	368	539	302	---	403	475
Oct. 16------	390	317	---	332	455	89	396	---	295	327	156	471
Oct. 17------	282	328	453	325	249	44	204	---	113	---	422	464
Oct. 18------	265	291	---	307	456	467	419	---	64	414	425	461
Oct. 19------	460	---	430	56	449	469	399	---	285	364	319	442
Oct. 20------	331	69	409	182	431	---	399	---	281	431	269	440
Oct. 21------	43	85	275	274	166	---	352	---	403	430	318	370
Average-------	281	217	403	239	344	231	362	---	249	393	330	446
Oct. 22------	247	191	364	152	51	---	339	482	329	165	245	418
Oct. 23------	464	275	395	248	86	119	47	479	203	---	373	423
Oct. 24------	443	121	393	129	177	365	51	---	202	468	362	420
Oct. 25------	536	74	387	173	235	470	66	---	243	460	380	411
Oct. 26------	525	227	382	276	336	482	24	---	24	261	385	362
Oct. 27------	493	225	174	217	325	396	201	428	17	76	217	366
Oct. 28------	192	193	73	135	339	244	350	398	123	157	252	335
Average-------	414	187	310	190	221	346	154	447	163	265	316	391
Oct. 29------	175	32	263	85	123	39	323	300	308	268	84	366
Oct. 30------	322	264	275	277	129	67	159	295	268	108	223	88
Oct. 31------	281	(246)	360	212	99	112	43	262	86	133	426	379
Nov. 1------	274	225	363	237	330	414	300	334	16	228	364	333
Nov. 2------	484	177	354	111	370	465	351	288	144	154	360	129
Nov. 3------	476	53	217	58	372	456	58	394	122	226	181	341
Nov. 4------	481	184	142	232	267	407	82	389	29	96	159	371
Average-------	356	(169)	282	173	241	280	188	323	139	173	257	287

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Lemont, Ill.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Matanuska, Alaska	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Page, Ariz.	Phoenix, Ariz.
Oct. 1	341	29	452	501	498	43	660	446	437	228	500	145	57	58	460	193	131	151
Oct. 2	211	---	424	495	515	82	695	426	466	475	492	221	350	51	489	94	450	314
Oct. 3	148	---	349	500	518	181	636	422	483	88	456	372	312	369	419	53	557	514
Oct. 4	59	---	307	498	520	176	471	378	389	245	441	380	382	118	425	101	540	531
Oct. 5	92	---	---	420	441	245	365	351	396	545	464	324	326	243	438	415	519	520
Oct. 6	188	(439)	373	458	494	242	305	129	206	522	111	316	364	414	211	479	399	442
Oct. 7	101	255	440	449	461	231	641	180	335	524	274	103	132	144	258	463	515	501
Average	163	---	391	475	493	172	539	333	387	375	391	266	275	199	386	257	444	425
Oct. 8	247	302	349	401	438	217	751	151	413	544	79	82	289	166	198	481	428	493
Oct. 9	436	---	498	347	378	204	660	243	475	441	454	116	211	411	309	481	407	405
Oct. 10	146	---	437	413	432	208	683	224	421	505	452	330	351	203	206	308	496	478
Oct. 11	441	---	412	342	428	58	675	278	506	355	473	124	79	451	373	356	497	472
Oct. 12	422	---	323	320	359	51	655	368	292	381	350	420	404	366	463	218	490	474
Oct. 13	185	372	46	400	428	68	736	356	325	113	106	359	223	365	129	---	504	490
Oct. 14	220	---	504	460	408	224	739	314	526	502	142	44	24	410	135	284	498	495
Average	300	---	367	383	410	147	700	276	423	406	294	211	226	339	259	355	474	473
Oct. 15	360	---	473	432	339	47	690	301	497	510	474	150	204	395	407	434	487	479
Oct. 16	359	---	471	392	400	154	686	277	455	503	406	383	286	217	391	437	491	474
Oct. 17	364	---	437	403	446	192	711	329	201	492	384	352	338	423	170	444	490	468
Oct. 18	387	---	495	369	414	202	690	321	143	504	476	390	387	404	458	446	492	457
Oct. 19	380	---	479	345	288	---	691	327	432	495	467	404	401	388	450	447	446	468
Oct. 20	337	349	411	334	263	77	695	338	225	473	425	365	348	356	423	423	457	436
Oct. 21	273	277	356	280	302	119	693	48	286	---	341	385	346	312	205	395	364	438
Average	352	---	446	365	365	132	694	277	320	496	425	347	330	356	358	432	461	460
Oct. 22	223	186	279	389	399	65	664	274	431	466	272	348	116	173	349	396	440	430
Oct. 23	52	217	160	377	394	40	685	209	434	467	---	142	98	235	104	347	440	423
Oct. 24	53	380	454	308	377	22	684	227	185	455	---	41	52	366	241	436	438	422
Oct. 25	105	316	459	87	165	128	671	308	477	456	118	276	282	271	154	411	428	426
Oct. 26	69	62	408	49	37	53	681	272	501	447	353	258	314	93	326	417	355	409
Oct. 27	182	362	385	209	106	66	674	223	420	455	165	26	58	267	184	436	399	356
Oct. 28	190	332	430	330	251	39	598	278	347	438	347	348	329	269	341	413	240	403
Average	125	265	368	250	247	59	665	256	399	455	251	206	178	239	243	408	392	410
Oct. 29	308	253	390	310	272	74	538	311	448	219	69	342	239	207	79	318	362	183
Oct. 30	56	39	84	278	231	25	359	298	446	350	92	331	280	51	170	84	190	115
Oct. 31	44	192	204	291	308	43	340	280	349	75	76	86	28	212	75	142	295	402
Nov. 1	277	332	291	326	334	57	434	283	352	108	263	77	145	338	282	384	335	379
Nov. 2	303	---	403	229	238	57	420	272	471	212	406	---	185	335	385	256	110	273
Nov. 3	96	208	148	278	277	44	306	97	413	333	113	327	282	294	316	78	149	382
Nov. 4	30	26	293	243	294	28	560	275	437	438	170	---	57	24	304	387	353	374
Average	159	175	259	279	279	47	422	259	417	248	170	232	174	209	230	235	256	301

1959	Portland, Me.	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	Salt Lake City, Utah	San Antonio, Tex.	Santa Maria, Calif.	S. Ste. Marie, Mich.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Obs & Test Dev Ctr)
Oct. 1	72	385	136	557	115	496	154	533	370	367	416	305	79	94	545	504	637	178
Oct. 2	453	332	182	552	65	490	507	545	85	372	413	271	413	76	516	305	655	270
Oct. 3	347	401	458	563	425	453	287	545	127	295	393	399	328	51	469	570	657	247
Oct. 4	355	342	446	546	426	468	176	539	389	241	266	328	275	89	417	569	636	423
Oct. 5	309	140	442	502	403	428	539	---	142	119	101	148	381	314	302	564	(615)	422
Oct. 6	76	146	353	531	341	378	505	518	283	177	484	175	365	395	347	506	(691)	418
Oct. 7	25	---	73	511	126	375	520	528	374	200	494	364	207	457	350	548	508	263
Average	234	291	299	537	272	441	427	535	253	253	367	284	293	211	421	509	(628)	317
Oct. 8	238	---	422	482	59	265	334	500	46	44	454	64	169	470	316	522	---	191
Oct. 9	91	291	241	432	189	43	369	---	141	250	441	345	364	458	521	---	486	263
Oct. 10	387	308	400	473	224	322	478	---	172	105	471	299	338	201	447	523	605	285
Oct. 11	126	94	413	467	122	425	495	488	221	147	398	99	240	397	485	520	615	306
Oct. 12	417	236	371	468	77	342	427	496	235	150	429	169	430	209	408	319	634	461
Oct. 13	334	228	237	522	126	431	185	486	106	165	131	217	249	65	500	509	618	313
Oct. 14	202	284	217	523	107	419	238	494	138	93	274	176	80	432	428	510	531	38
Average	256	240	329	481	129	321	361	493	151	137	371	196	267	319	444	484	582	265
Oct. 15	294	289	367	492	164	409	522	493	320	299	490	267	343	426	496	507	614	346
Oct. 16	375	341	313	482	173	411	455	479	63	269	477	331	386	424	373	501	592	410
Oct. 17	216	343	391	474	366	417	362	418	54	267	409	329	232	429	233	491	553	400
Oct. 18	349	289	388	447	318	405	457	356	166	107	479	276	360	430	---	511	608	432
Oct. 19	374	268	378	366	331	143	495	467	214	102	474	186	400	421	---	490	571	430
Oct. 20	314	123	253	340	327	350	409	466	241	54	---	117	368	412	146	480	607	405
Oct. 21	384	166	262	347	244	371	457	(383)	167	30	(421)	137	332	381	202	475	590	113
Average	329	260	336	421	275	358	451	(437)	175	161	(458)	235	346	418	290	494	591	362
Oct. 22	318	59	333	457	277	212	394	434	152	30	274	60	98	301	230	467	587	55
Oct. 23	51	286	360	441	51	305	441	440	36	90	317	160	40	225	468	465	(521)	187
Oct. 24	---	158	287	422	319	369	472	436	57	68	469	93	78	397	380	460	(581)	132
Oct. 25	130	328	252	228	78	360	468	265	76	240	446	295	259	380	398	453	338	348
Oct. 26	223	230	322	85	89	379	434	178	142	217	186	190	51	383	497	453	468	299
Oct. 27	117	173	(290)	105	124	109	221	---	147	63	238	179	88	394	489	408	448	207
Oct. 28	327	191	251	308	107	363	439	422	208	185	431	114	361	373	230	311	554	374
Average	194	203	(299)	292	149	300	410	363	117	128	337	156	139	350	384	431	(500)	229
Oct. 29	298	218	47	223	152	210	73	444	255	205	327	280	356	325	210	361	(586)	341
Oct. 30	298	241	122	274	45	147	124	(416)	88	155	131	199	204	63	464	39	489	166
Oct. 31	27	276	271	296	152	346	90	394	61	216	76	253	58	134	346	390	248	69
Nov. 1	88	267	307	368	142	331	101	410	140	183	208	254	236	349	328	377	536	236
Nov. 2	223	249	279	222	141	327	239	401	134	95	297	163	204	281	340	206	549	168
Nov. 3	292	35	269	302	167	213	179	306	32	61	128	66	227	66	473	303	542	338
Nov. 4	150	283	133	330	---	127	435	369	30	244	347	255	74	349	443	421	506	213
Average	197	224	204	288	133	243	177	(391)	106	166	216	210	194	224	386	300	(494)	219

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

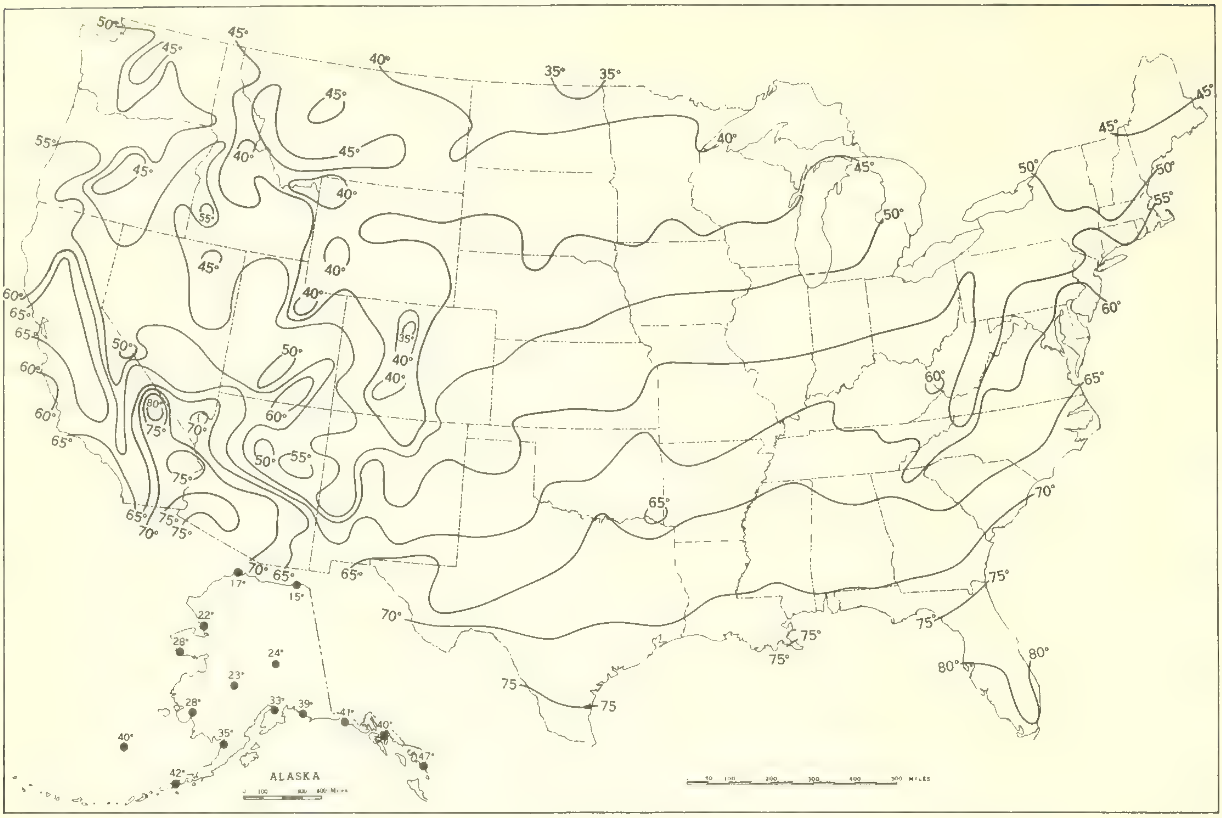
OCTOBER 1959

Date	Bismarck, N. Dak.	Caribou, Me.	Ft. Worth, Tex.	Green Bay, Wis.	Washington, D.C. (Silver Hill Obs.)
OCT.					
1----------	.327	---	---	.285	---
2----------	.359	.282	---	---	---
3----------	.286	.252	---	---	---
4----------	.295	---	---	---	.272
5----------	.307	.237	.291	---	.267
6----------	.276	.273	.268	---	.274
7----------	---	---	.288	---	.272
8----------	---	---	.285	---	---
9----------	---	---	.302	---	---
10---------	---	.286	.298	---	.276
11---------	.311	.246	.277	---	.288
12---------	---	.321	.284	---	.286
13---------	.314	.314	---	---	---
14---------	.290	.330	.292	---	---
15---------	---	.326	.299	---	.290
16---------	.329	.299	.281	---	.269
17---------	.277	---	.292	.289	.287
18---------	.255	.353	.294	.277	.292
19---------	.257	.356	.282	.257	.291
20---------	.249	---	.281	.251	.286
21---------	.283	.328	.273	---	---
22---------	.294	.286	.276	---	---
23---------	---	---	.274	---	.292
24---------	.291	---	.268	---	---
25---------	.298	---	.273	---	---
26---------	.287	---	.279	---	.292
27---------	---	---	---	---	.296
28---------	.291	.311	.286	---	.290
29---------	---	.278	---	.250	.287
30---------	---	.290	---	---	.268
31---------	.284	---	---	---	---

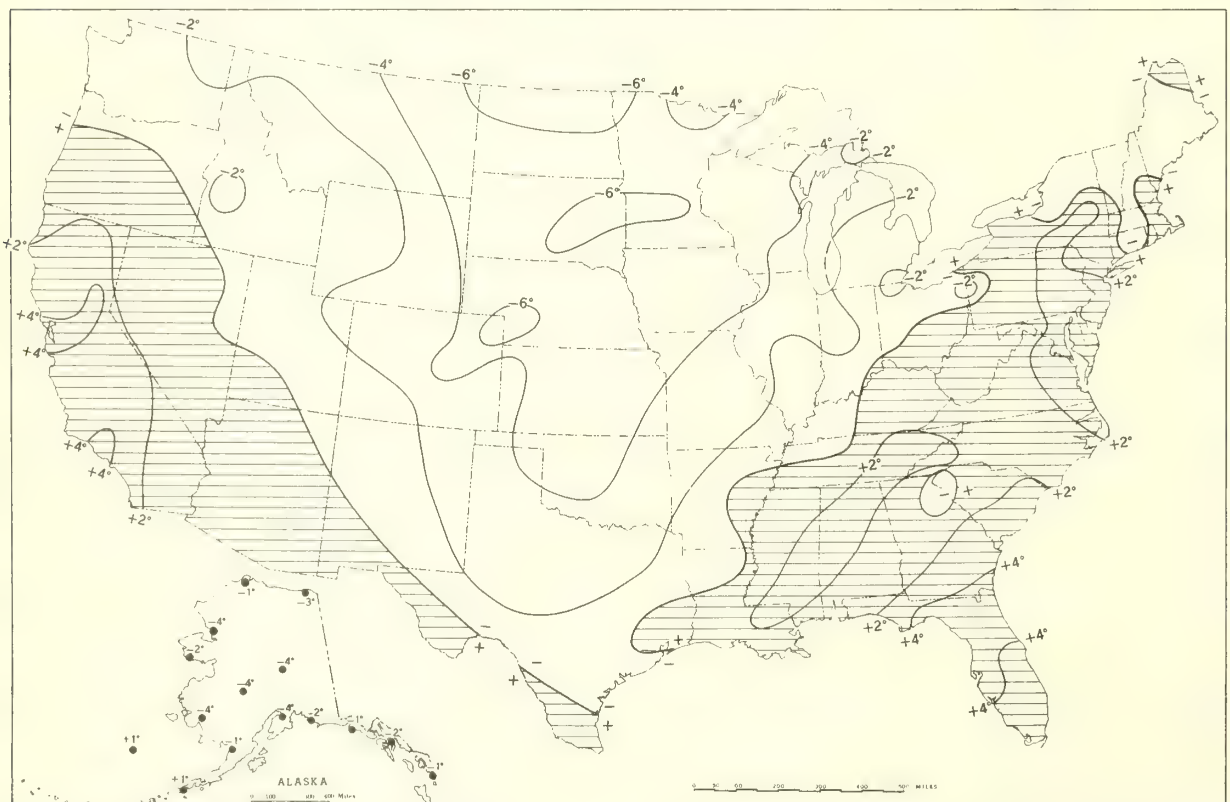
The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

Chart I. A. Average Temperature (°F.) at Surface, October 1959.

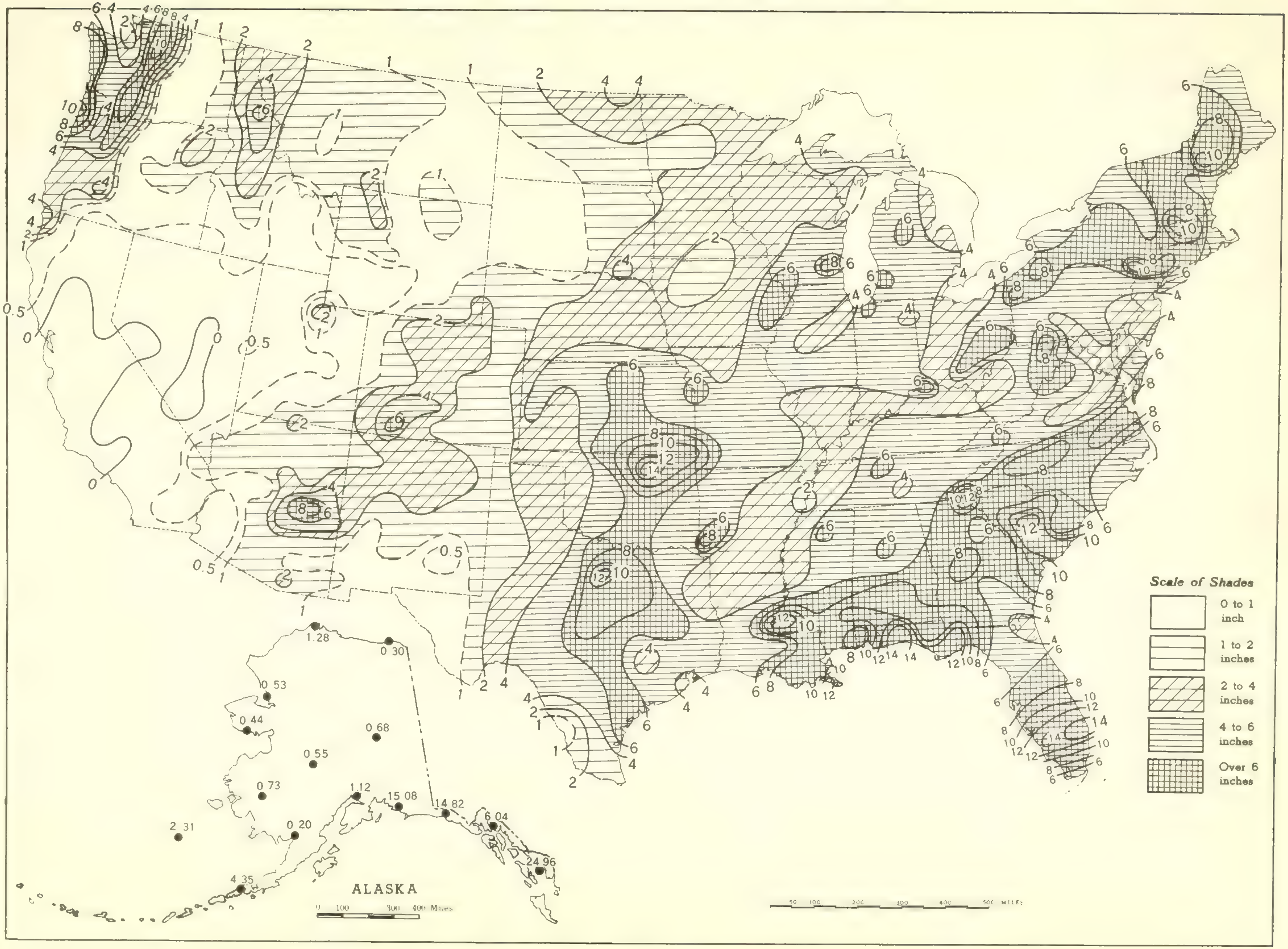


B. Departure of Average Temperature from Normal (°F.), October 1959.



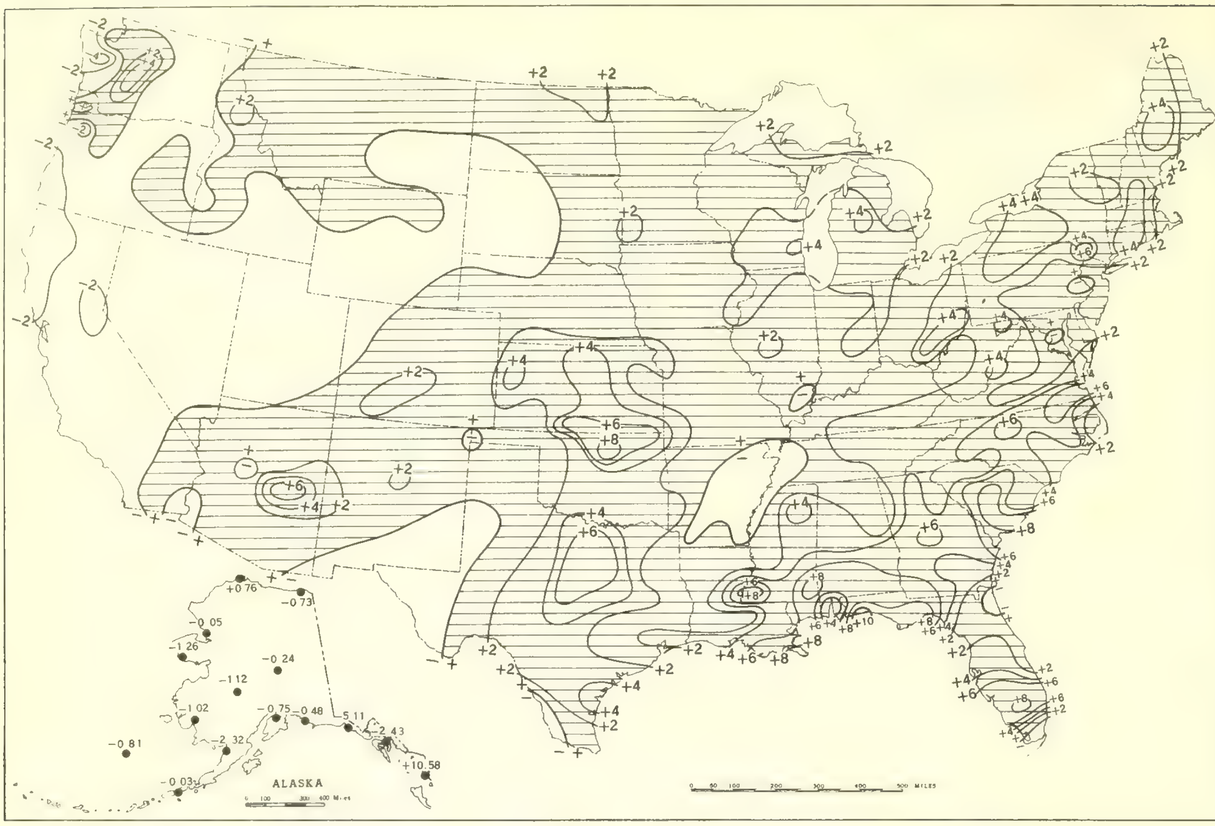
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), October 1959.

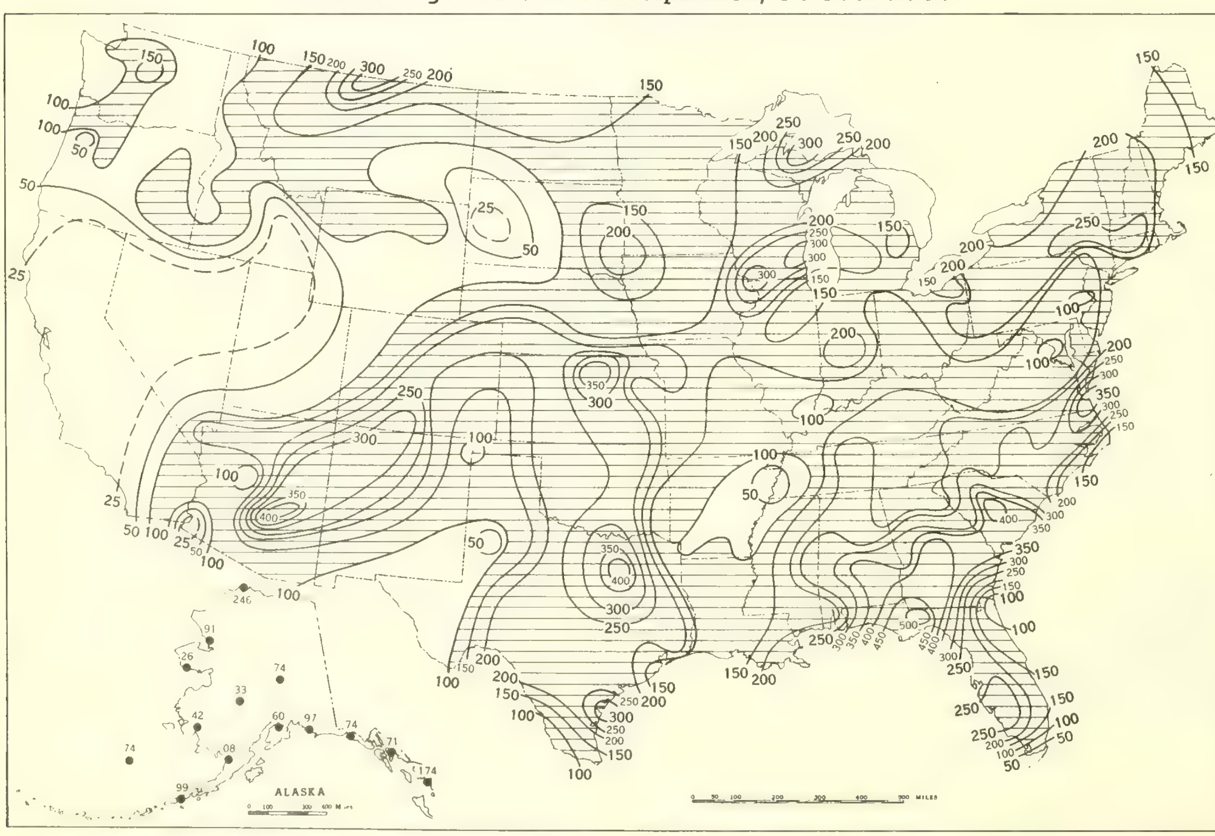


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), October 1959.

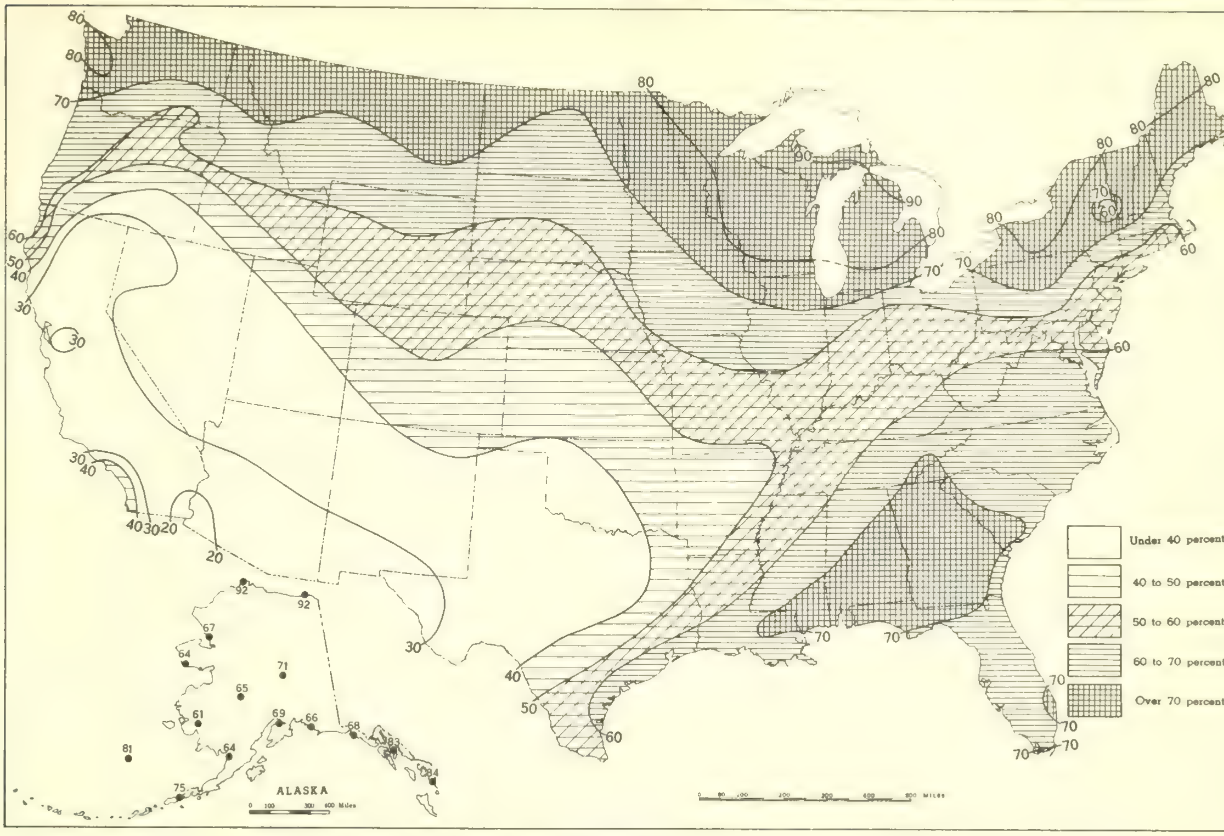


B. Percentage of Normal Precipitation, October 1959.

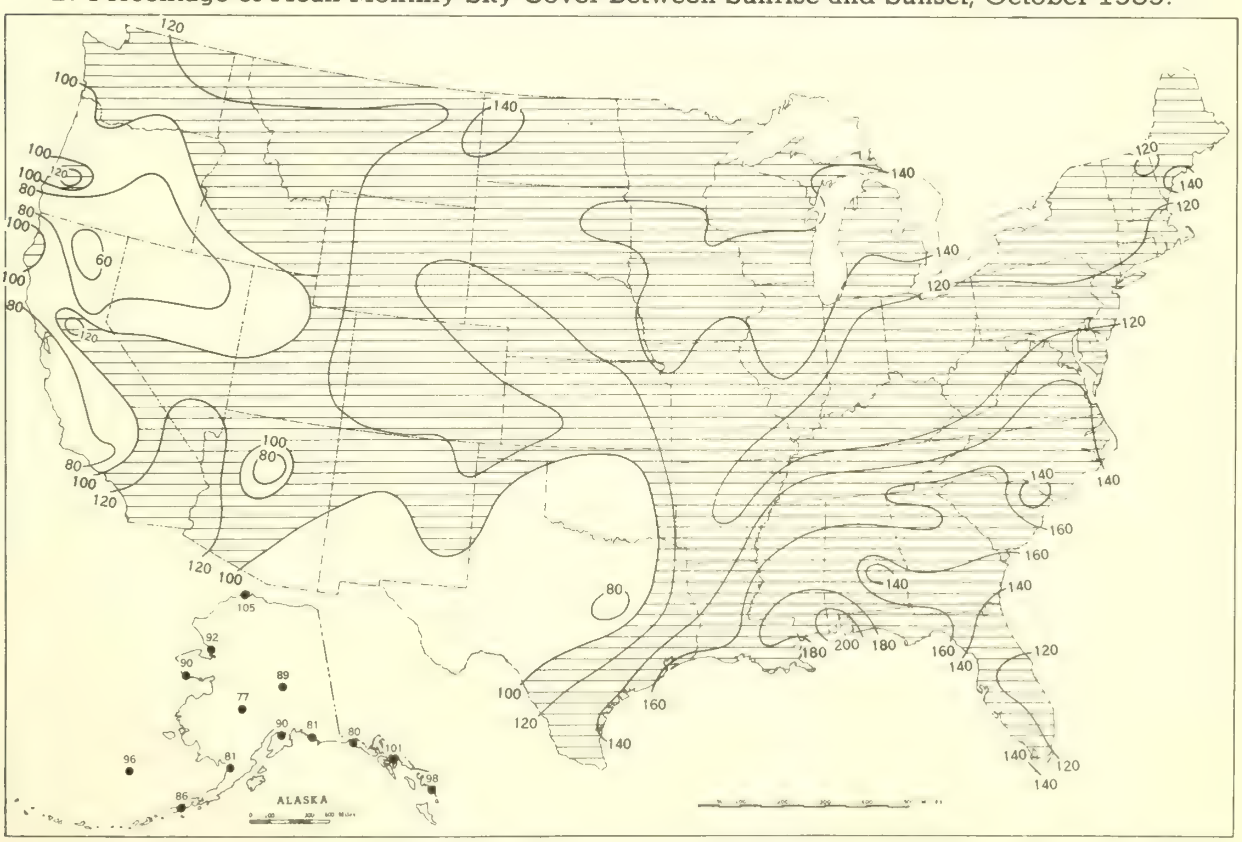


Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, October 1959.

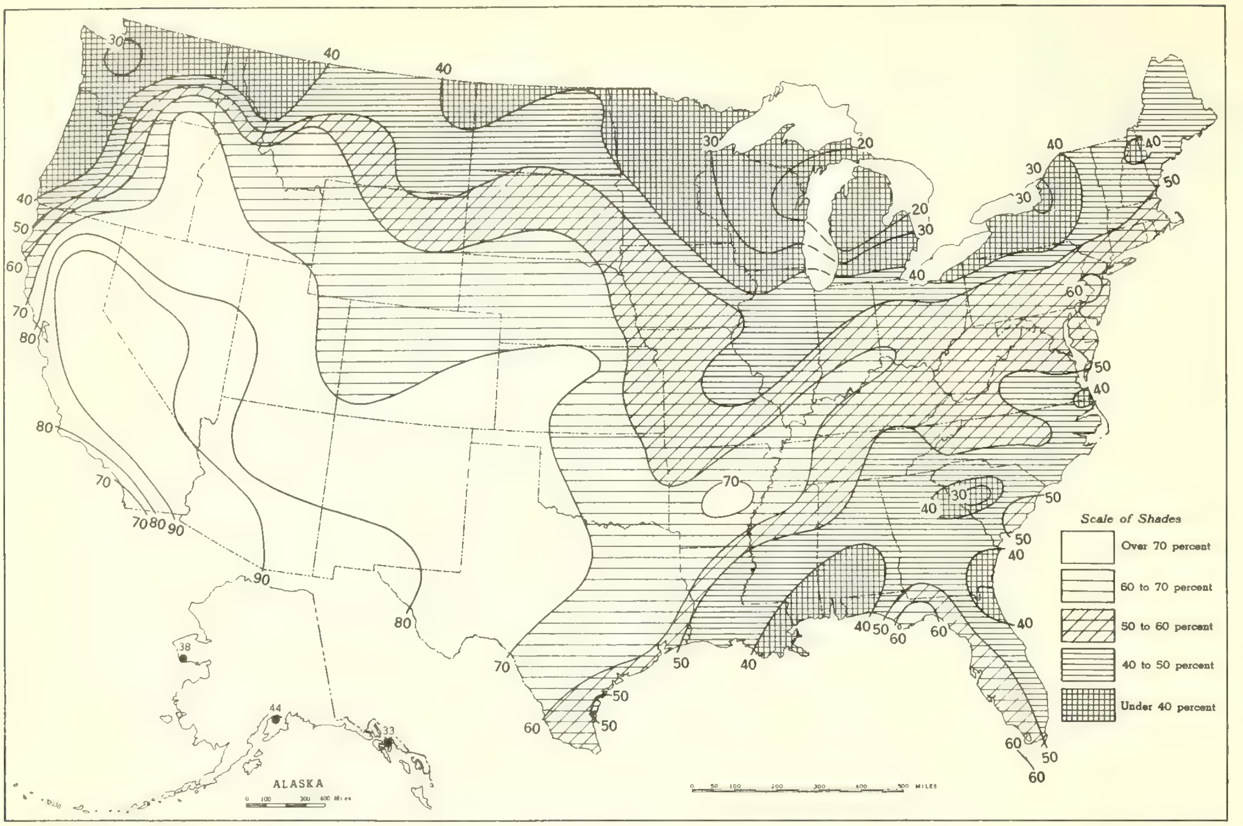


B. Percentage of Mean Monthly Sky Cover Between Sunrise and Sunset, October 1959.

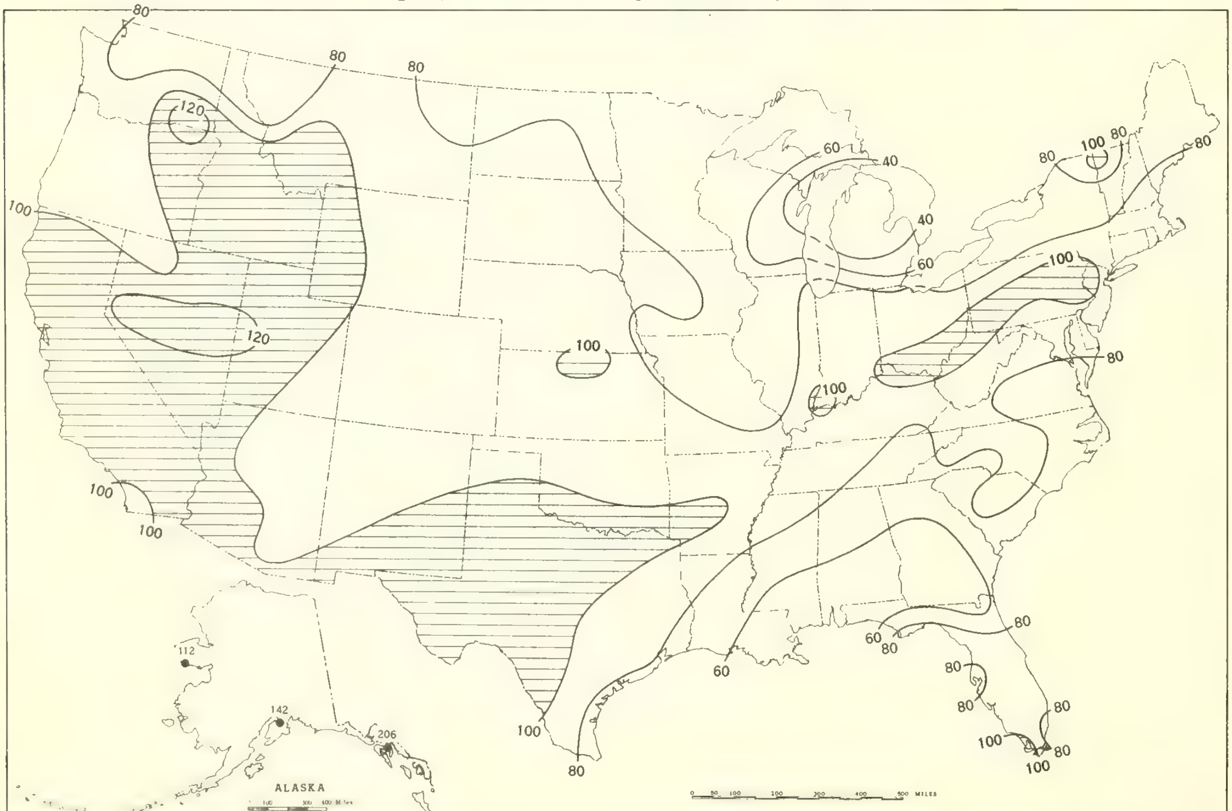


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of mean amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, October 1959.

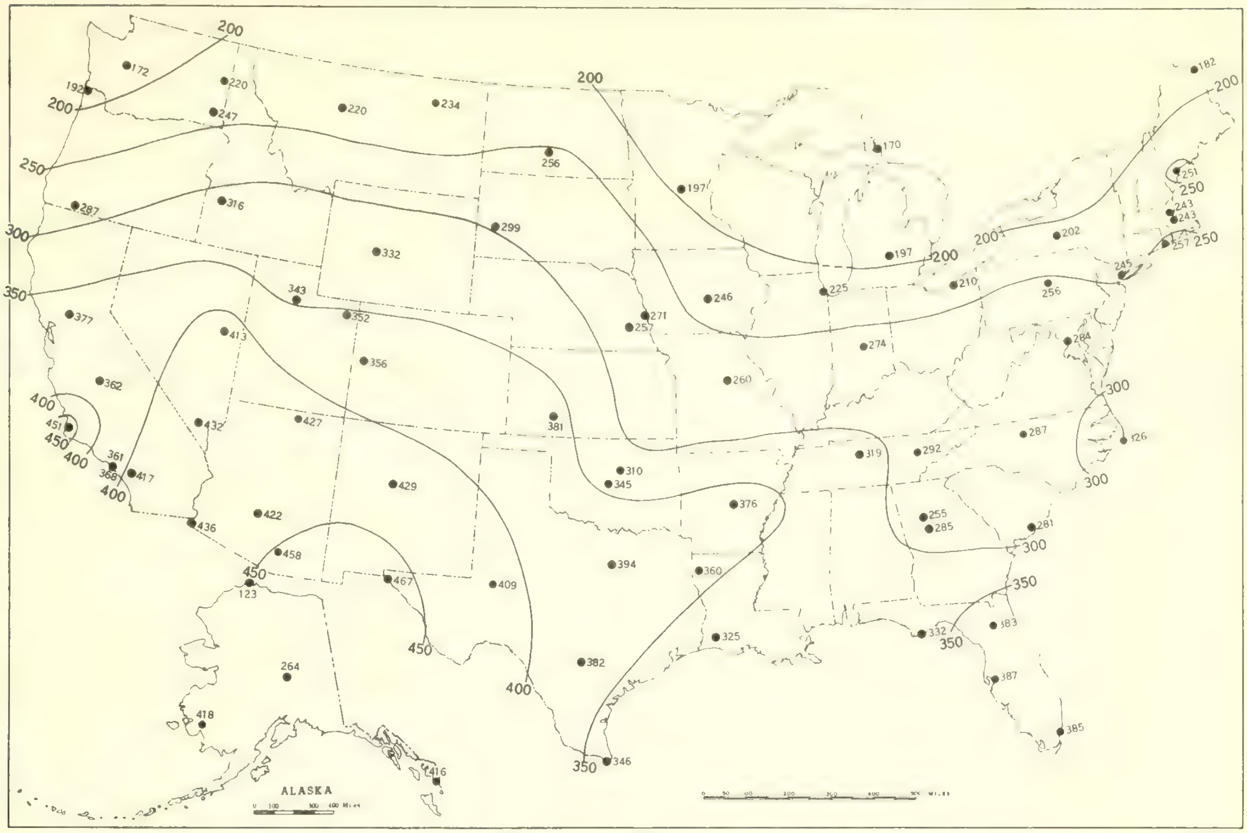


B. Percentage of Mean Monthly Sunshine, October 1959.

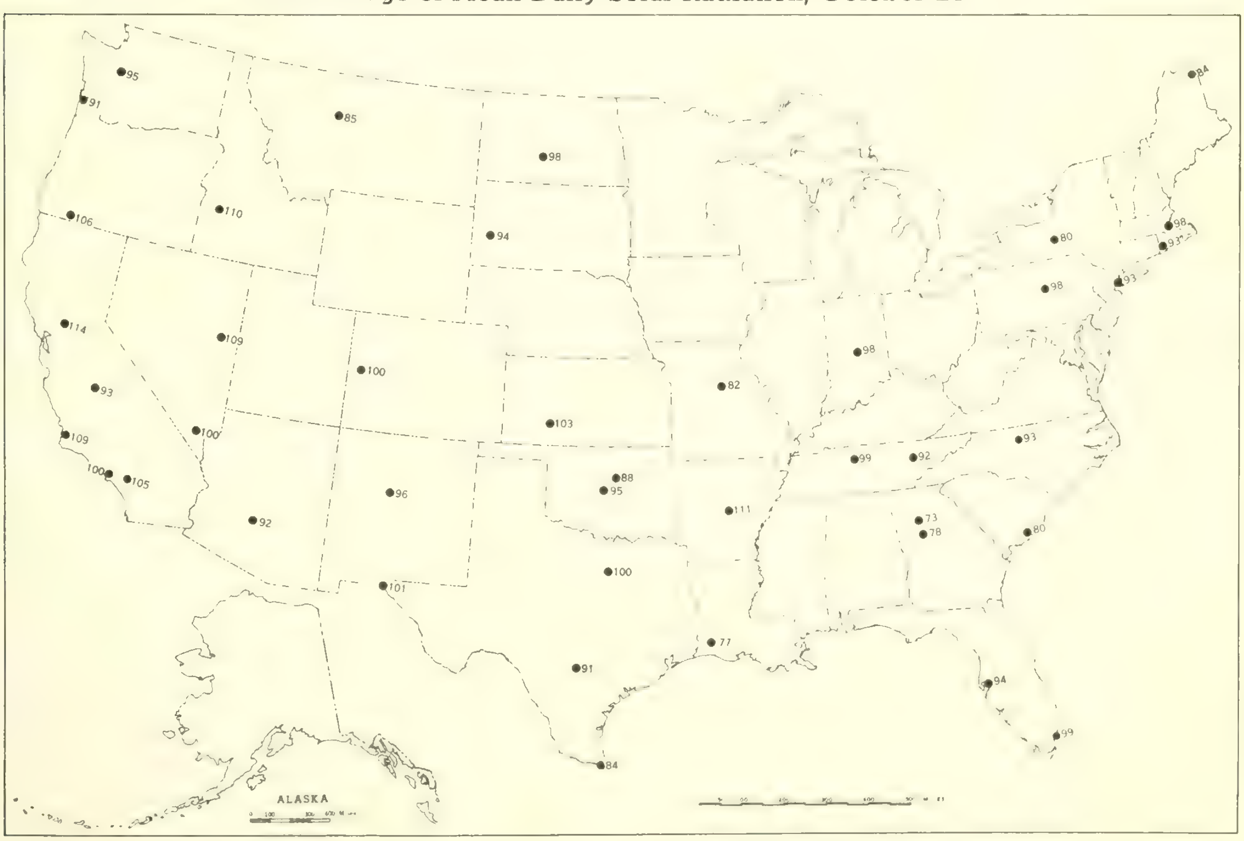


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Means are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, October 1959.



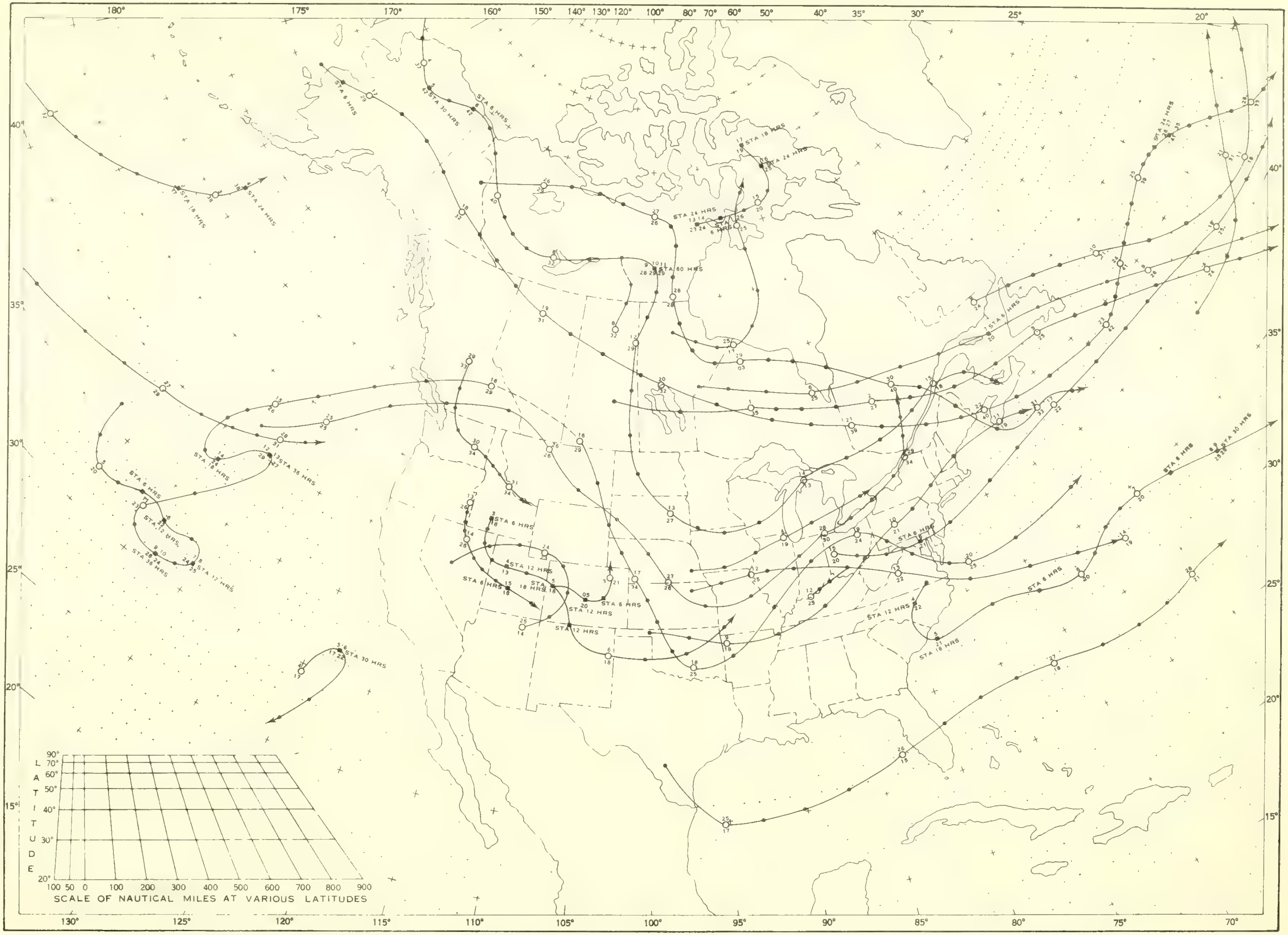
B. Percentage of Mean Daily Solar Radiation, October 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.$^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

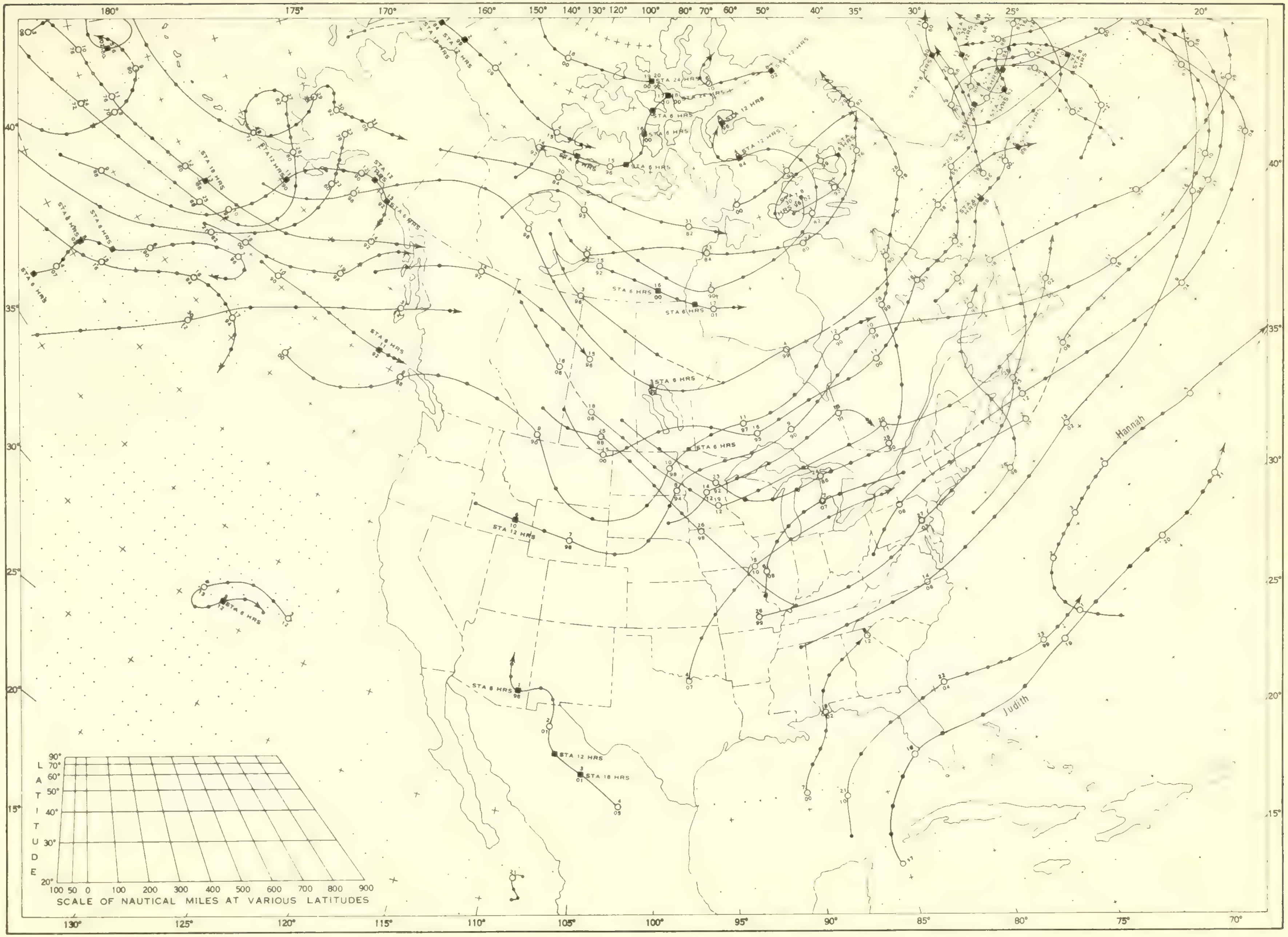
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, October 1959.



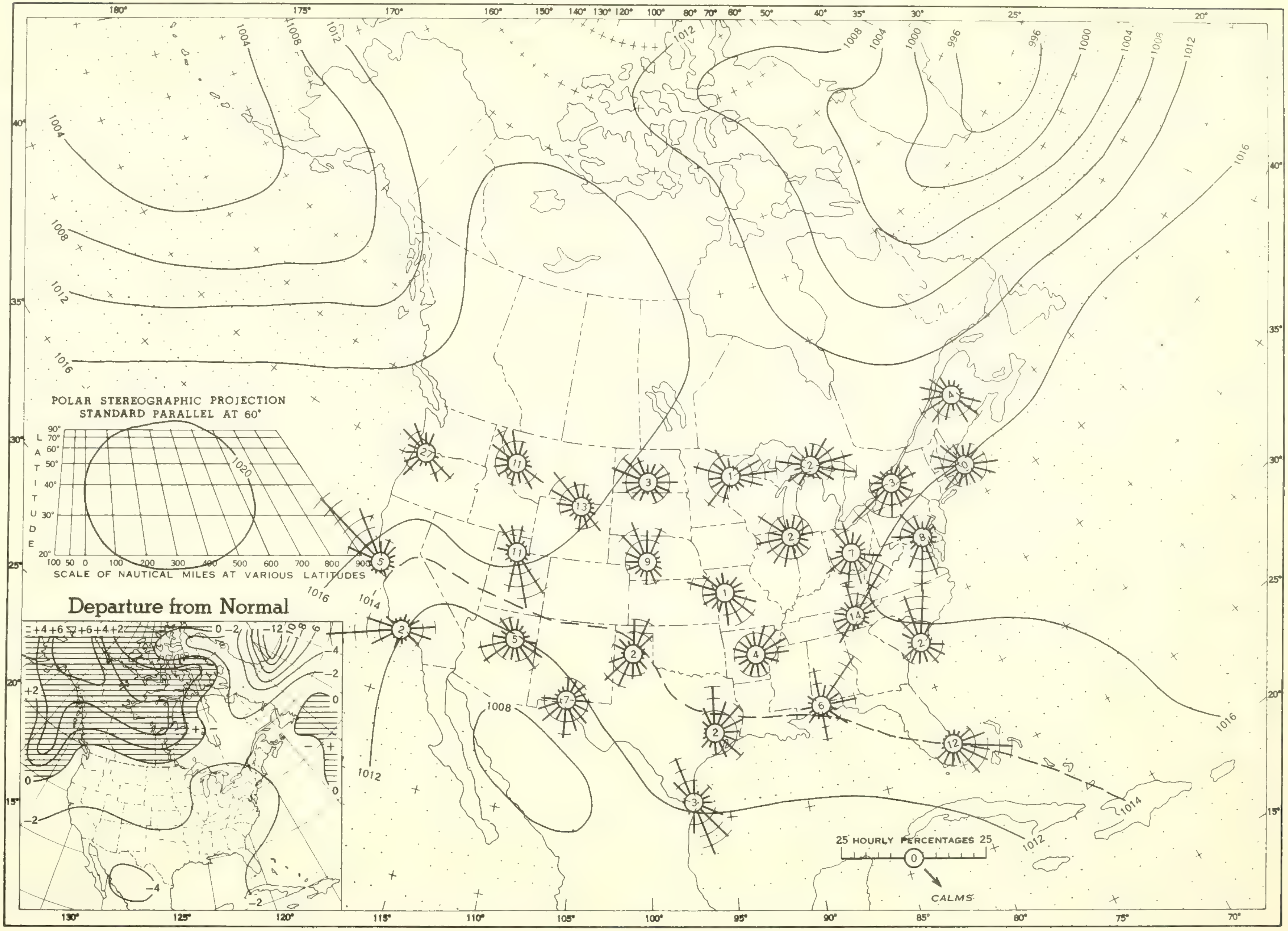
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, October 1959.



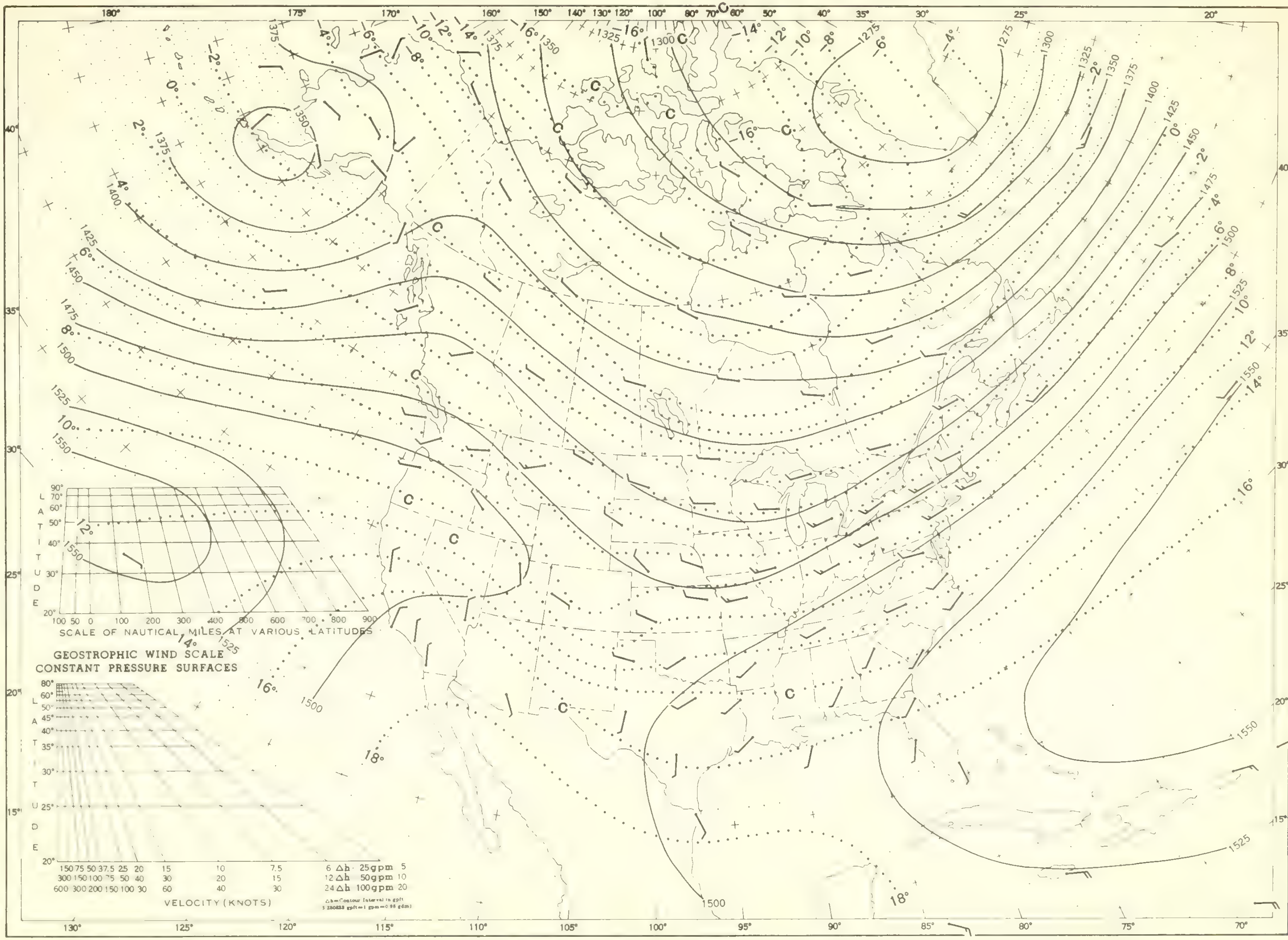
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, October 1959. Inset: Departure of Average Pressure (mb.) from Normal, October 1959.



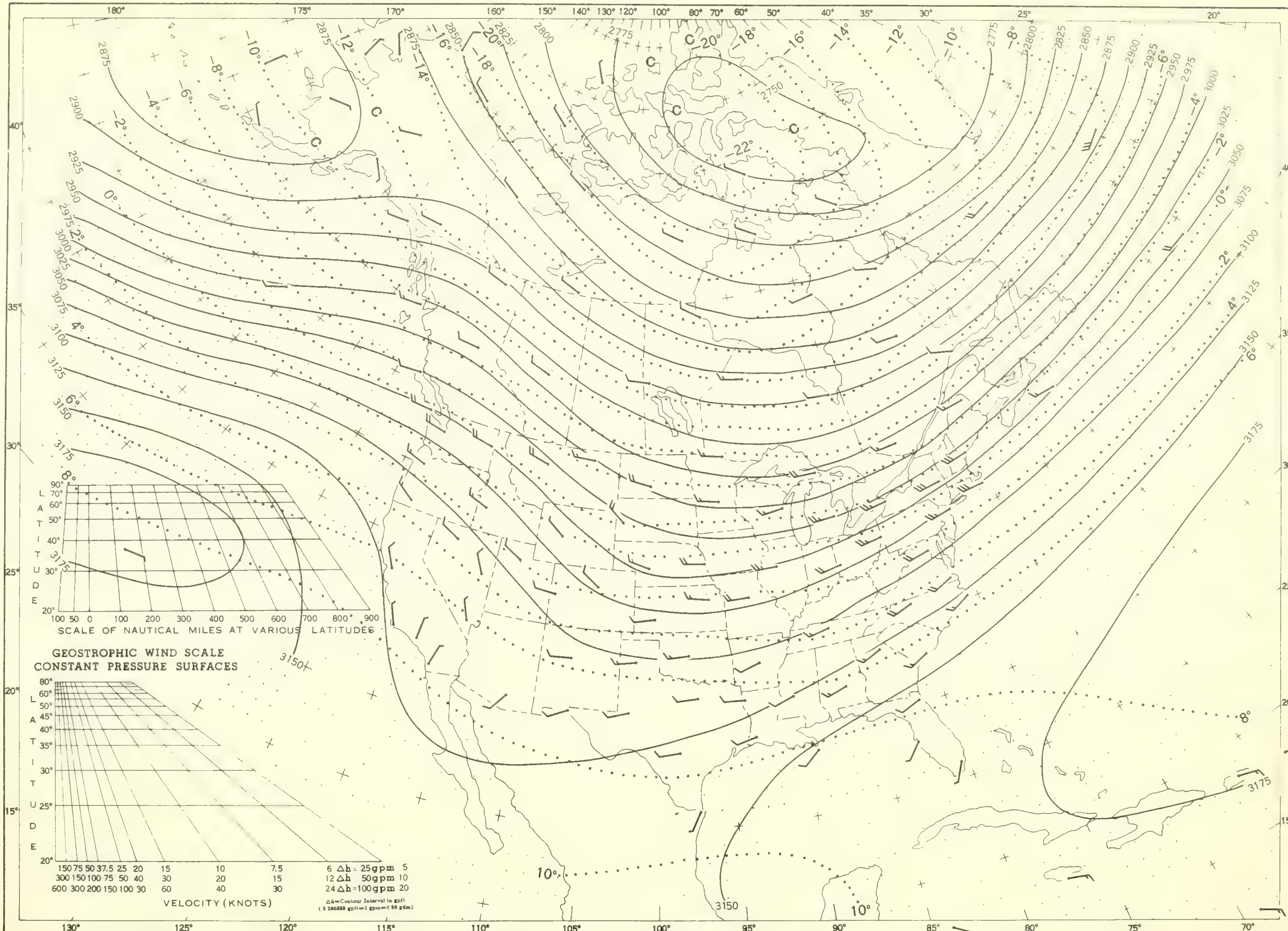
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, October 1959. Average Height and Temperature, and Resultant Winds.



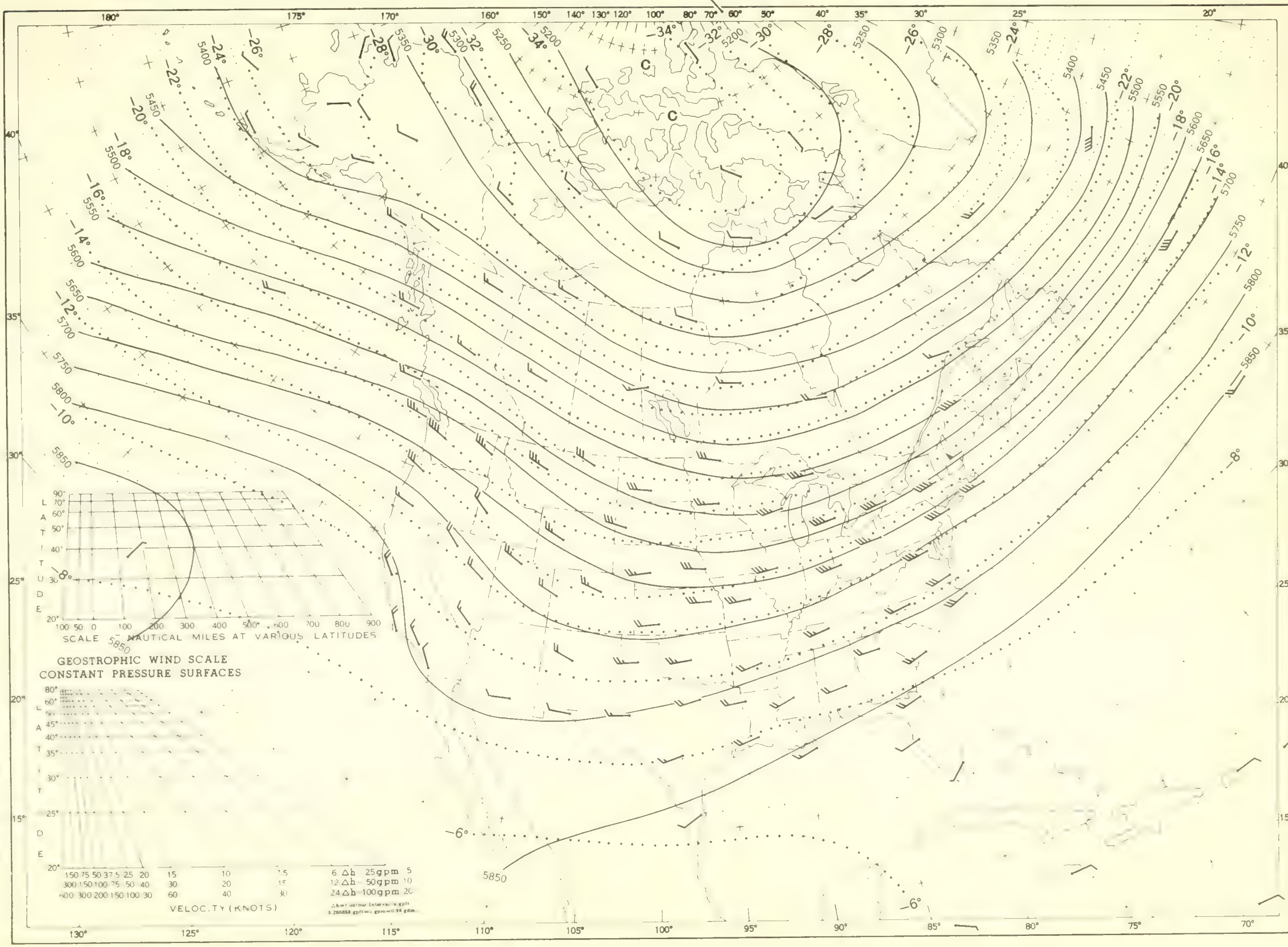
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, October 1959. Average Height and Temperature, and Resultant Winds.



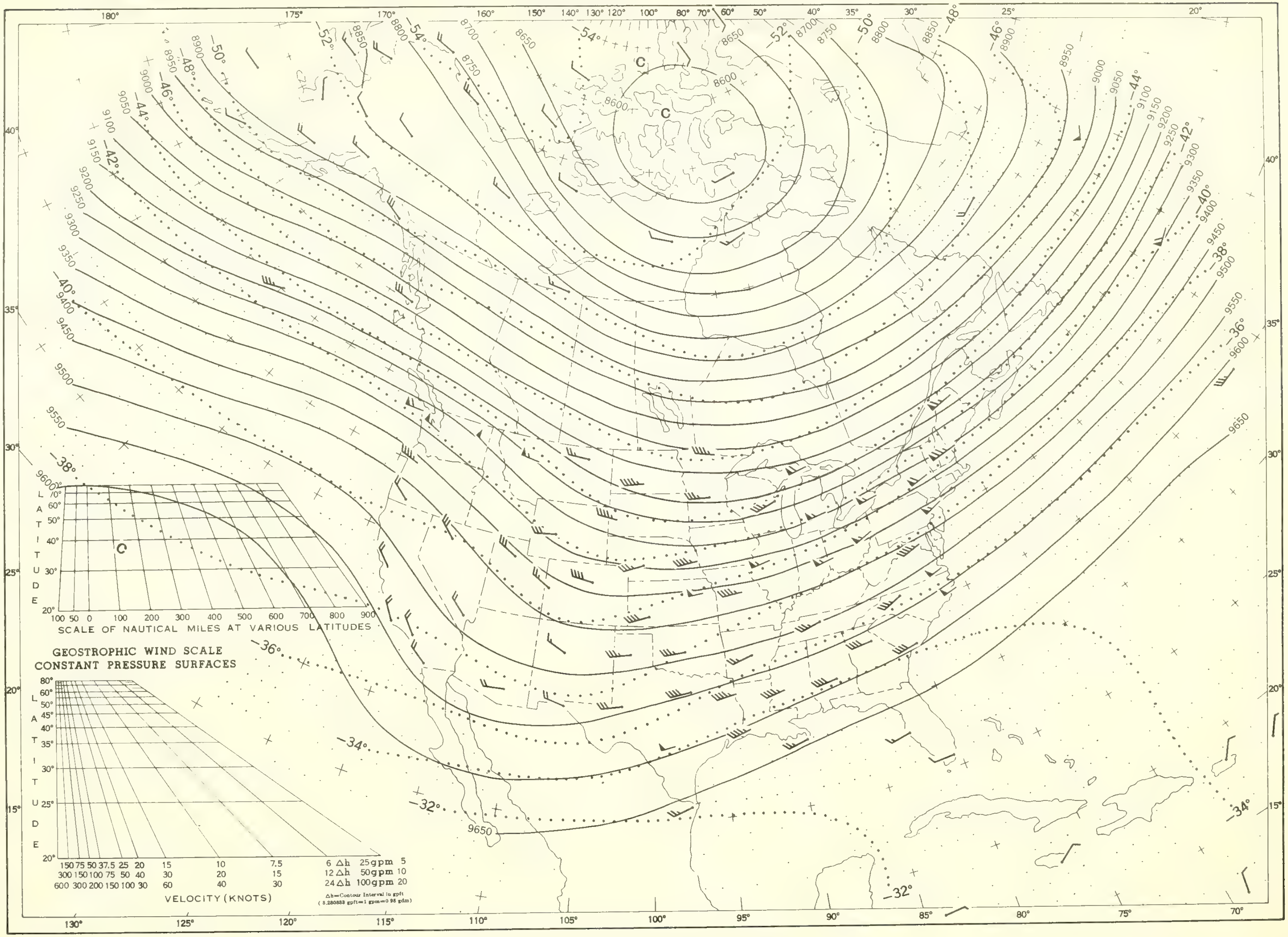
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, October 1959. Average Height and Temperature, and Resultant Winds.



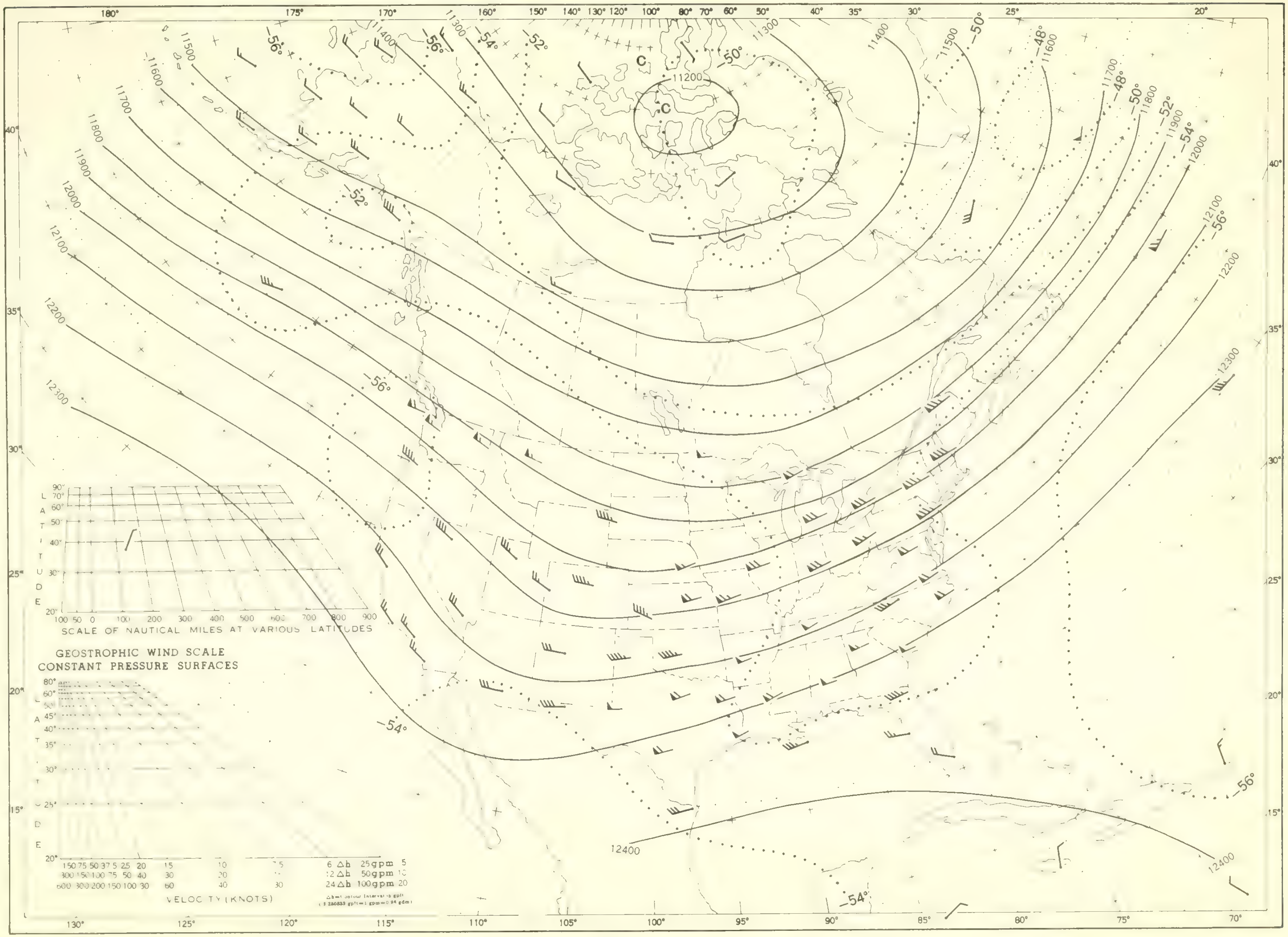
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, October 1959. Average Height and Temperature, and Resultant Winds.



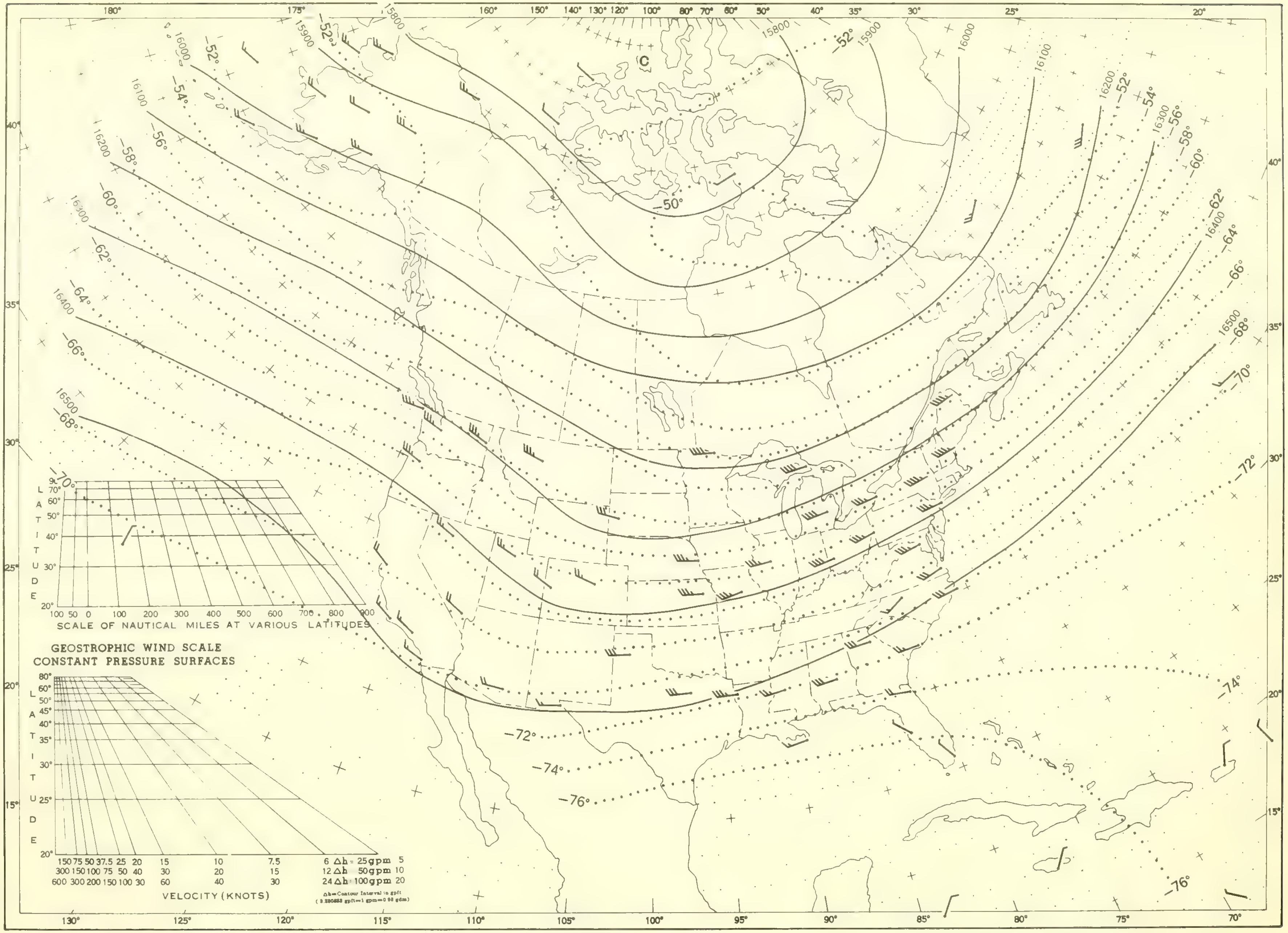
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, October 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, October 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 12/29/59 - 1900

C O N T E N T S

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 11 **NOVEMBER 1959**

GENERAL SUMMARY OF WEATHER CONDITIONS

November 1959 was an unusually cold month. The weather was particularly cold in the midcontinent and upper Rocky Mountain areas where monthly averages were among the lowest on record for November and about as low as those normally occurring in January. Freezes were both frequent and early in south-central areas, and snowfall was unusually early and heavy in many northern areas. Precipitation, below normal in most of the Nation, was about normal in the Ohio and Rio Grande Valleys and much above normal in Montana, the western Dakotas, and extreme southern Florida. Destructive storms were infrequent. Dry, sunny weather in California prolonged the fire season there.

TEMPERATURE.--Abnormally cold weather in the midcontinent and northern Rocky Mountain areas persisted throughout most of the month. Surges of cold northern air reduced temperatures to record or near record low levels during the first week, about midmonth, and again during the closing days. Stations reporting the coldest November on record included Dubuque, Iowa, 27.0°; Topeka, Kans., 36.9°; Duluth, Minn., 18.8°; Columbia, Mo., 37.3°; Kalispell, Mont., 22.1°; and San Antonio, Tex., 53.3°. The coldest November since 1880 was reported at Indianapolis, Ind.; Des Moines, Iowa; Marquette, Alpena, and Escanaba, Mich.; and Madison, Wis. Many stations in Texas had a record number of days with freezing, including San Antonio with 8 and Wichita Falls with 16.

The first blast of cold Arctic air of the season covered the Far West on the 5th and most of the remainder of the Nation by the 8th. Near blizzard conditions developed over the central and northern Great Plains, as temperatures dropped to subzero levels there and freezing extended to the Gulf coast and into northern Florida.

Many stations recorded their lowest temperatures of the month during the second and third weeks as two successive surges of arctic air entered into the northwestern quarter of the Nation and fanned out over the East and South. On the 16th a station located 14 miles northeast of Lincoln, Mont., at an elevation of 5,150 feet recorded -53°, the lowest temperature ever recorded in the contiguious United States during November. The previous record for November was -45° at Pokegama Dam in Minnesota on November 30, 1896. Some other locations reporting record November lows included Sioux City, Iowa., -9° on the 14th; Springfield, Mo., 4° on the 17th; Helena, Mont., -38.9° on the 13th; Kalispell, Mont., -28° on the 16th; Valentine, Nebr., -22° and Rapid City, S. Dak., -19°, both on the 14th. As the cold air moved rapidly down through the Great Plains on the 14th, temperatures dropped as much as 55° to 60° in 24 hours.

During another cold snap at the end of the month many southern and eastern stations recorded their lowest temperatures of the month. Lows ranged from 16° in northern Florida to subzero levels in northern portions of New England and New York State.

PRECIPITATION.--During heavy rains on the 18th and 19th in southern Florida, 7.93 inches in 24 hours set a new record for November at Miami, Fla. A relatively small area of eastern Virginia had more than 200 percent of normal precipitation, with Richmond reporting 7.64 inches for a new November record. Another area of heavy precipitation included portions of northern New York and New England, with Ellsworth, Maine, measuring 11.30 inches for the top amount in the area. Frequent rainfall and excessive cloudiness were the outstanding features in this area. Heaviest rainfall occurred on the 28th. At Boston measurable precipitation fell on 14 days.

In Montana and the eastern Dakotas heavy precipitation, totaling 4.44 inches at Kalispell, Mont., for the second wettest November there and 1.27 inches at Havre, Mont., for the most there during November since 1927, fell mostly in the form of snow. Heavy rains over an area including southern Missouri, northern Arkansas, eastern Oklahoma, and northeastern Texas during the first week caused some minor flooding. During the week ending the 23d in western Washington, heavy rainfall caused extensive flooding, landslides, and washouts, and heavy rains the last week caused some flooding along several streams in New York, New England, and eastern Pennsylvania.

Large areas of the Far West had little or no precipitation. No precipitation occurred at 316 stations in California, 48 in Nevada, 22 in Utah, and a number in Oregon, Idaho, Arizona, and New Mexico.

SNOWFALL.--Owing to persistent cold weather, most precipitation in northern areas fell as snow, and several stations reported record amounts for November. Among these were Helena, Mont., 32.9 inches; Kalispell, Mont., 39; Rapid City, S. Dak., 12.6; Sioux Falls, S. Dak., 17; and Sioux City, Iowa, 15.1 inches.

During the first week, locally heavy snows fell in the central and northern Rocky Mountain areas, and moderate to heavy amounts from the Oklahoma Panhandle to the Great Lakes. Weekly totals ranged from 1 to 3 inches in Oklahoma, Kansas, Missouri, and the Dakotas, 4 to 8 inches in Northern Iowa, up to 13 inches in north-central Wisconsin, and 16 inches fell at Marquette, Mich.

Frequent snowfalls in the following 2 weeks were locally heavy, with falls up to 20 inches or more in southwestern Montana, 3 to 6 inches in the Dakotas, 2 to 4 inches in Minnesota and Wisconsin, 8 to 10 inches in parts of Iowa and Nebraska, and 4 to 8 inches in Michigan and northern Indiana, 21 inches at Houghton, Mich., and up to 18 inches along the eastern shores of Lakes Erie and Ontario.

During the last week snow fell from the Texas Panhandle and Missouri northward, with totals ranging from about 2 to 5 inches in North Dakota and Minnesota, up to 3 inches in Oklahoma, and from 1 to 2 inches in many other sections. Up to 12 inches of new snow was reported along Lake Erie, 5 to 10 inches in northern New England, and lighter amounts in southern New England.

DESTRUCTIVE STORMS AND OTHER UNUSUAL PHENOMENA.--High pressure associated with the cold weather in

NOVEMBER 1959

the midcontinent area reached a new high for November at Topeka, Kans., with a reading of 30.85 inches (m.s.l.) on the 17th. Highs of 30.76 inches (m.s.l.) at Corpus Christi, Tex., on the 6th, and 30.78 inches (m.s.l.) at San Antonio, Tex., on the 6th were also new records for November.

The most destructive elements of the weather this month were heavy rains which were responsible for damaging floods in the Pacific Northwest, and snow and glaze storms in the North Central Interior.

CONDENSED CLIMATOLOGICAL SUMMARY

NOVEMBER 1959

Section	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	Robertsdale 7E	88	22	Heflin	10	30	Gorgas	7.84	Slocomb	0.39
Arizona	Bouse	96	8	Fort Valley	3	27	Beaverhead Lodge	4.18	3 Stations	.00
Arkansas	Paris	83	3	White Rock	3	17	Turnpike	6.46	Gravelly	.93
California	Indio US Date Garden	94	25	Boca	-1	29	Gasquet RS	1.81	315 Stations	.00
Colorado	3 Stations	77	10+	Fraser	-17	6	Rico	1.60	Rangely	.00
Connecticut	Bulls Bridge Dam	73	6	2 Stations	11	30+	Wolcott Reservoir	7.09	Bridgeport WB AP	3.27
Delaware	3 Stations	80	6+	Wilmington Porter Res	18	18	Georgetown 5SW	5.71	Newark University Farm	2.96
Florida	Arcadia	93	6	Woodruff Dam	16	30	Dania 4WNW	13.89	Marianna Ind Sch.	.08
Georgia	Millen	89	5	Blairsville Exp Sta.	6	30	Flat Top	11.97	Colquitt	.00
Idaho	2 Stations	75	4+	2 Stations	-18	16	Priest River Exp Sta.	7.79	7 Stations	.00
Illinois	Elizabethtown	76	5	Galva	-5	17	Palestine	4.68	Quincy Dam 21	.25
Indiana	Jeffersonville	79	5	Wheatfield	-1	18+	Jeffersonville	6.27	Richmond Airport	1.01
Iowa	2 Stations	71	4	Le Mars 2N	-24	14	Vinton 3N	4.18	Fort Madison	.14
Kansas	Aetna	86	3	Mankato	-3	17	Pittsburg	2.38	Numerous Stations	.00
Kentucky	Hopkinsville	81	6	Inez	3	30	Stearns	6.72	Owensboro Dam 46	1.67
Louisiana	2 Stations	87	28	Minden	12	29+	Clinton	6.99	Point Au Fer Reef	.02
Maine	Sanford 2NNW	74	6	Squa Pan Dam	-6	21	Ellsworth	11.30	Jackman	4.27
Maryland	2 Stations	81	6+	Bittinger 2NW	2	18	Salisbury Police Brks.	6.57	Clear Spring 1ENE	1.58
Massachusetts	Fitchburg 2S	77	7	Turners Falls	8	18	Washington 2	7.57	Chatham Lt. Sta.	2.86
Michigan	Monroe Waterworks	72	5	Kenton US Forest	-14	17	Bad Axe Radio Sta.	4.81	Crystal Falls 6NE	1.02
Minnesota	3 Stations	60	4+	Bigfork	-25	25	Caledonia	4.60	Glenwood	.15
Mississippi	do	86	5	3 Stations	11	30+	Sumrall	7.13	Pascagoula Jr High Sch.	.82
Missouri	2 Stations	77	23+	Lathrop	-4	17	Kennett Radio KBOA	4.68	2 Stations	T
Montana	3 Stations	75	2	Lincoln 14NE	-53	16	West Glacier	7.52	Lima	.10
Nebraska	Pawnee City	78	3	Nenzel 20S	-26	14	Hartington	3.68	Loup City	.00
Nevada	Smokey Valley	81	1	Deeth	-7	27+	2 Stations	1.09	48 Stations	.00
New Hampshire	3 Stations	76	6	3 Stations	0	30+	Lincoln	8.72	South Lyndeboro	3.37
New Jersey	Belleplain	79	5	High Point Park	7	18	Bass River St Forest	5.37	Atlantic City WB AP	2.83
New Mexico	2 Stations	83	26+	2 Stations	-18	27	McCauley Ranch	1.91	13 Stations	.00
New York	N Y Westerleigh Stat Is.	77	5	do	-4	30	Hinckley	9.88	2 Stations	1.82
North Carolina	Manteo	88	6	Celo 2S	2	30	Hyatt Creek	9.91	Monroe 4SE	.66
North Dakota	2 Stations	70	3+	Williston Exp Farm	-22	16	Killdeer 8NW	2.59	Wahpeton	.13
Ohio	Columbus Sullivant Ave.	81	5	Mineral Ridge Water Wks	1	18	Dorset 2E	5.08	Difiance Power Plant	1.65
Oklahoma	Sayre 1NE	84	4	Ponca City	3	17	Wagoner	5.29	2 Stations	.00
Oregon	Hillsboro	78	1	Enterprise 16NNE	-8	16	Astor Exp Sta.	13.11	6 Stations	.00
Pennsylvania	New Stanton	85	5	Dixon	0	19+	Pimple Hill	6.98	Huntsdale	1.91
Puerto Rico	Comerio Falls Plant	98	22	2 Stations	51	29+	Guineo Reservoir	18.64	Santa Isabel 3NW	.54
Rhode Island	2 Stations	72	6	Greenville	17	18	Greenville	5.21	Providence WB AP	3.85
South Carolina	Hampton	88	6+	Caesars Head	10	30	Caesars Head	3.01	Great Falls	.49
South Dakota	2 Stations	76	2	Ardmore	-33	14	Centerville	3.91	Tulare 3W	.11
Tennessee	Fayetteville 1NE	85	6	2 Stations	6	30	Haw Knob	9.63	Martin Substation	2.52
Texas	Rio Grande City 2ESE	98	5	Stratford	2	14	Richmond	8.59	Numerous Stations	.00
Utah	St George PH	78	23	Alta	-6	5	Alta	2.46	22 Stations	.00
Vermont	2 Stations	71	6	2 Stations	-2	30	Searsburg Mountain	9.24	Northfield	3.95
Virginia	Back Bay Wildlife Rfg.	87	3	Big Meadows	5	18	Walkerton	8.43	Cootes Store	.93
Washington	3 Stations	75	24+	2 Stations	-18	16	Rainier Paradise RS	24.55	Wapato	.08
West Virginia	4 Stations	82	5	do	1	18	Pickens 1	8.18	Franklin 2N	.76
Wisconsin	2 Stations	65	3	3 Stations	-11	29+	Racine	3.83	2 Stations	.25
Wyoming	Spencer 1NE	75	2	Crandall Creek	-36	13	Alva 5SE	2.06	5 Stations	T

\+ And also on an earlier date or dates.

Note: Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station ø	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F	°F.	°F.		°F.		#		°F.	%	In.	In	In.			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Birmingham	610	995.6	1021.5	63	38	50.6	-1.4	78	4	20	30+	0	10	40	72	3.84	-0.14	1.95	10	2	0.0	0	10.4	N	29	NW	24	12	7	11	5.3	62
Huntsville	605	997.9	1021.7	62	36	48.8	----	81	5	17	30	0	13	37	69	2.74	----	1.14	7	1	T	0	8.6	SE	*25	NNW	17	9	11	10	5.7	--
Mobile	211	1018.5	1021.0	68	44	55.7	-3.0	84	5	24	30	0	7	44	69	.67	-3.40	.36	5	0	.0	0	12.2	N	*37	N	6	13	5	12	5.0	--
Montgomery	195	1012.9	1021.2	67	41	54.2	-1.0	81	5+	20	30	0	7	42	68	1.08	-2.87	.61	4	2	.0	0	8.4	NW	24	N	28	14	7	9	4.7	61
ALASKA																																
Anchorage	90	1001.0	1006.1	30	17	23.4	1.1	41	29+	1	20+	0	30	20	79	.67	-.33	.19	11	0	11.7	6	7.2	N	*23	SSW	7	4	4	22	8.0	16
Annette	110	1013.2	1017.3	44	35	39.4	-1.3	55	27	18	15	0	9	32	77	28.09	17.87	4.60	21	0	8.3	5	15.1	SE	*43	SSE	30	5	3	22	7.9	--
Barrow	22	1021.3	1021.9	1	-12	-5.8	-6.5	28	10	-25	20	0	30	-11	76	.06	-.21	.02	6	0	.6	11	12.4	E	*35	E	13	%8	%2	%8	-----	--
Barter Island	39	1018.3	1020.2	-4	-13	-8.2	-8.7	18	11	-27	21	0	30	-13	77	.24	-.35	.24	1	0	3.0	10	11.7	E	*37	E	18	⊕13	⊕2	⊕10	----	--
Bethel	125	1000.3	1001.6	28	14	21.4	4.4	44	15	-3	21	0	28	17	82	1.03	.06	.48	13	0	5.3	3	15.4	NE	*40	E	15	2	7	21	8.3	--
Cold Bay	90	991.5	995.3	41	32	36.2	1.5	50	10	17	30	0	14	32	83	5.95	2.13	1.43	21	0	1.6	1	15.5	SSE	*46	SE	11	2	3	25	8.7	--
Cordova	40	1005.4	1006.8	39	27	33.2	2.1	46	21+	12	11	0	19	30	87	8.82	-1.73	1.73	22	0	8.4	2	5.9	ESE	*26	ESE	6	2	5	23	8.5	--
Fairbanks	436	993.2	1010.8	17	-3	6.7	3.6	34	28	-23	21	0	30	2	75	.55	-.08	.18	10	0	12.1	10	4.7	NNE	*17	WSW	7	4	5	21	7.8	--
Juneau	24	1013.5	1014.2	39	30	34.4	1.3	52	27	8	15	0	13	29	83	6.82	.90	1.06	23	0	8.8	6	12.6	ESE	*44	ESE	27	4	1	25	8.5	21
King Salmon	44	998.0	1000.0	36	24	29.9	7.8	47	13+	2	8	0	21	27	85	1.48	.16	.49	9	0	4.6	2	14.7	ESE	*63	ESE	15	2	6	22	8.1	--
Kotzebue	10	1010.2	1010.3	15	4	9.1	1.6	27	26+	-17	21	0	30	2	73	.24	-.19	.08	10	0	2.7	4	13.7	E	*44	ESE	14	10	2	18	6.2	--
McGrath	334	994.2	1007.5	17	2	9.2	3.7	29	29	-26	21	0	30	6	81	.60	-.49	.12	15	0	13.5	12	3.4	WNW	*16	SSW	29	2	2	26	9.1	--
Nome	13	1005.1	1005.3	25	13	18.9	2.1	34	16	-13	24	0	30	13	75	1.04	-.10	.34	17	0	12.6	12	15.9	E	*44	NE	26	5	2	23	7.9	25
Shemya	122	995.6	999.3	38	32	35.1	----	42	9+	23	27	0	11	29	77	2.38	----	.44	26	0	10.9	3	20.1	NW	*49	NNE	24	2	11	17	7.8	--
St. Paul Island	22	992.9	993.9	39	32	35.7	1.9	44	13+	19	22	0	14	33	87	2.73	.14	.40	25	0	3.7	2	----	---	--	---	--	0	8	22	8.5	--
Yakutat	28	1009.1	1010.0	41	30	35.6	1.9	48	2	15	12	0	16	30	83	22.40	6.94	3.63	21	0	13.1	5	9.8	ENE	*43	SE	26	2	3	25	8.9	--
ARIZONA																																
Flagstaff	6993	------	------	53	22	37.4	1.6	64	11	9	27	0	28	--	--	.31	-.58	.27	2	0	2.0	2	----	---	--	---	--	20	3	7	3.2	--
Phoenix	1109	978.3	1017.7	73	49	60.9	2.5	80	9	37	27	0	0	38	48	.43	-.04	.36	3	0	.0	0	5.8	NE	*23	NE	6	15	8	7	3.9	92
Prescott	5014	850.7	1021.1	63	30	46.5	.9	71	25	18	27	0	21	24	--	.73	.11	.73	1	1	.0	0	7.3	SSW	30	S	2	19	5	6	3.3	85
Tucson	2584	928.2	1016.8	71	46	58.5	.3	77	25+	34	23	0	0	34	46	.29	-.47	.16	4	0	.0	0	9.3	ESE	34	SE	6	17	5	8	3.9	78
Winslow	4880	856.1	1021.9	58	29	43.4	.5	72	12	15	27	0	21	22	50	.39	-.04	.28	3	0	.0	0	7.3	SW	*28	SSW	2	19	5	6	3.2	--
Yuma	199	1012.2	1017.6	81	52	66.5	2.3	88	10+	40	28	0	0	30	32	.01	-.13	.01	1	0	.0	0	7.4	N	26	N	26	18	10	2	3.0	91
ARKANSAS																																
Fort Smith	458	1002.4	1021.6	58	33	45.3	-5.2	79	2	15	29+	0	18	33	67	3.20	.18	3.20	2	2	T	T	9.4	NE	27	SW	25	13	6	11	4.8	60
Little Rock	257	1008.1	1021.8	58	36	47.0	-4.5	77	4+	20	17	0	13	34	63	2.34	-1.58	1.40	6	2	.0	0	8.5	SW	42	S	4	12	9	9	5.0	63
Texarkana	361	------	1021.4	61	38	49.2	-5.6	79	4+	20	29	0	14	--	--	1.91	-2.42	1.07	[illegible]	1	.0	0	6.5	NW	--	---	--	--	--	--	---	--
CALIFORNIA																																
Bakersfield	494	1002.4	1020.9	72	44	58.0	1.8	83	27	39	30+	0	0	35	45	.00	-.43	.00	0	0	.0	0	3.3	ENE	*21	SE	27	23	3	4	2.3	--
Bishop	4108	879.1	1021.3	72	26	48.8	2.6	79	8	17	28	0	28	--	--	.00	-.48	.00	0	0	.0	0	----	---	--	---	--	24	5	1	1.6	--
Blue Canyon	5280	843.6	1019.3	64	45	54.5	10.6	75	23	38	4+	0	0	--	--	T	-6.68	T	0	0	.0	0	7.1	ENE	43	ENE	25	21	6	3	2.2	--
Burbank	699	991.5	1017.8	78	50	64.0	4.1	89	24	44	16	0	0	37	44	.01	-.97	.01	1	0	.0	0	2.3	S	*29	NNE	22	17	9	4	3.1	--
Eureka (U)	43	1019.6	1022.0	57	44	50.5	-.8	73	26	37	15	0	0	--	--	.28	-4.36	.15	2	0	.0	0	3.6	☆ N	23	SW	27	8	12	10	5.5	59
Fresno	331	1008.1	1020.2	72	38	55.0	1.5	79	11+	35	30+	0	0	35	54	.00	-.75	.00	0	0	.0	0	4.3	ESE	14	NW	21	22	7	1	1.9	99
Long Beach	34	1016.9	1018.2	78	52	64.7	----	89	9	45	21	0	0	42	53	.05	----	.05	2	0	.0	0	6.0	NNW	*28	E	5	17	7	6	3.3	--
Los Angeles (U)	312	------	------	78	55	66.6	4.5	88	24+	52	16	0	0	42	49	.07	-.96	.07	2	0	.0	0	5.8	☆ N	20	W	1	18	9	3	2.9	89
Los Angeles	99	1013.9	1017.8	77	53	65.1	5.8	89	9	46	22	0	0	44	56	.06	-1.04	.06	2	0	.0	0	6.9	WSW	*22	WSW	1	16	9	5	3.7	--
Mt. Shasta (U)	3544	898.1	1023.7	60	30	45.0	3.5	71	11	22	5	0	20	--	--	T	-3.83	T	0	0	.0	0	----	---	--	---	--	22	2	6	2.7	--
Oakland	3	1020.3	1020.7	67	44	55.8	2.0	78	26	39	29	0	0	43	67	T	-1.95	T	0	0	.0	0	4.6	WNW	*18	N	22+	18	9	3	3.3	--
Point Arguello	367	1004.7	1018.1	70	45	57.7	----	83	9	39	28	0	0	--	--	.01	----	.01	1	0	.0	0	6.8	---	*23	NW	21+	19	5	6	3.2	--
Red Bluff	341	1007.8	1021.0	73	41	57.0	2.5	81	23+	34	18+	0	[illegible]	26	35	T	-2.27	T	0	0	.0	0	8.8	NW	27	N	4	19	7	4	2.6	94
Sacramento	17	1019.3	1020.5	68	41	54.5	1.4	75	22	35	29	0	0	37	56	.02	-1.48	.02	1	0	.0	0	5.2	NNW	25	NW	22+	20	6	4	2.8	94
Sandberg (R)	4517	866.6	1019.0	62	46	53.7	4.2	71	25	38	22+	0	0	--	--	.00	-.70	.00	0	0	.0	0	15.6	E	*54	N	21	21	7	2	2.4	--
San Diego	19	1013.9	1017.1	76	55	65.3	4.5	85	9	49	26	0	[illegible]	44	54	.02	-.81	.02	1	0	.0	0	4.3	NE	19	S	2	18	5	7	3.4	76
San Francisco (U)	52	------	------	68	52	60.2	3.0	80	7	48	14+	0	0	--	--	T	-2.27	T	0	0	.0	0	5.0	☆ W	20	N	22	--	--	--	---	81
San Francisco	[illegible]	1020.0	1020.7	67	46	56.5	2.1	77	23	41	29	0	0	45	70	T	-1.62	T	0	0	.0	0	6.4	WNW	33	WNW	20	18	9	3	2.9	--
Santa Maria	238	1010.2	1019.1	75	42	58.7	2.3	88	24	37	28	0	0	36	53	.00	-.94	.00	0	0	.0	0	5.5	WNW	*24	WNW	21	20	6	4	2.6	--
COLORADO																																
Alamosa	7536	772.8	1022.9	48	13	30.5	1.0	60	12	-5	27	0	30	--	--	.07	-.31	.06	2	0	2.4	2	----	---	--	---	--	16	8	6	3.4	--
Colorado Springs	6173	811.0	1021.0	53	20	36.4	-2.7	70	1	-5	14	0	28	14	45	.05	-.30	.03	2	0	.8	T	10.1	NE	*38	WNW	25	12	11	7	4.5	--
Denver	5292	838.5	1019.8	53	22	37.6	-1.7	70	9+	0	14	0	23	14	45	.40	-.30	.32	5	1	5.3	4	11.0	SSW	45	NW	23	11	10	9	5.0	71
Grand Junction	4849	864.2	1024.1	50	26	38.1	-.5	65	2	16	29+	0	27	19	48	.50	-.05	.36	3	1	.3	T	7.3	ESE	31	NE	26	19	7	4	3.3	89
Pueblo	4639	858.1	1020.6	57	21	38.7	-.6	72	23+	4	14	0	27	18	52	.01	-.46	.01	1	0	.5	T	8.5	[illegible]	61	N	4	13	10	7	4.4	89
CONNECTICUT																																
Bridgeport	7	984.4	------	53	37	44.6	1.1	69	5	22	18	0	9	--	--	3.27	-.32	1.20	10	0	.2	T	----	---	--	---	--	5	7	18	7.2	--
Hartford	169	1012.9	1018.6	49	31	40.3	-1.0	72	6	18	18	0	17	33	77	4.41	.93	1.50	12	0	.6	1	8.3	S	31	S	28+	4	7	19	7.7	31
New Haven	6	1017.9	------	52	35	43.4	.5	69	14+	21	18	0	12	--	--	3.90	-.04	1.58	12	--	.1	T	9.9	---	29	S	28	6	6	18	7.2	41
DELAWARE																																
Wilmington	78	1016.2	1019.5	54	35	44.7	-.8	76	5	21	18	0	13	36	72	2.99	-.34	1.46	6	0	T	T	9.6	S	32	NW	17+	4	9	17	7.4	--
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	55	37	46.2	-1.8	75	6+	21	18	0	10	--	--	2.44	-.38	.91	9	--	---	--	----	---	--	---	--	--	--	--	---	--
Wash. Nat'l. AP	14	1015.4	1020.0	56	38	46.8	-.9	77	6+	21	18	0	9	34	63	2.22	-.51	.74	9	0	T	0	10.9	SSW	36	WNW	2	5	9	16	6.8	43
FLORIDA																																
Apalachicola (U)	13	1017.5	------	68	52	60.1	-1.3	82	5	28	30	0	1	--	--	3.40	.95	2.97	5	1	.0	0	8.4	---	26	N	17+	12	12	6	4.6	66
Daytona Beach	31	1017.0	1018.8	74	57	65.8	.7	86	4	34	30	0	0	58	82	4.26	1.99	2.40	9	0	.0	0	10.3	N	*30	W	24	7	8	15	6.2	--
Fort Myers	15	1016.5	------	80	61	70.2	1.0	[illegible]	6	34	30	0	0	--	--	1.92	.71	.77	6	2	.0	0	10.1	---	*29	NNE	29	12	4	14	5.8	--
Jacksonville	24	1018.2	1019.8	71	52	61.7	.1	85	6+	26	30	0	2	54	81	2.24	.62	.99	6	0	.0	0	9.4	[illegible]	34	N	18	10	7	13	5.7	50
Key West	4	1014.9	------	80	72	75.5	.9	85	7+	49	30	0	0	--	--	9.01	6.99	7.33	10	2	.0	0	12.4	---	*36	NW	25	7	11	12	6.0	58
Lakeland (U)	214	------	------	75	58	66.8	.1	87	6+	33	30	0	0	--	--	.93	-.46	.61	5	1	.0	0	7.8	---	--	---	--	10	6	14	5.7	51
Miami	7	1014.8	1016.0	80	67	73.8	1.7	87	5	42	30	0	0	65	78	13.15	10.74	7.93	11	6	.0	0	7.7	ENE	*23	NNE	18	9	10	11	5.8	--
Miami Beach	9	------	------	81	69	75.1	1.1	89	1	43	30	0	0	--	--	10.92	8.64	6.70	17	--	.0	0	----	---	¢33	E	19	2	20	8	---	¢51
Orlando	106	1014.0	1018.5	76	57	66.9	.1	89	6+	32	30	0	1	59	80	.99	-.33	.40	9	0	.0	0	10.5	N	*28	NNW	29	9	7	14	5.9	--
Pensacola (U)	13	------	------	68	49	58.2	-2.0	82	2	29	30	0	4	--	--	2.15	-1.69	1.13	6	0	.0	0	†10.9	---	23	N	6	-	-	--	-	56
Tallahassee	64	1017.2	1019.9	69	49	58.9	.1	84	5	24	30	0	2	48	73	.46	-2.06	.28	2	1	.0	0	6.6	NNW	--	---	--	12	11	7	4.5	--
Tampa	19	1016.7	1018.4	78	58	67.9	1.2	88	5	29	30	0	1	59	78	1.02	-.02	.52	6	0	.0	0	8.9	N	*25	SSE	27	9	8	13	5.8	52
West Palm Beach	15	1015.7	1016.6	81	66	73.5	1.8	87	7+	40	30	0	0	64	76	6.09	3.10	2.92	13	3	.0	0	11.6	NNW	*35	NNW	25	6	7	17	6.9	--
GEORGIA																																
Athens	798	991.2	1020.8	62	39	50.5	-1.5	80	5	19	30	0	7	40	70	2.34	-.68	1.42	4	1	.0	0	8.1	NE	*28	WNW	2	14	5	11	4.8	--
Atlanta	975	978.4	1020.9	63	41	51.8	-.1	78	4	21	30	0	6	41	70	1.35	-2.06	.90	5	1	.0	0	10.0	NW	*30	WNW	6	15	3	12	4.8	62
Augusta	143	1013.3	1020.3	67	41	53.7	-.1	86	5	18	30	0	7	43	76	.71	-1.73	.68	2	1	.0	0	6.1	WNW	*24	NE	7	11	6	13	5.3	--
Columbus	385	1006.3	------	67	42	54.3	.0	82	5	19	30	0	7	--	--	.89	-1.97	.42	5	0	.0	0	8.4	---	*23	WNW	28+	16	3	11	4.6	--
Macon	356	1006.7	1020.6	[illegible]	42	54.7	-1.3	86	5	20	30	0	7	42	68	1.17	-1.56	.79	3	0	.0	0	8.7	WNW	28	SE	27	14	7	9	4.4	67
Rome	637	997.6	------	61	34	47.6	-2.9	75	4	13	30	0	14	36	70	4.31	.55	1.50	9	5	T	0	5.2	---	--	---	--	10	9	11	5.1	--
Savannah	48	1017.4	1020.1	68	46	57.2	-.3	84	5	20	30	0	3	48	76	1.38	-.13	.94	5	0	.0	0	9.1	NNE	31	NW	25	14	5	11	4.9	58
Thomasville	283	------	------	70	48	58.7	-.8	87	5	23	30	0	2	--	--	.22	-2.02	.12	3	0	.0	0	----	---	--	---	--	--	--	--	---	--
HAWAII																																
Hilo	31	1013.2	1014.6	80	66	73.1	.1	84	14+	63	23+	0	0	66	81	27.03	14.64	15.59	26	[illegible]	.0	0	8.0	WSW	*30	SW	1	2	9	19	7.7	34
Honolulu	7	1015.2	1015.7	[illegible]	71	76.9	1.2	88	22+	[illegible]	22	0	0	65	69	1.49	-.30	1.00	7	0	.0	0	12.2	ENE	40	NE	20	10	10	10	5.9	57
Lihue	115	1010.5	1016.2	82	70	75.7	2.1	86	13	65	25	0	0	66	75	5.29	1.05	2.32	13	1	.0	0	11.5	NE	32	NE	26	5	13	12	6.2	85

See footnotes at end of table.

CLIMATOLOGICAL DATA

NOVEMBER 1959

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F	°F	°F	°F		°F				°F.	%	In.	In.	In.			In.	In.	M p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
IDAHO																																
Boise	2842	927.5	1026.6	48	21	34.7	-4.9	61	2	10	13	0	29	22	62	0.36	-0.99	0.19	4	1	T	T	7.2	SE	34	NW	21	13	10	7	4.7	76
Idaho Falls 46W (R)	4933	852.7	1025.7	46	11	28.3	-1.7	61	2	-2	14	0	30	--	--	T	-.56	T	0	0	T	T	6.7	WSW	a40	SW	15	--	--	--	----	--
Idaho Falls 42NW (R)	4790	----	----	43	6	24.5	-4.4	58	1	-11	13	0	30	--	--	.00	-.31	.00	0	--	---	--	4.3	NNE	a30	NE	25	--	--	--	----	--
Lewiston	1413	972.2	1025.4	46	26	36.1	-4.0	66	23	4	16	0	23	--	--	.29	-1.06	.11	5	0	.3	T	----	---	--	---	--	6	4	20	7.2	--
Pocatello	4444	867.6	1024.7	49	21	35.1	-.8	63	2	7	14	0	25	19	53	.02	-1.04	.02	2	0	T	T	13.6	SW	61	SW	12	14	6	10	5.0	80
ILLINOIS																																
Cairo (U)	314	1007.5	----	52	34	42.9	-5.7	73	13	13	17	0	14	--	--	2.66	-1.14	1.65	8	0	.4	T	9.2	SW	31	SW	4	9	4	17	6.3	50
Chicago (O'Hare)	656	992.6	1018.0	40	24	31.8	-	63	10	2	17	0	22	24	74	2.57	----	1.33	9	1	10.4	3	13.1	SSW	*37	SSW	10	5	7	18	7.3	--
Chicago (Midway)	610	994.6	1018.1	41	26	33.4	-6.1	65	10	3	17	0	22	25	71	3.01	.68	1.84	12	0	6.6	3	14.0	NW	34	W	16	5	9	16	7.1	50
Moline	589	996.3	1019.2	40	22	31.4	-7.4	66	10	-1	17+	0	23	23	72	1.50	-.65	.58	10	1	9.1	7	9.1	WNW	32	NW	16	9	5	16	6.5	51
Peoria	654	996.6	1019.7	42	24	32.9	-6.8	67	10+	3	17	0	22	25	72	.96	-1.39	.34	7	0	7.0	3	11.9	N	30	NW	24	8	6	16	6.4	48
Rockford	728	990.2	1018.4	38	21	29.3	-7.7	65	10	0	17+	0	25	23	75	2.18	-.21	1.34	9	0	6.9	4	9.9	NW	*31	SW	10	4	10	16	7.0	--
Springfield	589	995.9	1019.9	44	27	35.8	-5.1	68	4	4	17	0	22	26	69	1.35	-1.27	.88	7	0	.3	T	14.5	SSW	37	SW	10	6	8	16	6.9	49
INDIANA																																
Evansville	383	1004.1	1020.5	51	30	40.1	-5.9	76	5	10	17	0	20	30	69	1.34	-1.86	.72	9	1	T	T	10.4	NW	38	NW	24	6	7	17	7.0	45
Fort Wayne	801	986.5	1018.8	43	26	34.7	-5.0	69	5	6	17	0	25	27	76	2.80	.34	1.14	14	0	6.3	4	13.8	W	45	S	4	3	10	17	7.3	46
Indianapolis	793	988.5	1019.6	45	26	35.5	-6.0	71	5	4	17	0	25	26	68	3.21	.08	1.12	12	0	3.3	2	10.2	S	31	S	4	6	6	18	7.1	51
South Bend	768	988.8	1017.8	41	25	33.0	-5.7	65	10	4	17	0	24	27	78	3.62	.88	1.31	13	0	11.1	5	12.8	SSW	*29	WSW	5	1	10	19	8.2	--
IOWA																																
Burlington	694	992.9	1019.6	42	23	32.4	-7.1	67	10+	0	17	0	22	23	70	.44	-1.82	.12	8	1	2.6	1	12.3	NW	35	NW	16	7	11	12	6.5	60
Des Moines	948	987.8	1020.3	39	21	30.3	-8.1	66	3	-2	17	0	24	22	73	2.91	1.23	2.17	8	2	6.1	4	12.8	NW	42	NW	16	7	8	15	6.3	60
Dubuque	1065	992.9	1019.1	36	18	27.0	-8.6	62	3	-2	17	0	25	20	72	2.73	.60	1.70	10	2	8.8	4	----	---	--	---	--	7	9	14	6.5	--
Sioux City	1094	977.0	1020.1	38	19	28.7	-6.8	65	1	-9	14	0	28	21	73	2.21	1.01	1.35	7	1	15.1	7	11.9	NW	45	NW	16	7	9	14	6.3	56
Waterloo	870	----	----	38	17	27.3	-8.7	66	3	-3	17	0	25	--	76	3.45	1.51	2.61	8	0	6.0	4	11.0	---	--	---	--	--	--	--	----	--
KANSAS																																
Concordia (U)	1375	968.5	------	49	26	37.0	-5.1	76	3	4	14	0	20	--	60	.04	-1.11	.03	2	0	.6	T	8.8	NW	33	NW	24+	15	6	9	4.6	85
Dodge City	2594	930.2	1020.6	53	24	38.5	-4.2	74	3	3	14	0	24	24	62	.15	-.72	.15	2	0	1.0	1	16.4	N	57	NW	4	14	8	8	4.2	76
Goodland	3645	889.9	1020.1	50	20	35.3	-2.2	70	23+	0	14	0	28	18	56	T	-.58	T	0	0	.3	T	12.7	WSW	*42	NNW	4	15	8	7	4.7	--
Topeka	877	984.4	1021.2	50	24	36.9	-5.7	77	3	5	17	0	22	23	61	.13	-1.46	.10	3	0	1.0	1	12.8	S	47	N	16	9	8	13	5.7	61
Wichita	1321	970.5	1020.6	52	28	39.9	-5.2	76	3	8	17	0	18	25	60	.30	-1.43	.23	4	0	2.7	2	14.2	S	38	N	16	13	7	10	4.7	79
KENTUCKY																																
Lexington	979	983.9	1020.8	52	33	42.3	-2.5	77	5	12	18+	0	14	32	71	4.49	1.34	2.00	12	2	.8	1	12.1	S	--	---	--	7	8	15	6.5	--
Louisville	474	1000.5	1020.3	54	33	43.3	-2.4	79	5	13	18+	0	15	31	66	4.15	1.03	1.41	11	2	.6	T	11.1	NW	34	S	4	6	10	14	6.5	43
LOUISIANA																																
Baton Rouge	64	1018.3	1021.4	70	44	56.9	-2.2	85	5	25	18	0	8	45	70	1.31	-3.42	.87	6	2	.0	0	9.1	NNE	--	---	--	9	7	14	5.9	--
Lake Charles	12	1020.0	1021.3	67	46	56.2	-3.1	80	3	27	18	0	4	44	70	2.98	-1.36	2.12	4	2	.0	0	9.3	N	*29	S	26	10	6	14	5.5	--
New Orleans (U)	9	------	------	68	50	59.2	-3.3	84	4	33	18	0	0	--	73	1.16	-2.85	.59	6	0	.0	0	7.3	---	23	NE	17	13	8	9	4.5	62
New Orleans	3	1018.6	1021.0	68	49	58.5	-2.4	84	4	33	30+	0	0	49	74	1.14	-2.95	.68	4	0	.0	0	11.5	NNW	*36	NNW	6	10	9	11	5.1	--
Shreveport	252	1011.9	1021.9	62	39	50.2	-6.1	81	4	22	29+	0	13	37	66	2.94	-.96	1.65	7	1	T	0	11.2	S	--	---	--	14	4	12	4.9	64
MAINE																																
Caribou	624	992.5	1016.7	37	23	30.1	-0.9	63	6	-1	21	0	25	27	87	4.50	1.47	1.56	21	0	10.7	3	11.0	WSW	40	SW	26	1	6	23	8.6	--
Portland	61	1013.7	1017.9	47	31	38.6	1.1	68	5	12	30	0	17	34	85	4.95	1.16	1.28	16	0	4.8	4	10.5	N	35	SW	26	3	6	21	7.8	31
MARYLAND																																
Baltimore (U)	14	--	-	55	38	46.9	-1.8	76	6+	20	18	0	8	--	--	2.24	-.72	.92	8	--	----	--	----	---	--	---	--	--	--	--	----	--
Baltimore	146	1014.9	1019.8	54	35	44.5	-1.1	76	5	20	18	0	15	32	64	2.12	-.84	.87	8	0	.0	0	12.1	SSW	38	NW	2	6	8	16	6.9	42
Frederick	294	--- --	-- ---	53	31	41.7	-3.7	74	5	18	19+	0	20	--	--	2.57	-.38	1.05	11	--	T	0	----	---	--	---	--	--	--	--	----	--
MASSACHUSETTS																																
Blue Hill Obs.	629	993.1	- ----	49	33	40.9	--	71	6+	17	30+	0	14	--	80	5.13	.93	1.66	15	0	1.5	1	16.3	S	53	S	28	--	--	--	----	31
Boston	15	1013.2	1018.0	52	37	44.4	.0	73	6+	22	18	0	7	37	76	4.20	.71	1.52	14	1	.6	1	13.3	NW	43	SW	28	4	5	21	7.9	39
Nantucket	43	1017.6	1018.2	52	40	46.2	1.7	63	5	25	18	0	8	40	81	6.51	2.79	2.75	12	1	T	0	14.8	NNE	38	NE	15	2	6	22	8.4	29
Pittsfield	1153	------	------	46	28	36.9	.0	65	6+	12	18	0	23	--	--	5.69	1.71	1.45	17	--	2.8	3	----	---	--	---	--	--	--	--	----	--
Worcester	986	980.1	1017.5	48	31	39.3	-.3	69	6	15	18	0	19	29	66	5.30	.99	1.80	13	1	.1	T	9.8	WSW	29	SSW	28	5	5	20	7.8	--
MICHIGAN																																
Alpena	689	989.5	- ---	37	21	28.8	-6.9	53	11+	-2	28	0	27	23	74	2.47	.04	.72	13	0	17.0	8	7.8	W	30	W	1	0	6	24	8.7	22
Detroit (City AP)	619	990.2	1017.6	44	30	36.6	-3.5	71	5	12	18	0	23	27	71	3.24	1.06	1.44	13	0	8.1	4	11.2	W	35	NW	17	0	8	22	8.3	28
Detroit (M Wayne Co.)	630	992.9	1017.5	43	27	35.2	----	69	5	10	18	0	24	27	74	2.99	----	.85	11	0	9.6	5	12.8	WSW	--	---	--	0	9	21	8.6	--
Detroit (Willow Run)	722	988.2	1017.3	43	28	35.5	-4.2	70	5	10	18	0	24	27	73	3.27	1.07	1.45	12	0	8.4	5	13.0	SW	*33	WNW	1	0	4	26	8.8	--
Escanaba (U)	594	992.6	----	34	21	27.2	-6.7	53	3	-1	17	0	27	--	71	1.22	-.98	.47	8	0	7.3	5	11.1	---	34	NW	14+	5	5	20	7.6	27
Flint	761	988.5	1017.2	41	25	33.0	-4.6	68	5	9	17	0	26	27	76	2.98	.80	1.15	12	1	6.0	1	11.1	SSW	*28	WSW	6	1	2	27	9.0	--
Grand Rapids	681	991.2	1017.1	40	27	33.5	-4.1	63	10	9	17	0	25	27	76	3.02	.49	1.56	12	1	15.3	4	11.0	WNW	33	SW	5	0	1	29	9.3	20
Lansing	852	984.1	1017.1	41	25	32.7	-5.2	66	5	7	17	0	25	25	72	2.97	.67	1.36	14	0	6.6	3	14.2	SSW	42	SW	5	0	3	27	9.1	17
Marquette (U)	677	987.8	------	32	20	26.1	-7.8	46	3+	-1	17	0	30	--	73	2.91	-.21	1.06	19	0	36.6	11	9.6	W	35	S	7	1	5	24	8.7	32
Muskegon	627	993.2	1017.0	39	27	33.2	-5.3	58	10	9	17	0	22	27	75	2.87	.23	1.27	14	2	14.8	4	----	---	--	---	--	0	2	28	9.6	--
Sault Ste. Marie	721	992.2	1015.8	32	20	26.1	-5.4	44	1	4	17	0	28	21	80	2.11	-1.15	.40	21	0	17.2	5	11.0	WSW	*29	WSW	17+	0	7	23	8.6	22
MINNESOTA																																
Duluth	1409	974.6	1017.6	27	10	18.8	-8.2	44	1	-9	17	0	30	11	72	.69	-1.09	.24	9	0	7.4	4	13.9	WNW	48	W	16	6	8	16	7.1	43
Intern'l Falls	1179	974.6	1017.7	24	6	15.0	-9.0	36	3+	-14	14	0	30	9	75	1.20	.03	.48	13	0	14.0	8	9.3	W	*35	W	16	6	8	16	6.8	--
Minneapolis	830	983.7	1018.9	33	18	25.4	-7.6	50	3+	-2	17	0	29	17	72	.63	-.81	.42	8	0	6.9	4	11.3	WNW	30	NW	16	3	9	18	7.5	49
Rochester	1017	980.0	1019.0	33	16	24.7	-7.8	56	3	-4	17	0	27	19	77	1.08	-.44	.70	7	0	6.4	3	11.3	WNW	--	---	--	5	7	18	7.5	--
St. Cloud	1034	979.0	1018.8	31	14	22.3	-7.1	49	1	-6	17	0	30	15	73	.30	-1.07	.14	6	0	2.9	1	----	---	--	---	--	5	7	18	7.4	--
MISSISSIPPI																																
Jackson	305	1009.2	1021.5	65	39	51.6	-3.6	84	5	20	18	0	13	39	69	2.33	-1.72	1.45	6	3	.0	0	6.7	NW	29	N	6	12	6	12	5.1	54
Meridian	292	1007.3	1021.5	66	38	51.7	-2.4	81	5	17	30	0	13	41	74	2.93	-1.10	1.38	6	4	.0	0	7.2	NNE	*25	NNE	17	12	5	13	5.1	--
Vicksburg (U)	234	1012.4	------	63	42	52.5	-4.3	81	5	20	18	0	9	--	--	1.42	-3.19	.99	5	1	.0	0	8.3	---	27	S	26	9	10	11	5.6	50
MISSOURI																																
Columbia	778	991.9	1020.6	47	27	37.3	-5.9	73	4+	4	17	0	18	25	65	.56	-2.05	.18	7	0	T	T	12.3	WNW	32	S	3	7	10	13	6.2	52
Kansas City	741	984.1	1020.2	49	29	38.9	-5.4	75	3	7	17	0	15	24	56	.19	-1.98	.10	4	0	.9	1	11.1	SSW	38	SW	10	12	4	14	5.8	62
St. Joseph	809	984.1	----	47	25	36.1	-6.2	75	3	5	17	0	23	--	--	.05	-1.95	.03	2	0	.3	T	12.7	S	*35	N	24+	12	7	11	5.4	--
St. Louis (RFC)	465	------	----	48	32	39.9	-6.1	72	3	5	17	0	16	--	--	4.46	1.74	3.59	[illegible]	--	.7	T	----	---	--	---	--	--	--	--	----	--
St. Louis	552	999.3	1020.5	48	30	39.0	-6.0	72	10	6	17	0	17	28	67	2.90	.33	1.73	6	1	T	T	9.4	NW	30	SW	10+	6	8	16	6.7	45
Springfield	1265	971.9	1020.9	51	27	39.0	-5.5	72	3	4	17	0	21	26	65	2.27	.48	1.94	8	1	2.0	2	15.2	SSE	40	NW	24	11	9	10	5.5	62
MONTANA																																
Billings	3567	893.3	1021.1	41	21	30.8	-5.0	69	2	-22	16	0	21	18	63	1.92	1.24	1.37	7	0	21.9	16	14.8	SW	45	NW	25	5	5	20	7.1	44
Butte	5530	831.7	1026.1	37	6	21.6	-6.6	61	2	-42	13	0	28	13	--	.54	-.15	.38	5	0	13.8	8	7.4	NW	*30	NNE	3	6	9	15	6.8	--
Glasgow	2277	943.4	1020.8	31	14	22.8	-5.2	68	2	-18	16	0	29	--	81	.72	.20	.21	11	0	5.6	3	----	---	--	---	--	7	1	22	7.5	--
Great Falls	3664	890.6	1021.2	39	20	29.7	-5.5	64	2	-20	13+	0	19	18	64	1.71	1.04	.67	9	0	16.6	11	14.3	SW	51	W	24	5	7	18	7.3	39
Havre (U)	2488	929.6	1021.7	36	18	27.0	-3.9	69	2	-18	16+	0	22	--	--	1.27	.79	.58	9	0	9.6	6	10.6	SW	42	SW	2	6	5	19	6.9	46
Helena	3893	877.1	1025.4	36	12	24.3	-7.4	62	2	-39	16	0	26	14	66	1.45	.81	.82	7	0	32.9	20	7.5	NW	47	W	19	7	5	18	7.1	63
Kalispell	2965	----	----	32	13	22.1	-9.9	64	2	-28	16	0	27	--	--	4.44	2.89	.95	13	1	39.0	24	----	---	--	---	--	3	9	18	7.5	--
Miles City	2629	934.3	1021.7	36	16	26.3	-6.5	71	2	-18	16	0	27	19	--	.91	.42	.27	6	0	7.0	5	11.5	WNW	*37	NW	25	5	4	21	7.6	--

See footnotes at end of table.

CLIMATOLOGICAL DATA

NOVEMBER 1959

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb.	Mb.	°F.	°F	°F.	°F	°F		°F.				°F	%	In.	In	In			In.	In	M p. h.		M p. h			0–3	4–7	8–10	0–10	%
MONTANA (Cont'd.)																																
Missoula	3200	907.9	1026.9	36	17	26.4	5.5	57	24	-15	16	0	27	19	75	1.30	0.19	0.39	10	0	13.8	7	5.7	ESE	33	NE	3	2	7	21	7.9	15
NEBRASKA																																
Grand Island	1841	951.6	1020.0	46	19	32.8	-4.8	69	1	-2	17+	0	27	21	65	.56	-.42	.53	4	1	.2	T	13.9	NNW		-	--	11	9	10	5.2	-
Lincoln (U)	1166	------	------	45	24	34.6	-5.7	68	1	4	14	0	26	-	-	.40	-1.01	.31	5	1	.6	T	12.1	S	49	NW	25	9	11	10	5.4	66
Norfolk	1544	962.4	1019.9	41	18	29.7	-5.2	66	1	-12	14	0	30	20	66	.60	-.46	.35	6	2	3.4	2	----	---	--	-	--	7	9	14	6.4	
North Platte	2779	917.7	1020.0	46	14	30.3	-6.5	69	23	-5	14	0	30	18	64	.15	-.40	.13	3	1	7	3	12.2	NNW	64	NW	4	10	10	10	5.4	60
Omaha	978	978.7	1020.1	43	23	33.1	-5.8	69	3+	-1	14	0	25	22	67	.65	-.64	.43	7	1	1.5	1	13.1	NNW	42	NW	24	8	9	13	6.0	52
Omaha N.Omaha AP	1323	970.2	------	41	21	31.1	-5.9	67	1	-5	14	0	27	--	--	1.13	-.16	.78	9	1	1.4	1	----	---	---	----	---	6	10	14	6.4	-
Scottsbluff	3950	880.5	1020.8	47	16	31.5	-4.6	70	2	-4	16	0	29	18	62	.12	-.45	.11	2	0	.8	T	11.8	WNW	*50	WNW	23	4	14	12	6.5	--
Valentine	2587	925.8	------	39	14	26.6	-7.8	63	9	-22	14	0	30	-	75	.35	-.29	.28	5	0	9.2	8	12.0	N	46	NW	25	7	10	13	6.2	65
NEVADA																																
Elko	5075	850.3	1025.8	56	14	34.9	.4	64	9	4	27	0	30	11	39	T	-.93	T	0	0	T	0	3.6	WSW	*25	NW	25+	22	4	4	2.4	--
Ely	6257	813.4	1024.4	55	14	34.4	-.8	66	17	1	5	0	30	9	39	T	-.69	T	0	0	T	0	11.8	S	33	NW	1	22	5	3	2.3	95
Las Vegas	2162	953.9	1020.5	67	40	53.4	-.5	76	24	29	27	0	3	24	36	1.09	.87	1.09	2	2	.0	0	6.7	SW	*23	NNW	22+	18	8	4	2.8	91
Reno	4404	867.9	1025.5	61	18	39.6	-.6	68	12+	11	29	0	30	16	46	.00	-.64	.00	0	0	.0	0	4.1	SW	31	W	3	21	7	2	2.0	97
Winnemucca	4299	874.7	1026.4	59	12	35.8	-1.8	69	11	2	27	0	29	12	38	T	-.84	T	0	0	.0	0	5.6	S	32	W	3	21	4	5	2.6	87
NEW HAMPSHIRE																																
Concord	339	1006.7	1017.9	48	29	38.4	1.7	74	6	11	30+	0	19	32	78	4.60	1.03	1.13	15	0	1.4	1	7.4	NW	26	NW	17	4	4	22	8.0	32
NEW JERSEY																																
Atlantic City (U)	10	------	------	54	39	46.5	-1.6	67	6+	23	18	0	8	--	--	4.82	1.50	2.88	--	--	--	--	----	---	34	NW	17	-	-	..	..	39
Atlantic City	58	1016.9	1019.5	54	36	45.3	-1.2	73	6	21	18	0	11	37	74	5.15	2.03	3.08	12	0	T	0	13.5	S	--	---	--	6	7	17	7.0	--
Newark	11	1017.9	1019.1	54	37	45.5	.6	77	6+	21	18	0	7	35	67	3.94	.84	1.47	13	0	.4	T	10.5	SSW	30	WNW	17	6	7	17	7.2	--
Trenton (U)	56	1011.4	------	53	37	44.9	-.7	76	5	21	18	0	8	--	--	4.10	1.24	1.33	12	0	.1	T	10.1	---	36	S	28	6	8	16	7.2	43
NEW MEXICO																																
Albuquerque	5310	851.3	1018.3	57	31	43.9	-.1	69	12	17	27	0	17	21	44	.07	-.35	.05	2	1	.0	0	6.7	N	37	N	4	22	4	4	2.4	83
Clayton	4969	846.6	1018.6	57	22	39.6	-2.8	75	25	4	14	0	26	--	--	.15	-.24	.08	3	0	1.0	1	----	---	--	---	--	17	4	9	3.5	--
Raton	6379	806.0	1019.0	54	17	35.3	-3.1	70	10	-3	27	0	27	--	--	.08	-.49	.06	2	0	.8	T	----	---	--	---	--	15	8	7	4.0	--
Roswell	3612	896.7	1020.0	63	27	45.0	-3.3	80	25	12	28	0	23	22	44	.24	-.15	.24	1	1	.0	0	9.7	---	40	NE	26+	18	4	8	3.5	--
NEW YORK																																
Albany	277	1014.3	1018.2	47	30	38.4	-.6	69	6	16	18	0	22	31	76	4.44	1.75	2.01	15	1	.9	T	10.1	SSE	38	W	28	2	8	20	8.2	33
Binghamton	1590	956.9	1017.4	44	29	36.1	-1.1	65	6	11	18	0	23	28	73	4.84	1.99	1.69	18	0	3.9	1	9.8	SSW	43	W	2	2	7	21	8.2	27
Buffalo	693	988.5	1017.5	46	31	38.6	-1.3	72	5	13	18+	0	18	30	72	3.58	.49	.51	16	0	12.2	4	10.5	WSW	47	W	24	2	7	21	8.1	34
New York (U)	10	1017.2	------	52	38	44.9	-1.4	70	6+	20	18	0	7	--	--	4.95	1.86	2.43	11	0	.5	T	16.4	---	54	W	25+	7	7	16	6.8	38
New York	19	1017.1	1019.0	53	39	46.1	-.7	69	6+	22	18	0	7	36	67	4.13	1.14	1.51	13	0	.2	T	15.7	S	50	NW	17	6	7	17	7.2	--
Rochester	543	997.5	1017.4	46	30	37.9	-1.8	73	5	14	18	0	20	30	75	1.84	-.90	.45	14	0	11.6	6	12.8	WSW	42	W	14+	1	9	20	8.1	36
Schenectady	217	------	------	47	32	39.4	.8	68	6	18	18	0	20	--	--	3.43	.59	1.45	15	--	.3	T	----	---	--	---	--	9	8	13	----	--
Syracuse	424	995.1	1017.8	47	31	38.6	-2.6	69	6+	16	18	0	20	30	73	4.34	1.21	1.10	18	0	16.6	4	11.8	WSW	45	W	24	3	4	23	8.1	22
NORTH CAROLINA																																
Asheville (U)	2203	939.7	------	56	34	45.1	-1.5	67	5	13	30	0	15	--	--	1.01	-1.10	.47	8	0	T	T	10.0	---	29	N	28+	11	7	12	5.5	56
Cape Hatteras	9	1018.5	1019.2	65	51	57.6	.3	80	6	29	20+	0	2	50	79	3.46	-.39	1.08	11	0	T	T	13.4	N	35	S	28	11	7	12	5.5	--
Charlotte	725	991.5	1020.4	63	39	50.9	.5	79	5	19	30	0	6	39	68	1.92	-.73	1.67	5	1	.0	0	10.3	N	31	NW	29	13	2	15	5.3	63
Greensboro	891	988.8	1021.2	59	35	47.1	-.9	76	5	19	30	0	13	36	69	1.57	-1.14	1.23	7	1	.0	0	8.8	SW	29	NW	28+	11	3	16	6.0	66
Raleigh	433	1006.7	1020.5	61	37	49.1	-1.3	78	6	20	30	0	13	39	71	2.58	-.27	1.20	7	1	T	T	9.1	N	24	NNW	17	9	7	14	5.7	60
Wilmington	30	1018.4	1019.7	66	44	54.7	-1.0	81	5	24	30	0	5	48	80	4.72	2.13	2.89	8	0	.0	0	11.5	N	31	W	25+	12	7	11	5.2	57
Winston-Salem	967	984.6	1020.6	59	37	47.9	-.7	76	5	20	30+	0	12	34	63	1.68	-1.11	1.24	7	0	.0	0	9.3	NNE	33	WSW	25	13	4	13	5.4	--
NORTH DAKOTA																																
Bismarck	1650	957.0	1020.0	32	13	22.9	-5.5	54	2	-11	16	0	29	70	77	1.34	.81	.50	13	0	15.5	8	13.8	WNW	54	NW	23	1	3	26	9.0	27
Devils Lake (U)	1471	963.1	------	26	10	17.9	-7.2	44	2	-10	16	0	30	--	80	.97	.30	.23	12	0	10.1	5	8.9	NW	29	W	16	2	4	24	8.7	33
Fargo	895	982.7	1019.5	28	13	20.5	-7.1	45	1	-6	16	0	30	15	77	.31	-.56	.19	5	0	3.6	1	16.7	N	51	N	10	3	6	21	8.1	20
Williston (U)	1877	949.5	1020.3	31	16	23.2	-5.1	65	2	-16	16	0	28	16	73	1.71	1.13	.61	13	0	14.7	6	8.2	NW	26	NW	30+	2	3	25	8.6	21
OHIO																																
Akron	1210	979.8	1018.9	46	28	37.3	-3.1	69	5	9	18	0	23	30	77	3.18	.80	.62	15	1	8.4	6	12.2	S	--	---	--	2	9	19	7.6	--
Cincinnati Obs.	761	------	------	50	32	41.0	-3.6	78	5	11	17	0	19	--	--	3.98	.92	1.19	12	2	1.3	1	7.1	---	21	W	25	-	--	--	----	48
Cincinnati	869	987.1	1020.0	50	31	40.6	-2.8	75	5	10	17	0	17	28	65	4.04	1.01	1.37	13	2	2.3	1	11.6	SSW	*35	SSW	4	3	12	15	7.0	--
Cleveland	787	989.5	1018.2	48	31	39.1	-2.6	73	5	10	18	0	19	30	72	2.96	.30	.75	17	0	7.2	3	11.6	S	29	W	5	2	7	21	8.0	23
Columbus (U)	724	------	------	49	32	40.2	-3.0	74	5	13	18	0	17	--	--	3.18	.64	.64	14	1	3.1	2	----	---	--	---	--	--	--	--	----	--
Columbus	815	989.2	1020.1	49	30	39.5	-2.4	75	5	12	18	0	20	30	71	3.71	.85	1.27	14	1	3.5	2	8.8	S	27	SW	14+	7	6	17	6.8	50
Dayton	1002	982.0	1019.5	47	29	38.1	-3.8	74	5	9	17	0	20	28	70	3.17	.56	1.29	13	0	2.9	1	11.9	S	42	SW	4	5	10	15	7.0	46
Sandusky (U)	603	995.2	------	46	31	38.4	-3.8	73	5	10	18	0	20	--	--	2.61	.34	.67	12	0	4.5	3	10.4	---	36	NW	2	3	8	19	7.7	40
Toledo	676	992.4	1018.4	43	26	34.8	-5.0	72	5	8	18	0	24	28	76	3.09	.94	1.18	14	0	8.3	4	9.4	WSW	26	NW	25+	2	7	21	8.3	59
Youngstown	1178	974.7	1018.4	45	29	36.9	-3.7	67	5+	8	18	0	23	30	78	3.21	-.28	.50	17	1	7.3	5	12.7	S	31	WSW	25+	3	5	22	7.9	--
OKLAHOMA																																
Oklahoma City	1280	976.6	1021.5	55	32	43.5	-5.5	75	1	11	17	0	18	29	63	.94	.88	.92	2	1	.3	T	14.1	SSW	42	NW	5	16	5	9	4.1	70
Tulsa	672	995.9	1021.1	56	32	44.5	-5.1	78	1	11	17	0	17	29	59	1.48	.92	1.45	4	1	.2	T	10.6	S	35	N	16	15	5	10	4.4	67
OREGON																																
Astoria	8	1022.0	1022.5	54	39	46.6	-.5	65	8	28	14	0	4	41	81	11.40	1.04	3.48	16	1	.0	0	9.8	E	*29	SSW	22+	5	6	19	7.3	--
Burns (U)	4140	878.8	1024.7	54	20	37.2	.7	67	24	11	26+	0	30	22	58	.13	-1.04	.09	2	0	.8	1	----	---	--	---	--	16	6	8	4.1	--
Eugene	361	1009.8	1023.8	54	34	44.4	-.9	64	23	19	14	0	15	--	--	1.42	-4.27	.66	6	0	.0	0	7.1	---	*37	SW	20	6	9	15	7.0	--
Meacham	4050	------	------	44	27	35.7	.8	62	2	1	16	0	20	--	--	3.08	-.79	1.06	10	0	7.7	3	----	--	-	-	--	8	5	17	6.7	--
Medford	1312	976.0	1025.0	59	28	43.4	-.8	75	1	20	27+	0	24	32	73	.16	-2.51	.12	4	0	.0	0	3.0	SE	*23	SW	21+	14	7	9	4.9	--
Pendleton	1492	969.9	1025.2	49	27	37.6	-3.5	67	2	3	16	0	22	28	69	.31	-1.20	.12	7	0	.9	1	9.3	SE	*62	W	20	8	8	14	6.2	--
Portland	21	1018.0	1023.8	51	35	42.8	-2.7	63	23	25	14	0	14	36	78	3.30	-1.92	.94	11	1	.0	0	8.2	ESE	32	E	16	6	7	17	7.0	46
Roseburg	505	1005.1	1024.0	54	34	44.0	-2.2	65	23+	23	14	0	16	--	--	.80	-3.71	.40	8	0	.0	0	3.0	---	31	SW	20	3	10	17	7.3	29
Salem	195	1016.6	1024.2	54	34	44.3	-1.1	66	23	16	14	0	16	38	78	2.06	-3.90	.56	12	0	.0	0	6.9	S	*35	W	21	7	7	16	6.4	--
Sexton Summit (R)	3836	888.9	1023.0	54	39	46.5	5.3	67	1	28	4	0	2	--	--	.57	-3.97	.33	6	0	.0	0	12.1	ESE	--	---	--	15	6	9	4.3	--
PACIFIC AREA																																
Canton Island	8	1008.1	1008.5	90	78	84.1	.4	92	27+	74	8	22	0	72	70	.86	.59	.55	5	0	.0	0	13.4	E	*29	ESE	6	5	5	20	7.8	
Guam (R)	361	------	------	85	75	80.0	1.5	88	2	70	30+	0	0	--	--	11.71	3.44	3.93	26	2	.0	0	7.1	E	20	E	6	--	--		----	49
Johnston Island	7	1012.2	1012.8	84	76	79.6	----	86	5+	70	25	0	0	71	76	1.03	---	.31	16	0	.0	0	16.1	---	49	NE	25	0	15	15	7.1	81
Koror (R)	94	1005.1	1008.5	88	76	81.9	.5	91	30	72	14	6	0	77	87	15.41	3.57	3.31	27	5	.0	0	5.1	E	25	NW	13	0	6	24	8.8	59
Majuro	10	1008.5	1008.8	85	77	81.1	----	88	6+	73	24+	0	0	75	81	19.92	---	4.63	23	0	.0	0	9.4	E	32	SE	1	0	2	28	9.6	56
Ponape (R)	120	1003.7	1009.0	88	74	81.0	-.3	91	9	70	17	4	0	75	86	11.31	-3.16	1.86	26	5	.0	0	3.6	E	20	E	24	0	5	25	8.9	36
Truk, Moen Island	5	1008.5	1008.8	87	76	81.4	.6	91	28	73	26+	2	0	77	84	11.30	.20	3.51	23	2	.0	0	6.0	NNE	29	S	7+	0	2	28	9.4	
Wake Island	11	1014.6	1015.0	85	76	80.3	.4	87	19	72	12	0	0	72	74	2.12	-1.05	.72	18	0	.0	0	17.5	ENE	*30	ENE	1	10	13	7	5.4	--
Yap (R)	55	1006.4	1008.5	88	77	82.3	.5	90	15+	75	28+	4	0	77	84	10.34	-.38	2.81	23	5	.0	0	4.8	NE	*25	E	13	0	0	30	10.0	
PENNSYLVANIA																																
Allentown	376	1004.7	1019.4	51	32	41.5	-.5	71	6	17	18	0	19	34	74	2.43	-.64	.86	9	1	T	0	11.6	WNW	54	WNW	2	4	8	18	7.5	
Erie	732	------	------	47	33	39.9	-1.1	73	5	14	18	0	15	--	--	4.76	1.50	1.06	17	3	16.0	8	8.6	---	21	W	19+	2	4	24	8.7	
Harrisburg	335	1005.9	1019.4	51	33	42.0	-2.0	72	6+	16	18	0	17	30	65	2.14	-.59	.76	11	1	T	0	7.9	WNW	31	NW	2	4	10	16	7.2	44
Philadelphia (U)	35	------	------	54	39	46.5	-1.3	76	5	22	18	0	7	--	--	----		---		-	----	-	-	---	--	--		-	-	-	----	-
Philadelphia	7	1014.6	1019.2	54	37	45.2	-.7	78	5	21	18	0	10	35	70	3.29	.21	1.43	10	0	T	0	9.5	S	35	WNW	25+	5	6	19	7.4	36
Pittsburgh (U)	749	------	------	51	34	42.9	-1.7	76	5	13	18	0	13	29	71	2.68	.07	.88	17	--	2.2	0	----	---	--	---	--	--	--	--	----	26
Pittsburgh	1151	988.3	1019.4	49	29	39.0	-2.0	74	5	8	18	0	22	--	--	2.43	-.16	.78	15	0	4.3	3	10.3	WNW	30	NW	14	5	5	20	7.5	51

See footnotes at end of table.

CLIMATOLOGICAL DATA

NOVEMBER 1959

State and station	Elevation (ground) Ft	Pressure: Station ø Mb	Pressure: Sea level Mb.	Temperature: Average maximum °F	Average minimum °F.	Average °F.	Departure from normal °F.	Highest °F	Date	Lowest °F.	Date	No. of days: Max. 90° F. or above	No. of days: Min 32° F. or below	Average dew point °F.	Average relative humidity %	Precipitation: Total In.	Departure from normal In.	Greatest in 24 hours In.	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total In.	Max. depth on ground In.	Wind: Average hourly speed M. p. h.	Prevailing direction	Fastest mile: Speed M. p. h.	Direction	Date	No. of days (sunrise to sunset): Clear 0–3	Partly cloudy 4–7	Cloudy 8–10	Sky cover, tenths (sunrise to sunset) 0–10	Possible sunshine %
PENNSYLVANIA (Cont'd.)																																
Reading (U)	266	1007.4	------	52	35	43.7	-1.7	73	6	19	18	0	14	--	--	2.88	-0.17	0.86	11	0	T	T	12.0	---	56	NW	2	2	8	20	7.6	36
Scranton	940	983.7	1019.0	46	29	37.8	-2.9	67	6	11	18	0	20	28	67	3.77	.56	1.97	11	1	.5	T	9.6	SW	33	N	28	3	7	20	7.8	36
Williamsport	527	999.8	1019.3	48	31	39.3	-2.4	68	6	15	18	0	19	30	70	4.56	1.30	2.05	13	0	T	T	10.6	W	71	WSW	24	4	7	19	7.3	--
RHODE ISLAND																																
Block Island	110	1013.1	------	52	39	45.3	.0	65	6	22	18	0	7	--	--	4.49	.96	2.16	12	0	T	0	----	---	--	---	--	5	9	16	7.3	--
Providence	55	1012.1	1018.4	52	35	43.3	.7	72	6	21	18	0	14	35	74	3.85	.11	1.71	13	1	T	0	12.2	N	33	S	28	6	3	21	7.3	41
SOUTH CAROLINA																																
Charleston (U)	9	------	------	66	50	58.0	-.6	81	1	28	30	0	2	--	--	1.58	-.34	.72	9	--	.0	0	10.6	---	31	N	18	--	--	--	----	--
Charleston	41	1018.3	1020.3	67	46	56.5	.2	81	6	22	30	0	3	48	76	2.07	.02	.87	11	0	.0	0	8.5	N	‡35	W	25	10	6	14	5.8	52
Columbia	217	1007.3	1020.4	66	41	53.5	-.4	85	5	19	30	0	8	42	72	.67	-1.58	.34	5	0	.0	0	7.8	NNE	*29	WNW	25	14	5	11	4.9	59
Florence	146	1013.7	1019.6	67	43	55.0	1.4	84	6	21	30	0	4	43	69	1.11	-1.17	.45	6	0	.0	0	8.2	N	*21	SW	25+	12	6	12	5.2	--
Greenville	1018	982.4	1020.4	61	40	50.4	-.9	77	5	18	30	0	7	36	63	1.64	-1.40	1.47	6	1	.0	0	7.5	NE	34	N	17	13	5	12	5.2	64
Spartanburg	801	------	------	62	39	50.5	-.7	77	5	19	30	0	5	--	--	1.86	-1.11	1.56	2	1	.0	0	7.6	---	*23	NW	29+	--	--	--	----	--
SOUTH DAKOTA																																
Huron	1282	970.9	1020.0	35	15	24.7	-7.8	55	9+	-18	14	0	29	18	77	.92	.26	.30	9	0	12.2	4	14.1	SSE	47	N	15	3	8	19	7.7	46
Rapid City	3165	902.5	1020.8	40	16	27.9	-7.4	74	2	-19	14	0	25	16	65	1.18	.63	.40	12	0	12.6	6	12.8	NNW	50	NW	25	5	10	15	6.8	37
Sioux Falls	1420	966.1	1019.6	34	16	25.0	-7.2	57	1	-17	14	0	29	17	70	1.89	.78	.90	7	0	17.0	8	12.3	NW	*39	NW	16	6	11	13	6.0	--
TENNESSEE																																
Bristol	1519	965.2	1020.7	56	34	45.0	-.8	74	5+	17	30+	0	14	35	71	4.73	2.17	1.65	11	0	.4	T	7.4	WNW	21	WSW	25+	9	4	17	6.3	--
Chattanooga	670	992.8	1021.2	59	35	47.0	-2.1	72	4	16	30	0	13	37	72	4.49	.46	1.84	8	2	T	T	7.6	S	32	W	24	9	7	14	6.3	55
Knoxville	950	984.9	1021.0	58	35	46.7	-1.7	76	4	17	30	0	12	36	70	4.68	1.53	2.64	10	0	.6	T	7.6	NE	34	SW	24	6	10	14	6.6	49
Memphis (U)	271	------	------	56	38	47.0	-5.1	75	3	19	17	0	10	--	--	2.66	-1.65	1.27	7	--	.0	0	----	---	--	---	--	--	--	--	----	--
Memphis	263	1006.8	1021.9	58	35	46.6	-4.0	76	3	18	29	0	14	33	63	2.66	-1.90	.97	8	1	T	T	9.3	S	35	NW	24	11	7	12	5.4	57
Nashville	577	1000.6	1021.2	56	34	45.1	-4.2	80	5	15	18	0	13	36	74	4.96	1.55	1.57	8	1	T	T	9.4	S	36	NW	26	9	6	15	6.0	51
Oak Ridge	905	986.8	------	59	36	47.4	.4	76	4	17	30	0	9	--	--	5.78	1.80	2.29	10	0	.2	T	5.5	---	‡31	---	24	6	12	12	6.0	--
TEXAS																																
Abilene	1759	958.3	1020.9	61	35	47.8	-5.9	80	3	17	17	0	14	30	56	.35	-.67	.17	4	1	T	T	11.7	S	41	N	26	16	4	10	4.0	68
Amarillo	3590	891.3	1019.4	58	27	42.4	-2.8	76	12	8	14	0	22	21	49	.14	-.74	.09	2	1	.9	1	13.0	SW	49	N	4	20	3	7	3.0	82
Austin	615	999.3	1021.9	65	40	52.2	-7.0	84	4	26	18	0	10	40	68	1.95	-.40	1.01	6	1	1.0	1	8.5	NNW	31	N	16	12	6	12	5.0	52
Brownsville	16	1018.0	1020.7	73	52	62.8	-5.0	90	4	34	29+	1	0	54	78	2.71	1.16	2.24	5	0	.0	0	10.6	NNW	35	NW	14+	10	11	9	5.4	58
Corpus Christi	41	1020.3	1021.6	70	47	58.8	-6.1	89	4	29	28	0	2	47	71	.76	-.98	.33	9	1	T	T	9.7	N	31	N	5	8	7	15	5.9	64
Dallas	487	1003.1	1022.2	61	38	49.8	-6.0	80	3	21	17	0	11	34	60	1.93	-.50	1.73	5	1	.0	T	11.6	S	36	NW	5	16	4	10	4.2	67
Del Rio (U)	957	------	------	66	41	53.2	-7.0	87	4	25	28	0	6	--	--	.46	-.34	.19	6	1	.0	0	----	---	--	---	--	--	--	--	----	--
El Paso	3920	889.6	1019.2	64	36	50.3	-1.7	80	2	19	28	0	11	26	41	.14	-.24	.11	3	0	.0	0	10.5	N	35	W	25+	17	6	7	3.5	80
Fort Worth	544	1000.3	1021.9	61	38	49.5	-6.3	80	3	20	17	0	12	36	63	1.74	-.50	1.56	6	1	.0	0	13.3	S	*37	N	26+	17	3	10	4.1	--
Galveston (U)	7	------	------	64	51	57.6	-6.0	80	5+	30	18	0	1	--	--	.76	-3.08	.38	4	--	.0	0	12.5	---	38	N	6	--	--	--	----	71
Galveston	5	1019.3	1021.8	65	49	56.9	-6.5	81	4	29	18	0	1	45	68	.95	-3.24	.60	4	2	.0	0	10.7	N	--	---	--	10	6	14	5.5	--
Houston (U)	41	1015.9	------	66	47	56.5	-5.4	85	3	28	18	0	2	--	--	1.45	-2.50	.71	4	1	.0	0	10.0	N	35	N	6	11	10	9	5.1	64
Houston	50	1019.0	1022.0	66	45	55.8	-5.1	84	4+	28	18	0	4	46	73	1.90	-2.28	.98	4	1	.0	0	11.3	NNW	--	---	--	8	11	11	5.7	--
Laredo	500	1005.4	1020.9	73	48	60.6	-5.4	91	4+	31	28+	2	2	43	57	1.20	.23	.69	7	2	.0	0	9.7	SE	*35	W	3	10	8	12	5.4	--
Lubbock	3243	906.5	1020.4	60	29	44.4	-4.2	79	12	10	17	0	20	26	54	.02	-.61	.02	1	0	T	T	13.9	SW	*47	NNE	5+	20	4	6	3.2	--
Midland	2854	919.7	1020.3	61	33	47.1	-5.7	77	12+	18	17	0	18	30	57	.68	.01	.62	5	1	T	T	9.0	SW	*28	NNE	5	14	6	10	4.3	--
Port Arthur	16	1019.6	1021.2	67	45	55.7	-3.6	81	3	27	18	0	5	47	75	2.73	-.83	2.26	4	2	.0	0	11.7	N	40	S	4	9	6	15	5.9	54
San Angelo	1903	952.6	1021.3	62	35	48.3	-8.1	80	3	20	17	0	13	33	61	1.30	.21	.78	6	1	T	1	11.1	SW	*32	NE	16+	17	4	9	3.7	--
San Antonio	792	995.3	1021.5	66	41	53.3	-6.5	85	4	23	18	0	8	42	69	2.17	.77	1.20	4	2	T	0	9.7	N	34	N	5	12	8	10	4.9	61
Victoria	110	1016.6	1021.4	69	45	56.7	-7.1	87	4	26	18	0	6	45	67	1.05	-1.18	.62	4	1	.0	0	8.7	N	‡46	SSE	4	9	9	12	5.8	--
Waco	500	1000.3	1021.9	63	38	50.4	-7.4	81	3	20	18	0	12	37	65	1.25	-1.00	.95	7	1	T	T	13.3	NNW	*32	NNW	26	14	6	10	4.5	--
Wichita Falls	1020	983.4	1021.1	59	34	46.6	-5.1	79	3	15	17	0	16	30	57	1.27	-.12	1.27	1	1	T	0	10.9	S	*28	N	26+	16	5	9	4.0	--
UTAH																																
Milford	5028	849.3	1024.4	55	20	37.6	.2	69	12	4	27	0	28	—	--	.27	-.27	.27	1	0	.0	0	----	---	—	---	--	19	6	5	2.7	--
Salt Lake City	4220	873.4	1025.4	53	23	37.7	-1.6	65	11	11	14	0	27	22	56	.10	-1.32	.10	1	0	.6	T	6.1	SSE	36	NW	25	16	6	8	4.0	79
Wendover	4237	876.7	1024.0	50	26	38.2	---	66	23	16	28+	0	23	--	--	T	----	T	0	0	.0	0	----	---	--	---	--	19	7	4	2.8	--
VERMONT																																
Burlington	331	1002.2	1017.4	43	27	35.1	-1.3	67	14	4	30	0	24	30	80	5.07	2.22	1.80	16	1	6.8	4	9.0	SSW	30	W	25	2	4	24	8.7	29
VIRGINIA																																
Lynchburg	947	985.5	------	56	35	45.5	-1.8	73	5	21	18	0	13	--	--	2.63	.26	1.74	8	1	T	0	8.3	---	30	S	28	8	4	18	6.3	52
Norfolk	26	1019.2	1020.4	60	42	51.1	-.3	81	6+	25	19	0	4	42	75	1.85	-.82	.95	11	0	T	0	11.5	NNE	33	W	25	8	10	12	6.1	53
Richmond	162	1014.4	1020.8	58	36	47.3	-1.1	80	14+	21	30+	0	12	36	68	7.64	5.15	3.94	10	2	T	0	8.5	S	28	S	28	8	6	16	6.6	44
Roanoke	1174	977.8	1020.5	55	34	44.8	-2.1	73	5	20	18	0	17	32	64	1.94	-.87	1.48	9	0	T	0	8.4	SE	—	---	—	8	8	14	6.2	--
WASHINGTON																																
Olympia	190	1015.6	1023.1	52	33	42.0	-1.5	60	23	18	13	0	16	38	87	10.36	3.59	3.59	13	0	.0	0	8.1	SW	*32	SW	19	4	7	19	7.7	--
Seattle (U)	14	------	------	52	42	46.7	-.3	60	23+	30	16+	0	3	--	--	5.49	1.03	2.63	15	--	.0	0	----	---	44	SW	24+	--	--	--	----	28
Seattle	14	1021.7	1022.5	--	--	----	---	--	--	--	--	--	--	37	73	-----	----	----	--	--	---	--	7.6	S	--	---	--	--	--	--	----	--
Seattle-Tacoma	386	1008.5	1022.7	50	38	43.9	.0	58	23+	27	16	0	8	37	80	8.14	3.59	3.41	17	1	T	0	10.2	S	*32	SSW	14	4	8	18	7.5	--
Spokane	2357	953.6	1024.6	40	23	31.5	-4.2	58	1	-2	13	0	24	24	76	2.30	.42	.79	9	0	10.7	7	7.8	NE	32	SW	24	6	5	19	7.1	38
Stampede Pass (R)	3958	882.8	1024.3	37	25	30.8	-.8	56	1	1	16	0	25	--	--	19.34	6.08	6.76	19	0	25.7	9	----	---	--	---	--	5	4	21	7.7	--
Tatoosh (R)	101	1018.0	1021.3	50	43	46.4	-1.0	54	24+	30	15	0	2	40	78	10.28	.76	2.11	17	2	.0	0	19.1	E	62	S	22	3	5	22	8.2	43
Walla Walla (U)	949	988.2	1025.1	48	31	39.2	-3.3	67	23+	5	16	0	19	--	--	.73	-1.13	.25	8	0	1.7	2	5.0	⊛ S	43	W	20	7	5	18	6.8	57
Yakima	1061	985.1	1025.5	48	22	35.1	-3.0	69	23	5	13	0	25	24	66	.40	-.58	.18	4	0	.7	T	5.7	WNW	*44	WNW	3	6	5	19	7.0	--
WEST INDIES																																
San Juna, P.R.(U)	47	------	------	85	74	79.2	.8	89	22+	72	30+	0	0	--	--	3.82	-2.55	2.11	16	5	.0	0	----	---	--	---	--	--	--	--	----	--
San Juan, P.R.	15	1011.2	1014.0	86	70	78.4	.6	90	13	67	24	1	0	71	82	4.85	-3.05	1.21	18	5	.0	0	5.5	ENE	26	NE	8	5	17	8	5.8	77
Swan Island	31	1011.7	------	86	76	80.9	1.1	88	13+	71	29+	0	0	--	--	6.35	-.75	1.16	3	0	.0	0	----	---	--	---	--	9	14	7	5.3	--
WEST VIRGINIA																																
Charleston	950	983.8	1020.0	55	33	43.9	-1.9	80	4	14	18	0	17	31	63	3.81	.64	1.18	15	2	6.5	4	7.8	W	*25	WNW	24	6	6	18	7.2	--
Elkins	1970	------	------	--	--	----	---	--	--	--	--	--	--	29	--	-----	----	----	--	--	---	--	8.2	NW	--	---	--	--	--	--	----	--
Huntington (U)	565	------	------	55	34	44.7	-2.0	80	4	15	18	0	17	--	--	3.61	.82	1.31	14	--	4.0	4	----	---	--	---	--	--	--	--	----	--
Parkersburg (U)	615	------	------	53	32	42.3	-2.7	77	4	14	18	0	18	--	--	3.98	1.31	1.05	14	0	5.2	3	6.7	---	22	NW	24+	6	7	17	6.9	40
WISCONSIN																																
Green Bay	689	993.6	1017.3	34	18	25.7	-7.8	59	3	0	17	0	27	22	84	1.47	-.47	.81	9	0	11.6	3	12.9	W	34	NE	4	6	8	16	7.2	36
La Crosse	652	992.9	1018.5	34	19	26.4	-7.9	60	3	0	17	0	26	19	72	1.98	.17	1.34	8	0	11.8	7	10.5	S	*32	WNW	16	4	7	19	7.4	--
Madison	857	981.4	1018.3	36	19	27.1	-8.2	62	3	-1	17	0	26	21	76	2.29	.00	1.31	10	0	8.7	3	10.1	SW	42	NW	2	7	5	18	7.2	46
Milwaukee	672	992.2	1018.1	37	22	29.5	-7.8	62	10	1	17	0	25	23	76	2.08	-.03	1.19	11	1	9.3	3	13.3	WNW	32	NW	16+	5	7	18	7.3	46
WYOMING																																
Casper	5319	837.8	1019.9	44	17	30.6	-2.7	64	2	-11	16	0	26	15	56	.27	-.55	.09	7	0	4.4	2	16.7	SW	*48	W	23	7	9	14	6.1	--
Cheyenne	6131	811.0	1018.7	48	19	33.1	-2.0	64	18+	-8	16	0	26	14	51	.16	-.54	.07	5	0	3.8	2	18.2	WNW	56	W	23	5	16	9	5.7	60
Lander	5563	836.4	1021.7	41	14	27.5	-2.5	60	23	-15	13	0	30	14	61	.80	-.07	.33	5	0	17.1	7	5.2	SW	45	NW	23+	10	11	9	5.1	68
Sheridan	3942	886.6	1022.4	39	13	26.4	-6.7	73	2	-25	16	0	28	18	71	.90	-.03	.37	9	0	10.3	9	9.4	WNW	61	NW	23	5	8	17	7.1	46

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
a Maximum hourly average.
\+ And also on an earlier date or dates.
ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
\# Number of days maximum 70° or above for Alaskan Stations.
% Sun below horizon Nov. 19-30, inclusive.

⊛ Wind direction to 8 compass points only.
¢ City Office Data
† Airport Data
‡ Peak Gust
⊕ Sun below horizon Nov. 26-30, inclusive.

HEATING DEGREE DAYS

(Base 65°F.)

NOVEMBER 1959

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ALABAMA			
Birmingham	427	527	532
Mobile	299	326	247
Montgomery	332	395	373
ARIZONA			
Flagstaff	819	1673	1832
Phoenix (U)	88	106	195
Phoenix	119	145	245
Prescott	550	804	877
Tucson	189	234	246
Winslow	642	908	957
Yuma	34	50	105
ARKANSAS			
Ft. Smith	591	728	575
Little Rock	543	649	525
Texarkana	489	570	386
CALIFORNIA			
Bakersfield	204	240	314
Bishop	482	734	872
Blue Canyon	310	843	1184
Burbank	54	70	256
Eureka (U)	431	1466	1525
Fresno	292	352	431
Los Angeles (U)	23	25	198
Los Angeles	41	44	396
Mt. Shasta (R)	594	1211	1387
Oakland	272	418	730
Red Bluff	233	280	378
Sacramento (U)	250	296	413
Sacramento	309	372	477
Sandberg (R)	331	642	702
San Diego	23	34	241
San Francisco (U)	146	575	841
San Francisco	245	422	873
San Jose (U)	209	270	411
Santa Maria	186	455	722
COLORADO			
Alamosa	1028	2113	2207
Colorado Springs	851	1682	1352
Denver	815	1530	1332
Grand Junction	801	1325	1161
Pueblo	785	1396	1228
CONNECTICUT			
Bridgeport	606	939	1045
Hartford	736	1253	1198
New Haven	638	1027	1137
DELAWARE			
Wilmington	605	905	914
DIST. OF COLUMBIA			
Washington (U)	562	808	773
Washington	545	768	793
FLORIDA			
Apalachicola (U)	182	185	171
Daytona Beach	82	84	83
Fort Myers	45	40	25
Jacksonville	160	165	164
Key West	15	15	0
Miami	25	25	8
Miami Beach	11	11	0
Orlando	69	69	61
Pensacola (U)	236	249	195
Tallahassee	209	223	240
Tampa	59	59	60
West Palm Beach	28	28	7
GEORGIA			
Athens	433	583	495
Atlanta	396	525	511
Augusta	344	419	341
Columbus	331	414	404
Macon	317	396	343
Rome	518	654	583
Savannah	261	291	263
IDAHO			
Boise	901	1610	1286
Lewiston	863	1533	1286
Pocatello	899	1688	1543
ILLINOIS			
Cairo (U)	660	858	681
Chicago	939	1407	1205
Chicago University	915	1387	
Moline	1002	1569	1253
Peoria	954	1442	1195
Springfield	871	1266	1127
INDIANA			
Evansville	741	1035	844
Ft. Wayne	901	1396	1260
Indianapolis	878	1303	1090
South Bend	953	1471	1289
IOWA			
Burlington	968	1479	1184
Des Moines	1034	1644	1269
Dubuque	1131	1862	1511
Keokuk (U)	922	1375	
Sioux City	1084	1746	1443
KANSAS			
Concordia (U)	833	1302	1019
Dodge City	788	1208	971
Goodland	883	1578	1333
Topeka	838	1276	1010
Wichita	748	1089	848
KENTUCKY			
Lexington	672	949	951
Louisville	642	894	862
LOUISIANA			
Baton Rouge	283	302	242
Lake Charles	297	317	240
New Orleans (U)	231	244	146
New Orleans	244	257	176
Shreveport	462	523	358
MAINE			
Caribou	1041	2135	2356
Greenville (U)	1000	2047	
Portland	785	1528	1610
MARYLAND			
Baltimore (U)	539	758	725
Baltimore	612	913	910
Frederick	698	1062	911
MASSACHUSETTS			
Blue Hill Obs. (R)	716	1275	
Boston	611	1015	1017
Nantucket	559	1001	1154
Pittsfield	834	1535	1687
MICHIGAN			
Alpena	1080	1951	1744
Detroit	845	1345	1232
Detroit(Willow Run)	882	1389	1258
Escanaba (U)	1127	2010	1892
Grand Rapids	951	1556	1471
Lansing	961	1614	
Marquette (U)	1161	2115	1868
Muskegon	946	1580	1483
S. Ste. Marie	1160	2180	2177
MINNESOTA			
Duluth	1378	2588	2236
Internat. Falls	1494	2778	2490
Minneapolis	1181	1976	1601
Rochester	1201	2064	1718
St. Cloud	1279	2251	1948
MISSISSIPPI			
Jackson	412	483	379
Meridian	401	482	428
Vicksburg (U)	388	464	319
MISSOURI			
Columbia	824	1187	984
Kansas City	776	1109	905
St. Joseph	860	1318	1000
St. Louis (U)	745	995	810
St. Louis	777	1065	878
Springfield	775	1107	933
MONTANA			
Billings	1023	1843	1595
Glasgow	1259	2358	1948
Great Falls	1055	2079	1765
Havre (U)	1136	2190	1915
Helena	1219	2332	2038
Kalispell	1283	2604	2085
Miles City	1158	2086	1695
Missoula	1151	2273	1987
NEBRASKA			
Grand Island	958	1607	1281
Lincoln (U)	908	1433	1137
Norfolk	1051	1763	1464
North Platte	1034	1833	1409
Omaha	948	1556	1207
Scottsbluff	998	1845	1460
Valentine	1146	2048	1518
NEVADA			
Elko	896	1791	1724
Ely	909	1893	1749
Las Vegas	340	390	405
Reno	757	1455	1440
Tonopah	642	1085	1246
Winnemucca	868	1663	1527
NEW HAMPSHIRE			
Concord	788	1474	1636
Mt. Washington Obs.	1079	3637	
NEW JERSEY			
Atlantic City (U)	551	805	766
Newark	578	850	951
Trenton (U)	598	900	922
NEW MEXICO			
Albuquerque	628	898	858
Clayton	753	1261	1064
Roswell	883	1088	665
NEW YORK			
Albany	789	1363	1386
NEW YORK (Cont'd.)			
Binghamton	859	1452	1623
Buffalo	784	1185	1354
New York (U)	595	879	863
New York	561	818	824
Rochester	806	1342	1375
Schenectady	762	1262	1404
Syracuse	786	1298	1256
NORTH CAROLINA			
Asheville (U)	591	816	864
Cape Hatteras (R)	251	292	307
Charlotte	422	577	592
Greensboro	534	782	741
Raleigh	473	685	603
Wilmington	325	402	361
Winston-Salem	510	728	702
NORTH DAKOTA			
Bismarck	1256	2295	1989
Devils Lake (U)	1407	2662	2235
Fargo	1329	2317	1989
Grand Forks	1413	2520	
Pembina	1430	2548	
Williston (U)	1249	2377	2038
OHIO			
Akron	824	1318	1216
Cincinnati (U)	655	926	831
Cincinnati	724	1055	1026
Cleveland	769	1195	1124
Columbus	758	1156	1107
Dayton	800	1213	1096
Sandusky (U)	795	1215	1077
Toledo	899	1467	1257
Youngstown	833	1370	1189
OKLAHOMA			
Oklahoma City	640	870	648
Tulsa	614	798	632
OREGON			
Astoria	546	1479	1270
Burns (U)	830	1736	1673
Eugene	612	1149	1183
Meacham	873	2187	1992
Medford	642	1071	1027
Pendleton	816	1340	1174
Portland (U)	554	936	926
Portland	659	1185	1067
Roseburg	622	1121	
Salem	615	1146	1071
Sexton Summit (R)	549	1623	1496
PENNSYLVANIA			
Allentown	698	1075	1154
Harrisburg	683	1022	1007
Philadelphia (U)	551	786	768
Philadelphia	589	858	889
Pittsburgh (U)	661	1001	966
Pittsburgh	776	1224	1211
Reading (U)	633	926	935
Scranton	810	1280	1215
Williamsport	766	1198	1193
RHODE ISLAND			
Block Island	585	951	1036
Providence	644	1105	1186
SOUTH CAROLINA			
Charleston (U)	235	263	248
Charleston	279	317	322
Columbia	350	449	420
Florence	314	411	441
Greenville	435	605	552
Spartanburg	433	597	557
SOUTH DAKOTA			
Huron	1203	2048	1622
Pierre	1158	1999	
Rapid City	1107	2006	1640
Sioux Falls	1194	2012	1648
TENNESSEE			
Bristol	597	821	873
Chattanooga	536	685	670
Knoxville	547	704	710
Memphis	547	658	575
Nashville	587	757	647
TEXAS			
Abilene	518	644	453
Amarillo	671	1028	871
Austin	393	431	244
Brownsville	169	172	59
Corpus Christi	253	258	113
Dallas	460	533	352
Del Rio (U)	366	386	
El Paso	439	472	460
Ft. Worth	470	538	357
Galveston (U)	253	263	131
Galveston	275	283	132
Houston (U)	293	303	162
Houston	309	316	188
Laredo	205	210	91
Lubbock	609	863	688
Midland	534	653	
Port Arthur	313	333	238
TEXAS (Cont'd.)			
San Angelo	499	590	352
San Antonio	374	401	226
Victoria	295	309	131
Waco	448	501	295
Wichita Falls	551	699	524
UTAH			
Milford	814	1446	1404
Salt Lake City	814	1408	1240
VERMONT			
Burlington	889	1612	1617
VIRGINIA			
Lynchburg	577	864	816
Norfolk	424	566	569
Richmond	530	783	741
Roanoke	602	868	826
WASHINGTON			
Olympia	681	1547	1460
Seattle (U)	541	1101	1097
Seattle-Tacoma	628	1387	1382
Spokane	997	2028	1637
Stampede Pass (R)	1018	2928	2628
Tatoosh Island (R)	551	1828	1832
Walla Walla (U)	770	1234	1076
Yakima	889	1616	1410
WEST VIRGINIA			
Charleston	634	918	886
Huntington (U)	604	856	794
Parkersburg (U)	676	995	928
WISCONSIN			
Green Bay	1173	2032	1733
La Crosse	1149	1887	1551
Madison	1129	1838	1544
Milwaukee	1059	1718	1445
WYOMING			
Casper	1026	2027	1796
Cheyenne	949	1963	1787
Lander	1120	2088	1956
Sheridan	1152	2123	1842
ALASKA			
Anchorage	1241	3315	3220
Annette	763	2201	2126
Barrow	2130	6399	6055
Barter Island	2203	6527	
Bethel	1304	3803	3767
Cold Bay	856	3041	
Cordova	947	3052	3000
Fairbanks	1746	4250	4077
Juneau	911	2910	2807
King Salmon	1044	3283	
Kotzebue	1676	4665	4500
McGrath	1674	4290	4137
Nome	1379	4220	4191
St. Paul	874	3374	3449
Yakutat	873	2871	2918

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

NOVEMBER 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ø ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS	DEATHS	INJURIES	†DAMAGE PROP-ERTY	†DAMAGE CROPS
Alaska	1	1			2					2		4																	
Arizona	1	1			4																								
Arkansas										0	0	3	0																
California										0	1	6	5																
Colorado										1	0	3	0																
Connecticut										0	0	4	0	0	0	3	0									0	0	4	0
Florida										0	0	5																	
Illinois																		0	0	D	D	0	0	D	0				
Iowa														0	0	4	0					0	0	4	0				
Kansas										0	0	D	D									0	0	D	D				
Maine										1	0	3	0													0	0	4	0
Massachusetts										0	0	4	0	0	0	3	0									0	0	4	0
Minnesota																		0	0	0	5								
Mississippi	2	2	0	0	4																								
Nebraska										0	0	4	6									0	0	2	0				
New Hampshire																										0	0	4	0
New York										0	0	4	0					9	6	4	0					0	0	4	0
Oklahoma	1	1	0	0	3					0	0	4	0	0	1	4	0									0	0	3	0
Oregon										1	4	5	4	0	0	2	2					0	0	2	1	0	0	1	4
Pennsylvania																										0	8	4	0
Puerto Rico										0	0	2	2																
Tennessee										0	0	4	0																
Texas	8	3	0	3	5	0	0	4	4	0	1	5	5	0	0	4	0												
Vermont										0	0	4	0									0	0	4	0	0	0	3	0
Washington										0	0	4	0									0	0	4	0	0	0	7	4

D Occurred; not estimated.
‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

NOVEMBER 1959

Record flooding occurred on the Green River and major flooding on the Stillaguamish, Snoqualmie, and Snohomish Rivers in western Washington during November. Damages were heavy and there was the loss of one life. The highest winter stages since December 1933 occurred in the Cowlitz and Yakima Rivers. Flooding reported elsewhere was mostly minor.

ATLANTIC SLOPE DRAINAGE

Streams in Maine continued a slow recession early in November and were at moderately low stages when heavy precipitation began late on the 24th. The precipitation continued through the 26th and ranged from 1.25 to 2.25 inches. Substantial rises occurred in all streams in the State. Only a few small streams overflowed with no damage reported. The Androscoggin River crested at 25,133 c.f.s. at 7 a.m. on the 26th at Gulf Island Dam. The Kennebec River crested at 30,070 c.f.s. at 1 a.m. on the 26th at Skowhegan. The Saco and Penobscot Rivers rose moderately, but remained well within their banks. Additional rains on the 28th ranged from 1 to 2 inches over the headwater streams in Maine and western Massachusetts to nearly 3 inches in Vermont and New Hampshire. The rain changed to snow during the night of the 28th and ended the immediate flood threat in Maine. The Androscoggin crested at 24,870 c.f.s. at Gulf Island on the 30th and the Kennebec crested at 26,700 c.f.s. at Skowhegan on the 29th. Most of the rainfall occurred during a 6-hour period and caused flash flooding of brooks and small streams, tributaries of the Connecticut River in Vermont, New Hampshire, and western Massachusetts. Minor flooding occurred along the main stem of the Connecticut from White River Junction, Vt., to Hartford, Conn. Local flooding occurred along the Ammonoosuc River in New Hampshire and was not as heavy as during the rise of October 24. The only damage reported was in the White Mountains of New Hampshire where a small bridge in Crawford Notch was washed away by turbulent waters, forcing highway traffic on Route 302 to be detoured.

Heavy rains over the northern and central sections of the Hudson River basin during the night of the 27-28th and most of the 28th caused minor flooding to small streams and the middle reaches of the Mohawk from Little Falls to Amsterdam, N. Y. Rainfall over the northern two-thirds of the basin ranged between 2 and 4 inches at most stations, with a few mountain areas reporting in excess of 4 inches.

Minor flooding occurred on the Susquehanna and the Tioughnioga Rivers in New York between the 28th and 30th from the heavy rains on the 27th and 28th. The rainfall during the period averaged 2.3 inches over the Susquehanna and 1.5 inches over the Chemung. No damage was reported.

The minor flooding that occurred on the Cape Fear and Neuse Rivers towards the end of the month was due to rainfall averaging about 2 inches on the 24th. No damage occurred.

The Black River flooded slightly at Kingstree, S. C., from the 2d through the 5th and then receded slowly the remainder of the month. The North Fork of the Edisto at Orangeburg, S. C., crested on the 1st about 1.5 feet above flood stage, remained above flood until the 8th, and close to flood stage the remainder of the month. The main stem of the Edisto was in flood at Givhans, S. C., from October 1 through November 18. This was the most prolonged flood in this area since 1948 and the highest crest since September 1949. Considerable inconvenience resulted along the main stem of the Edisto from Branchville, S. C., at the Junction of the north and south forks to tidewater below Jacksonboro on Highway U. S. 17. A few people had to evacuate their homes and many camp sites were flooded.

Moderate to high stages prevailed in the Savannah and Ogeechee drainage areas in Georgia from the latter part of October through most of November. No damage is known to have occurred.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The Mississippi River mean November stages at Fort Ripley, Minneapolis, and St. Paul, Minn., and at La Crosse, Wis., was near the longterm mean. The Minnesota River at Mankato, Minn., equalled its November longterm mean. The Wisconsin River at Portage, Wis., continued to have a heavy flow with an average stage of 12.6 feet, 2.4 feet above the longterm mean. Snow cover at the end of the month ranged from 2 to 3 inches over the Minnesota River Valley to 4 to 5 inches over the upper end of the Mississippi and 2 to 4 inches in northern Wisconsin. Ice thickness on the Mississippi River ranged from 6 inches at Fort Ripley to 4 inches in the pools above the navigation dams. The Mississippi River navigational season closed at Minneapolis-St. Paul, Minn., on the 29th and at Guttenberg, Iowa, on the 30th.

Minor flooding occurred on the Turkey River at Garber, Iowa, on the 5th. No damage was reported.

Missouri Basin.--The record-breaking cold wave of November 10 to 16 in the Yellowstone River basin in Montana where the temperatures dropped to 15° to 35° below zero on 4 days produced icejams at various places between the 14th and 20th. The only icejam that produced any property loss was the one on the Clark Fork River at Bridger, Mont. The flooded area extended about 1 mile above Bridger to about 1-1/2 miles downstream and covered an area of approximately 700 acres to a depth of from 1 to 5 feet. Damages were light.

The flooding on the Jefferson River, 1 mile north of Three Forks, Mont., on the 15th was due to an icejam. Thirty-five head of cattle were drowned.

An icejam on the Gallatin River, about 1 mile northwest of Logan, Mont., from the 15th to the 18th flooded about 400 acres of hayland. The water came within 10 inches of the top of U. S. Highway No. 10.

Eighty head of cattle were marooned on an island near Willow Creek, Mont., on the Jefferson River, when an icejam formed on the 18th. It was necessary to feed the cattle by airplane and by boat. The cattle were moved to safety when the icejam broke on the 24th. There were no losses.

An icejam on the Jefferson River, 1 mile southwest of the bridge near the "Y" of U. S. Highway 10 flooded 300 acres of land on the 26th, damaging about 40 tons of hay. The icejam broke on the 1st.

Lowlands around Townsend, Mont., were flooded when icejams formed at the head of the reservoir formed by the Canyon Ferry Dam on the Missouri River between the 13th and 16th. One hundred and forty head of cattle were marooned and had to be fed hay dropped from a helicopter until ice froze hard enough to drive them to safety. Damages were light as the high stage at Townsend was due to the

backing up of water from the icejam rather than from the natural flow in the river. The gage reading at Townsend on the 25th was 12.2 feet (flood stage 11 feet), and remained at this stage for about a week.

Ohio Basin.--The minor flooding on the Cumberland River at Barbourville, Ky., on the 28th and 29th was due to rainfall averaging from 2 to 2.5 inches on the 27th and 28th. Runoff was high as this storm was preceded by a 2.5-inch rainfall on the 23d and 24th. There was no damage as the City of Barbourville is protected by a local flood protection project.

White Basin.--The flooding on the Little Red River at Heber Springs, Ark., on the 4th and 5th was due to rainfall averaging 3.5 inches over the headwaters on the 3d and 4th. The river rose rapidly from a stage of 4.1 feet at 7 a.m. on the 4th to a crest of 30.8 feet at 4 p.m. on the same date. Damage was negligible.

Arkansas Basin.--Flash flooding occurred on Squaw Creek at Lawton, Okla., on the 3d, due to rainfall exceeding 2 inches in 1 hour. About 15 persons were evacuated from homes and stalled cars, but no injuries resulted. The flooding on Deep Fork at Dewar, Okla., was due to over 2 inches of rainfall on the same date. Smaller creeks in the same general area overflowed their banks.

Red Basin.--Slight flooding occurred on the Sulphur River at Hagansport, Tex., from the 4th to the 8th and at Naples, Tex., from the 11th to the 13th. This overflow was due to heavy rainfall on the 4th which ranged from about 1.25 inches in the headwaters to about 4 inches between Hagansport and Naples. No damage resulted.

WEST GULF OF MEXICO DRAINAGE

Minor flooding occurred on the Sabine River at Mineola, Tex., on the 14th from rainfall ranging from 0.64 inch at Mineola to 2.05 inches near the headwaters at Greenville, Tex. No damages were reported.

PACIFIC SLOPE DRAINAGE

Columbia Basin.--The flooding on the Yakima and Cowlitz Rivers in Washington was due to rainfall and snowmelt during the period from the 18th to the 23d. Mild weather during this period, together with the exceptionally heavy high elevation rainfall caused a rapid melting of the snow accumulation. There was high water in other rivers heading in the Washington Cascades, but there was no flooding. These were the highest winter stages in the Cowlitz and Yakima Rivers since December 1933. The heaviest damage occurred on a small island near the confluence of the Naches and Yakima Rivers where a contractor had stockpiled a considerable quantity of timber. This was nearly all washed away. There was also some damage to installations in the river for the construction of a new bridge. There was some damage to low pasturelands along both rivers. Several homes were evacuated due to high water.

A flash flood occurred in Shoshone County, Idaho, on the 28th. Minor damage resulted to 13 homes.

PUGET SOUND DRAINAGE

Recurrent moderate to heavy rains during the period from the 16th through the 23d caused record flooding on the Green River at Auburn, Wash., and major flooding on the Stillaguamish, Snoqualmie, and Snohomish Rivers in Washington. The crest of 59.0 feet at Carnation, Wash., on the Snoqualmie River was the 3d highest of record. The 31-foot crest on the Snohomish River at Snohomish exceeded the February 1951 flood by 0.9 foot. Both the Weather Bureau's staff gage and the Geological Survey recorder gage were destroyed at Snohomish just before noon on the 23d at a stage of 30.3 feet on the staff gage. The Stillaguamish at Arlington, Wash., crested at 19.1 feet on the 20th, equalling the previous record set on February 10, 1951. Only minor flooding occurred on the Skagit, Chehalis, Skookumchuck, Satsop, and Wynooche Rivers. The heaviest rainfall occurred on the 20th and 22d. A few stations in the Washington Cascades had over 12 inches of precipitation in 3 days. Stampede Pass, Wash., reported 6.75 inches during 24 hours. Important contributing factors to this flood were unseasonably high temperature, and melting snow. Only 9.5 inches of snow remained on the ground at Stampede Pass (4,000 feet) at 4 a.m. on the 22d, but the water equivalent was over 3 inches. At Stevens Pass (4,300) the snow depth decreased from 28 to 9 inches. At Paradise Ranger Station (5,500) the snow depth decreased from 42 to 16 inches. The ground was frozen due to a cold spell immediately preceding the wet period. Another contributing factor to the rapid runoff as well as to the damaging logjams is the denuded nature of many of the slopes of the Cascades. Heavy damages resulted from the flooding.

FLOOD STAGE DATA

(All dates in November unless otherwise specified)

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
	Ft.			Ft.	
ATLANTIC SLOPE DRAINAGE					
Connecticut: White River Junction, Vt.	18	28	30	E21.0	28
Montague City, Mass.	28	29	30	29.8	29
Hartford, Conn.	16	29	Dec. 3	19.1	30-Dec. 1
Schoharie: Middleburg, N. Y.	12	28	29	13.7	28
Mohawk: St. Johnsville, N. Y.	21	28	29	23.9	29
Tioughnioga: Whitney Point, N.Y.	12	28	29	E12.4	28
Susquehanna: Unadilla, N. Y.	11	29	29	11.8	29
Bainbridge, N. Y.	13	28	30	E16.2	29
Conklin, N. Y.	11	28	30	13.7	29
Vestal, N. Y.	18	28	29	19.1	29
Neuse: Neuse, N. C.	14	26	28	15.4	27
Smithfield, N. C.	13	27	29	14.8	29
Cape Fear: Elizabethtown, N. C.	20	27	27	20.0	27
Black: Kingstree, S. C.	12	2	5	12.2	3
North Fork: Orangeburg, S. C.	8	Oct. 13 27	8 27	9.5 8.0	1 27
Edisto: Givhans, S. C.	10	Oct. 1	18	14.2	2-5
Savannah: Millhaven, Ga.	15	Oct. 27	11	15.5	3-6
Clyo, Ga.	11	Oct. 19	27	14.6	5-6
Ogeechee: Dover, Ga.	7	Oct. 21	9	8.1	4
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Turkey: Garber, Iowa	11	5	5	11.3	5
Ohio Basin					
Cumberland: Barbourville, Ky.	26	28	29	27.1	29
White Basin					
Little Red: Heber Springs, Ark.	24	4	5	30.8	4
Arkansas Basin					
Deep Fork: Dewar, Okla.	18	4	9	20.4	5
Red Basin					
Sulphur: Hagansport, Tex.	38	4	8	41.7	5
Naples, Tex.	22	11	13	22.8	12
WEST GULF OF MEXICO DRAINAGE					
Sabine: Mineola, Tex.	14	14	14	14.2	14
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
Yakima: Parker, Wash.	10	24	25	12.55	24
Cowlitz: Randle, Wash.	15	23	25	E23.0	23

* Tentative
E Estimated

RAWINSONDE DATA

Average monthly values

NOVEMBER 1959

ALBANY, N. Y. (1007 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	86	1.8	83	214	3.9
1,000	30	143			215	4.3
950	30	558	1.8	72	225	8.5
900	30	993	.7	71	244	13.4
850	30	1,452	-.6	68	246	18.3
800	30	1,936	-2.1	66	247	25.1
750	30	2,446	-3.6	60	248	28.4
700	30	2,991	-5.9	59	245	32.8
650	30	3,562	-9.0	56	246	37.3
600	30	4,186	-11.3	52	247	45.1
550	30	4,841	-15.0	49	246	51.7
500	30	5,563	-19.2	50	245	56.3
450	30	6,329	-24.0	46	247	60.6
400	30	7,189	-30.1	45	246	66.5
350	30	8,127	-36.1		246	75.8
300	30	9,182	-43.2		246	82.2
250	30	10,388	-50.7		249	82.0
200	29	11,821	-55.8		247	78.3
175	29	12,669	-57.3		246	73.6
150	29	13,643	-58.5		250	68.2
125	29	14,788	-59.3		250	59.1
100	29	16,184	-60.2		249	55.2
80	29	17,578	-59.0		250	54.4
60	28	19,386	-56.5		246	52.1
50	28	20,543	-56.4		248	49.2
40	28	21,968	-54.6		247	38.5
30	27	23,816	-52.7		241	38.7
25	27	24,997	-51.5		240	37.7
20	27	26,453	-49.9		239	41.6
15	27	28,344	-48.3		234	42.6
10	19	31,012	-46.8			
7	7	33,328	-46.8			

ALBUQUERQUE, N. MEX. (841 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,619	1.6	59	354	2.3
1,000	30	201				
950	30	620				
900	30	1,069				
850	30	1,535				
800	30	2,028	3.5	43	317	6.2
750	30	2,548	2.4	34	311	12.4
700	30	3,106	.0	28	308	14.8
650	30	3,694	-2.7		301	16.3
600	30	4,328	-6.2		299	20.8
550	30	4,996	-10.5		293	20.2
500	30	5,731	-15.6		296	20.4
450	30	6,514	-21.3		294	17.5
400	30	7,378	-27.5		301	20.0
350	30	8,325	-34.5		291	21.8
300	30	9,384	-42.5		287	22.7
250	30	10,594	-50.1		274	28.8
200	30	12,030	-56.6		287	41.6
175	30	12,871	-59.4		292	48.8
150	26	13,837	-61.4			
125	22	14,949	-64.4			
100	15	16,292	-66.9			
80	11	17,635	-65.5			
60	6	19,384	-63.5			
50	5	20,503	-61.9			
40	5	21,891	-59.7			

AMARILLO, TEX. (895 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,095	0.0	66	291	4.5
1,000	30	184				
950	30	602				
900	30	1,048				
850	30	1,509	5.0	42	316	12.2
800	30	2,005	4.9	38	313	11.7
750	30	2,530	3.7	33	296	10.5
700	30	3,089	1.0	30	286	14.2
650	30	3,677	-2.4		285	15.9
600	30	4,313	-6.4		284	20.2
550	30	4,977	-10.8		288	24.9
500	30	5,714	-15.6		289	26.6
450	30	6,495	-21.2		289	29.5
400	30	7,359	-27.8		286	32.8
350	30	8,306	-34.5		283	38.3
300	30	9,367	-42.1		277	45.1
250	29	10,579	-50.3		280	49.0
200	29	12,013	-56.3		279	57.3
175	29	12,856	-59.0		277	56.0
150	29	13,816	-61.9		280	54.2
125	28	14,940	-64.5		282	48.0
100	24	16,285	-66.5		282	42.4
80	19	17,637	-66.7		284	32.1
60	16	19,388	-64.3		278	26.4
50	15	20,510	-62.1		278	24.9
40	15	21,896	-60.3		271	23.3
30	11	23,724	-56.7		265	28.0
25	11	24,884	-55.0		266	31.9
20	8	26,316	-52.0			
15	6	28,191	-47.8			

ANCHORAGE, ALASKA (1003 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	30	-4.3	81	47	2.3
1,000	30	51			24	6.0
950	30	455	-1.7	71	57	3.9
900	30	887	-2.5	66	126	6.8
850	30	1,340	-4.8	66	138	8.4
800	30	1,815	-7.3	65	159	10.7
750	30	2,313	-10.1	61	161	11.3
700	30	2,845	-12.9	59	159	12.4
650	30	3,401	-16.2	57	180	13.0
600	30	4,005	-19.8	55	185	13.2
550	30	4,639	-23.9	54	202	12.4
500	30	5,335	-28.8	52	205	13.0
450	30	6,074	-34.0	48	214	15.5
400	30	6,897	-39.9		215	21.0
350	30	7,797	-46.1		225	23.1
300	30	8,809	-51.4		234	29.9
250	29	9,993	-54.6		233	30.1
200	29	11,422	-54.5		234	29.1
175	28	12,268	-53.6		234	30.5
150	26	13,251	-52.3		237	31.9
125	24	14,411	-51.2		237	28.2
100	23	15,859	-51.8		235	29.1
80	20	17,308	-50.9		243	27.0
60	16	19,190	-51.0		248	27.4
50	15	20,366	-52.1		254	30.3
40	12	21,811	-52.6		270	32.3
30	10	23,703	-52.8			
25	7	24,893	-53.4			
20	5	26,320	-53.7			

ANNETTE, ALASKA (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	37	3.9	79	127	6.4
1,000	30	150			66	4.3
950	30	562	1.5	72	105	2.1
900	30	998	-1.2	71	213	1.9
850	30	1,452	-3.3	69	254	5.6
800	30	1,930	-5.4	60	269	8.9
750	30	2,428	-8.0	54	277	12.0
700	30	2,967	-10.2	54	293	16.5
650	30	3,527	-13.2	50	293	25.8
600	30	4,141	-16.7	47	287	30.7
550	30	4,781	-20.7	48	273	34.0
500	29	5,491	-25.0	46	273	34.8
450	29	6,237	-30.1	45		
400	29	7,080	-35.6	47		
350	29	7,998	-41.5			
300	29	9,029	-48.1			
250	28	10,220	-54.5			
200	25	11,618	-56.8			
175	23	12,455	-56.1			
150	23	13,435	-56.5			
125	22	14,590	-56.6			
100	20	16,005	-56.2			
80	18	17,419	-55.9			
60	16	19,268	-55.7			
50	14	20,434	-55.5			
40	9	21,860	-56.9			
30	7	23,679	-57.9			
25	5	24,795	-58.0			

ATHENS, GA. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	246	6.3	83	342	2.1
1,000	29	173				
950	29	600	9.2	61	246	2.9
900	29	1,046	8.3	54	261	5.4
850	29	1,518	7.0	46	262	11.3
800	29	2,015	5.5	42	269	13.4
750	29	2,539	3.9	36	265	16.9
700	29	3,100	1.5		264	21.8
650	29	3,691	-1.3		261	23.9
600	29	4,328	-5.2		259	32.3
550	29	4,998	-9.5		265	35.0
500	29	5,737	-14.1		263	33.6
450	29	6,523	-19.5		262	38.5
400	29	7,395	-25.4		262	42.4
350	28	8,352	-32.0		260	48.2
300	28	9,424	-39.8		264	49.9
250	28	10,649	-48.0		270	55.2
200	27	12,091	-56.7		270	60.6
175	26	12,927	-60.5		269	58.9
150	25	13,878	-63.1		268	53.4
125	21	14,991	-66.5		271	48.0
100	19	16,342	-68.7		266	34.8
80	19	17,683	-66.7		268	27.8
60	19	19,442	-62.0		267	21.8
50	18	20,577	-59.6		265	22.2
40	18	21,983	-56.9		262	15.3
30	17	23,813	-53.9		267	19.2
25	15	24,999	-51.4		262	19.2
20	14	26,448	-49.0		261	20.2
15	12	28,356	-46.1		257	19.8
10	11	31,055	-42.0			
7	6	33,484	-40.6			

BARROW, ALASKA (1021 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	8	-20.6	75	83	8.0
1,000	30	164	-18.9	67	84	14.0
950	30	549	-16.5	63	80	16.5
900	30	956	-15.9	62	76	16.3
850	30	1,387	-15.7	56	76	15.2
800	30	1,844	-16.3	52	73	14.2
750	30	2,327	-17.5	49	75	11.1
700	30	2,844	-19.5	46	75	10.1
650	30	3,390	-22.4	43	76	7.8
600	30	3,977	-25.9	41	72	6.4
550	30	4,608	-29.6	39	71	5.1
500	30	5,277	-33.8		62	2.9
450	30	6,004	-38.7		32	2.1
400	30	6,809	-44.5		4	2.5
350	30	7,692	-50.3		260	1.7
300	30	8,685	-55.7		267	5.2
250	30	9,839	-57.4		268	10.5
200	30	11,255	-55.5		261	10.5
175	30	12,108	-55.0		270	11.3
150	30	13,083	-54.8		279	11.1
125	26	14,239	-54.9		266	13.6
100	25	15,664	-56.0		269	16.7
80	22	17,098	-56.7		264	18.8
60	14	18,906	-56.5		254	32.1
50	10	20,091	-56.8		270	33.8
40	6	21,512	-56.8			

BARTER IS., ALASKA (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	-22.4	77	95	3.5
1,000	30	152	-19.2	72	79	7.2
950	30	535	-17.9	69	98	8.7
900	30	941	-14.0	62	104	9.9
850	30	1,376	-13.0	56	104	10.7
800	30	1,838	-13.8	51	118	6.0
750	30	2,320	-15.7	48	76	3.5
700	30	2,845	-18.3	45	38	1.6
650	30	3,387	-21.5	42	346	2.7
600	30	3,981	-25.1	38	315	4.5
550	30	4,600	-29.1	36	299	5.8
500	30	5,284	-33.7		292	8.0
450	30	6,006	-38.8		288	9.3
400	30	6,814	-44.5		288	11.7
350	30	7,697	-50.3		274	11.1
300	28	8,680	-55.6		280	11.7
250	28	9,836	-57.1		283	16.9
200	28	11,257	-54.4		279	16.7
175	28	12,114	-53.9		281	17.5
150	28	13,103	-54.2		279	17.1
125	27	14,265	-54.4		279	19.0
100	25	15,688	-55.1		281	21.8
80	18	17,131	-55.5		277	25.3
60	14	18,974	-56.6		272	33.2
50	9	20,162	-57.3			

BETHEL, ALASKA (996 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	4	-6.1	83	59	8.0
1,000	30	10				
950	30	417	-3.7	71	88	11.1
900	30	840	-4.7	68	120	8.7
850	30	1,289	-6.3	67	121	4.7
800	30	1,762	-8.6	63	138	7.2
750	30	2,262	-11.0	56	152	8.2
700	30	2,788	-14.1	55	144	10.5
650	30	3,345	-17.3	53	147	13.6
600	30	3,944	-21.0	51	145	14.2
550	30	4,581	-24.8	49	156	12.0
500	30	5,270	-29.6	50	153	13.8
450	30	6,011	-35.1	50	153	15.5
400	30	6,826	-41.3		159	11.9
350	30	7,721	-47.6		169	13.0
300	30	8,726	-53.5		168	20.8
250	30	9,894	-55.0		174	21.4
200	30	11,323	-53.5		169	15.9
175	30	12,186	-52.2		194	22.7
150	30	13,185	-51.6		216	19.8
125	30	14,370	-51.3		232	20.8
100	30	15,820	-51.2		235	23.1
80	30	17,271	-51.2		235	26.4
60	30	19,137	-52.1		238	28.8
50	30	20,317	-52.7			
40	29	21,750	-54.0			
30	28	23,598	-54.7			
25	24	24,773	-55.2			
20	18	26,194	-55.9			
15	10	28,083	-56.5			

BISMARCK, N. DAK. (957 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	505	-6.2	81	305	3.9
1,000	30	160				
950	30	566			301	3.9
900	30	988	-5.4	68	307	11.3
850	30	1,436	-6.3	63	311	15.9
800	30	1,909	-8.0	63	306	18.8
750	30	2,406	-10.2	63	306	22.0
700	30	2,938	-12.2	63	305	26.4
650	30	3,497	-15.1	61	301	27.0
600	30	4,103	-18.2	61	301	29.1
550	30	4,745	-21.7	56	299	31.1
500	30	5,445	-25.9	51	287	30.3
450	30	6,194	-30.6	49	289	31.7
400	30	7,029	-36.3	49	290	32.8
350	30	7,943	-42.6		282	29.5
300	30	8,970	-48.4			
250	30	10,158	-52.0			
200	29	11,590	-55.4			
175	29	12,443	-55.0			
150	29	13,425	-56.2			
125	27	14,567	-56.9			
100	24	15,986	-57.9			
80	19	17,384	-57.8			
60	16	19,227	-58.2			
50	15	20,373	-58.5			
40	13	21,776	-59.0			
30	10	23,611	-57.6			
25	9	24,770	-56.2			
20	7	26,192	-54.5			

BOISE, IDAHO (924 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	868	-1.0	74	145	3.1
1,000	30	227				
950	30	640				
900	30	1,079	3.6	53	264	1.0
850	30	1,544	3.7	42	291	5.8
800	30	2,035	2.0	41	295	12.6
750	30	2,554	-.2	40	299	17.9
700	30	3,104	-2.7	38	303	23.3
650	30	3,686	-5.3	37	304	25.1
600	30	4,315	-8.6	33	302	26.8
550	30	4,978	-12.7	30	304	27.8
500	30	5,707	-17.5	33	304	31.1
450	30	6,482	-22.5	31	307	27.6
400	30	7,346	-28.4	32	305	24.5
350	30	8,289	-35.7			
300	30	9,343	-43.7			
250	30	10,545	-52.5			
200	30	11,963	-59.7			
175	30	12,795	-60.9			
150	29	13,745	-61.4			
125	29	14,874	-62.7			
100	28	16,246	-64.5			
80	28	17,611	-63.8			
60	27	19,381	-62.2			
50	27	20,508	-62.0			
40	27	21,891	-61.1			
30	23	23,701	-60.3			
25	19	24,836	-59.4			
20	16	26,239	-58.5			
15	5	28,113	-54.5			

BROWNSVILLE, TEX. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	7	13.1	90	345	3.3
1,000	30	170	15.9	76	141	2.5
950	30	601	14.5	70	152	7.4
900	30	1,060	12.6	67	173	6.2
850	30	1,540	11.9	56	193	7.0
800	30	2,046	10.7	45	216	5.2
750	30	2,578	8.9	40	238	6.4
700	30	3,152	6.0	42	264	9.7
650	30	3,751	2.3	39	263	11.7
600	30	4,397	-1.3	36	262	13.6
550	30	5,078	-5.5		254	16.5
500	30	5,829	-10.4		256	20.4
450	30	6,623	-15.9	36	258	22.7
400	30	7,508	-22.2		265	29.9
350	30	8,479	-28.5		265	34.6
300	30	9,566	-36.7		267	35.9
250	30	10,804	-46.1		277	34.2
200	30	12,253	-56.6			
175	27	13,092	-62.1			
150	27	14,033	-67.1			
125	23	15,126	-72.1			
100	13	16,432	-72.8			
80	11	17,737	-71.7			
60	11	19,465	-64.1			
50	11	20,592	-60.8			
40	10	21,995	-56.8			
30	9	23,825	-52.7			
25	9	25,010	-50.0			
20	7	26,477	-45.6			
15	6	28,426	-41.9			

BUFFALO, N. Y. (994 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	182	2.2	72	240	7.2
1,000	30	133				
950	30	543	.7	71	243	13.8
900	30	978	-1.8	72	250	19.8
850	30	1,432	-3.5	73	254	23.1
800	30	1,910	-4.8	61	256	27.2
750	30	2,420	-6.2	53	255	28.0
700	30	2,954	-8.8	53	261	32.1
650	30	3,524	-11.4	50	256	37.7
600	30	4,137	-14.4	48	257	41.8
550	30	4,789	-18.1	45	258	45.3
500	30	5,499	-22.5	43	256	50.7
450	30	6,261	-27.4	42	252	56.2
400	30	7,104	-32.8	41	253	61.0
350	30	8,033	-38.4		257	70.1
300	30	9,079	-44.8		263	68.4
250	30	10,281	-51.1		264	72.3
200	30	11,717	-55.6		263	68.8
175	28	12,565	-56.0		262	68.8
150	28	13,544	-57.1		261	64.3
125	28	14,697	-57.3		257	53.0
100	26	16,109	-58.6		255	46.6
80	26	17,511	-58.5		258	38.9
60	25	19,330	-56.9		252	29.3
50	25	20,487	-56.1		256	28.2
40	25	21,909	-55.2		254	27.0
30	23	23,750	-53.3		250	26.6
25	23	24,928	-52.1		249	22.5
20	23	26,373	-50.6		245	28.8
15	23	28,259	-48.3		245	33.8
10	19	30,968	-44.0		243	44.7
7	11	33,361	-42.6			

BURRWOOD, LA. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	3	15.4	86	35	7.4
1,000	30	166	15.7	78	40	7.2
950	30	602	13.9	73	67	5.6
900	30	1,058	13.1	60	66	.6
850	30	1,538	11.4	53	285	4.7
800	30	2,044	9.9	43	280	7.6
750	30	2,578	7.8	44	281	11.3
700	30	3,146	5.1	41	277	12.6
650	30	3,745	1.7	41	272	15.9
600	30	4,389	-1.8	36	259	18.3
550	30	5,070	-6.3	33	260	18.5
500	30	5,816	-11.1	33	253	22.5
450	30	6,612	-16.5		253	23.9
400	30	7,494	-22.9	35	266	28.8
350	30	8,459	-30.0		266	32.8
300	29	9,542	-38.3		276	36.5
250	29	10,772	-47.3		276	41.8
200	29	12,219	-56.6		281	44.9
175	28	13,057	-61.3		276	44.1
150	25	14,006	-65.5		278	44.3
125	23	15,111	-69.7		279	35.8
100	16	16,430	-72.7		276	31.3
80	14	17,749	-70.5		277	26.4
60	11	19,475	-62.5			
50	11	20,605	-59.8			
40	11	22,011	-56.3			
30	10	23,850	-52.8			
25	10	25,031	-50.3			
20	8	26,491	-46.6			
15	8	28.419	-42.2			

CAPE HATTERAS, N. C. (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	4	13.2	83	357	4.9
1,000	30	155	13.4	74	10	5.6
950	30	582	11.4	72	347	3.7
900	30	1,037	9.4	66	251	4.7
850	30	1,510	8.1	52	251	10.3
800	30	2,009	6.3	50	245	14.2
750	30	2,530	4.3	48	250	17.5
700	30	3,096	2.2	41	251	22.3
650	30	3,684	-.1		249	25.8
600	30	4,329	-3.8		250	29.0
550	30	5,002	-8.2		250	31.5
500	30	5,744	-12.9		249	34.8
450	30	6,530	-18.4		249	39.4
400	30	7,409	-24.4		249	45.9
350	30	8,369	-31.3		248	52.3
300	30	9,444	-39.1		249	57.7
250	30	10,671	-48.0		255	60.2
200	30	12,114	-56.5		254	62.4
175	29	12,950	-60.6		256	57.9
150	28	13,904	-62.5		258	57.5
125	27	15,025	-65.5		258	49.7
100	25	16,369	-67.1		257	43.3
80	25	17,719	-65.5		253	31.9
60	25	19,491	-60.4		250	22.0
50	25	20,636	-58.1		246	21.0
40	25	22,050	-55.8		248	16.3
30	24	23,894	-52.3		245	14.8
25	24	25,079	-50.1		225	15.2
20	23	26,549	-47.2		230	19.6
15	23	28,462	-44.9		235	25.1
10	17	31,190	-41.0		223	27.4
7	9	33,591	-40.4			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

CARIBOU, ME. (993 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	191	-2.6	89	271	2.7
1,000	30	137			17	2.7
950	30	541	-3.0	80	237	5.4
900	30	971	-4.2	76	250	11.1
850	30	1,420	-5.1	73	259	15.0
800	30	1,896	-5.9	60	257	20.0
750	30	2,400	-7.3	55	254	26.2
700	30	2,937	-9.5	61	251	30.5
650	30	3,506	-12.2	60	247	35.9
600	30	4,118	-15.0	53	246	40.2
550	30	4,769	-18.3	44	246	44.7
500	30	5,479	-22.5		246	49.7
450	30	6,244	-27.4	42	245	55.4
400	30	7,086	-32.8	46	246	64.3
350	30	8,014	-38.7		248	68.4
300	30	9,059	-45.2		249	76.7
250	30	10,260	-51.3		248	74.4
200	30	11,694	-55.7		246	78.5
175	30	12,543	-56.3		250	73.1
150	30	13,523	-56.1		249	59.5
125	29	14,674	-57.5		246	55.8
100	29	16,086	-57.9		244	51.9
80	29	17,499	-56.8		249	44.1
60	29	19,330	-55.6		244	36.3
50	29	20,495	-55.1		242	38.7
40	28	21,922	-54.0		241	34.2
30	28	23,778	-52.3		238	36.1
25	28	24,961	-51.1		237	38.5
20	27	26,418	-49.8		240	44.9
15	27	28,307	-48.6		237	49.9
10	26	30,985	-47.2		245	66.6
7	17	33,429	-44.3		248	78.7
5	7	35,771	-41.5			

CHARLESTON, S. C. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	13	10.4	86	326	2.9
1,000	29	169	12.6	74	12	4.1
950	29	603	12.0	68	4	2.3
900	29	1,053	11.0	62	260	4.7
850	29	1,528	9.2	56	253	8.7
800	29	2,030	7.7	44	251	10.5
750	29	2,560	5.8	38	249	13.0
700	29	3,122	3.1		257	18.1
650	29	3,721	.2		255	21.2
600	29	4,358	-3.4		255	26.4
550	29	5,034	-7.8		256	29.3
500	29	5,776	-12.5		254	34.0
450	29	6,567	-17.6		253	36.5
400	29	7,446	-23.7		255	40.8
350	28	8,405	-30.8		253	45.7
300	28	9,481	-38.9		260	46.8
250	28	10,709	-47.4		265	50.3
200	27	12,154	-56.6		266	55.6
175	27	12,993	-60.5		264	54.2
150	27	13,945	-64.1		263	51.3
125	27	15,053	-66.9		261	44.1
100	27	16,396	-68.8		258	36.3
80	27	17,739	-66.5		[illegible]	29.5
60	27	19,503	-61.5		248	16.5
50	27	20,644	-58.0		242	15.0
40	27	22,058	-55.6		243	12.8
30	27	23,910	-51.5		243	12.2
25	27	25,098	-49.5		235	12.6
20	26	26,567	-47.1		249	18.7
15	26	28,484	-44.6		243	19.6
10	16	31,217	-39.8		233	22.3
7	10	33,687	-36.5			
5	7	36,055	-33.3			

COLD BAY, ALASKA (992 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	27	2.6	83	138	5.6
1,000	30	-41				
950	30	371	.9	78	279	1.6
900	30	804	-2.0	78	262	3.3
850	30	1,258	-4.5	71	248	3.5
800	30	1,733	-6.9	63	255	3.9
750	30	2,234	-9.8	59	[illegible]	5.1
700	30	2,765	-13.0	57	216	5.6
650	30	3,321	-16.7	54	205	7.4
600	30	3,924	-20.6	52	201	9.3
550	30	4,561	-25.1	47	208	8.7
500	30	5,249	-30.1	45	200	8.5
450	30	5,988	-35.2		190	11.5
400	30	6,805	-40.9		197	17.1
350	30	7,702	-46.6		197	18.8
300	29	8,705	-51.2		200	22.5
250	29	9,888	-51.7		207	21.2
200	28	11,341	-50.7		207	20.8
175	27	12,209	-50.3		219	24.5
150	25	13,206	-49.6		217	22.7
125	24	14,401	-49.4		219	19.8
100	21	15,842	-49.1		227	17.9
80	20	17,312	-49.4		230	20.6
60	18	19,203	-50.3		236	22.0
50	16	20,388	-50.3		242	21.2
40	14	21,826	-49.7			
30	12	23,712	-50.5			
25	8	24,941	-50.6			

COLUMBIA, MO. (992 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	238	-0.1	75	[illegible]	2.5
1,000	30	168				
950	30	580	.5	61	268	9.5
900	30	1,014	.9	53	277	15.7
850	30	1,474	.8	47	278	17.9
800	30	1,961	-.3	42	277	20.8
750	30	2,471	-2.3	44	277	23.7
700	30	3,020	-5.1	47	274	27.2
650	30	3,596	-7.4	43	275	30.7
600	30	4,220	-10.7	42	276	36.9
550	30	4,878	-14.7	41	277	38.7
500	30	5,599	-19.4	38	276	[illegible]
450	30	6,369	-24.8		273	45.9
400	30	7,223	-30.5		272	49.2
350	30	8,160	-36.6		272	55.0
300	30	9,212	-43.8		270	59.8
250	30	10,419	-50.5		269	65.7
200	30	11,857	-55.3		270	67.6
175	29	12,706	-56.9		269	68.4
150	26	13,682	-57.8		271	64.1
125	26	14,826	-60.1		270	56.3
100	18	16,195	-61.6		272	46.4
80	[illegible]	17,581	-60.4		275	32.1
60	11	19,379	-59.7			
50	9	20,528	-59.4			
40	5	21,920	-58.0			
30	5	23,741	-56.1			

DAYTON, OHIO (983 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	297	0.4	72	270	3.9
1,000	30	160				
950	30	573	.7	69	260	8.9
900	30	1,008	.2	62	262	17.7
850	30	1,466	.1	54	263	21.4
800	30	1,952	-1.5	53	260	24.7
750	30	2,464	-3.5	41	261	29.1
700	30	3,008	-5.6	52	259	33.0
650	30	3,585	-8.2	48	260	37.5
600	30	4,205	-11.6	44	259	41.8
550	30	4,865	-15.5	46	259	46.6
500	30	5,582	-19.7	41	259	50.1
450	30	6,354	-24.5	35	259	54.6
400	30	7,207	-30.1		259	57.3
350	30	8,146	-36.5		256	64.7
300	30	9,199	-43.6		258	71.1
250	30	10,405	-51.1		263	72.1
200	28	11,838	-56.2		263	74.4
175	26	12,672	-56.6		262	70.3
150	25	13,649	-58.0		261	59.1
125	24	14,793	-60.0		259	53.4
100	23	16,182	-61.5		257	53.2
80	20	17,582	-60.7		254	42.2
60	19	19,376	-58.8		251	35.6
50	18	20,523	-58.2		250	31.3
40	17	21,933	-55.9		256	30.9
30	16	23,773	-53.7		243	36.7
25	16	24,949	-52.3		247	39.2
20	16	26,398	-50.9		249	43.5
15	14	28,299	-47.7		245	41.0
10	13	31,006	-44.0		245	47.4
7	6	33,373	-42.5			

DENVER, COLO. (838 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,611	-2.5	62	199	2.3
1,000	30	190				
950	30	605				
900	30	1,042				
850	30	1,500				
800	30	1,988	3.2	40	284	7.0
750	30	2,511	1.0	38	300	13.6
700	30	3,062	-1.6	38	307	18.1
650	30	3,646	-5.2	38	308	22.7
600	30	4,273	-9.2	38	311	29.7
550	30	4,934	-13.8	41	315	33.6
500	30	5,658	-18.7	39	311	35.4
450	30	6,428	-24.6	38	309	38.7
400	30	7,281	-31.0	42	306	41.2
350	30	8,215	-38.1		302	42.2
300	30	9,261	-45.1		302	47.6
250	30	10,460	-52.2		299	49.4
200	30	11,885	-57.4		294	50.5
175	30	12,727	-59.3		293	49.7
150	29	13,688	-60.8		293	49.4
125	29	14,818	-62.6		296	41.6
100	29	16,188	-64.3		297	35.2
80	29	17,557	-63.5		293	28.0
60	27	19,329	-62.0		289	22.5
50	25	20,463	-60.8		291	19.6
40	23	21,866	-59.8		293	15.0
30	21	23,661	-58.2		282	21.8
25	20	24,815	-56.0		275	25.1
20	16	26,250	-53.2		266	31.7
15	6	28,109	-50.0			
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DODGE CITY, KANS. (928 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	792	-2.1	75	292	4.5
1,000	29	187				
950	29	597				
900	29	1,033	3.7	49	283	7.4
850	29	1,498	4.7	38	299	13.4
800	29	1,992	3.9	32	302	17.7
750	29	2,511	1.4	32	302	22.7
700	29	3,067	-1.1	33	303	26.8
650	29	3,651	-3.9		290	27.2
600	29	4,283	-7.6		289	33.0
550	28	4,948	-12.1		289	30.7
500	28	5,678	-17.1		283	32.3
450	28	6,451	-22.6		282	38.1
400	27	7,321	-28.9		280	43.1
350	27	8,263	-35.8		272	54.2
300	27	9,317	-43.5			
250	27	10,523	-51.0			
200	26	11,961	-57.2			
175	25	12,802	-58.2			
150	24	13,770	-60.3			
125	21	14,897	-62.6			
100	17	16,266	-64.7			
80	11	17,622	-63.3			
60	9	19,410	-61.7			
50	9	20,544	-59.6			
40	8	21,950	-57.8			
30	8	23,777	-54.7			
25	8	24,948	-53.6			
20	5	26,419	-49.9			
15	5	28,313	-46.8			

EL PASO, TEX. (886 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,197	5.3	55	27	3.1
1,000	30	186				
950	30	610				
900	30	1,062				
850	30	1,534	7.8	44	359	1.7
800	30	2,033	6.7	47	283	3.7
750	30	2,556	5.1	42	276	7.6
700	30	3,123	3.0		280	8.2
650	30	3,716	-.2		282	12.8
600	30	4,356	-4.0		290	14.2
550	30	5,031	-8.3		279	15.5
500	30	5,771	-13.3		279	16.3
450	30	6,559	-19.0		275	19.8
400	30	7,431	-25.4		280	26.8
350	30	8,387	-32.2		290	32.6
300	30	9,458	-39.9		285	40.4
250	30	10,679	-48.8		287	46.8
200	29	12,128	-56.9		284	52.1
175	28	12,967	-60.3			
150	24	13,917	-63.6			
125	19	15,020	-66.5			
100	17	16,362	-70.6			
80	10	17,705	-69.7			
60	9	19,443	-65.9			
50	9	20,561	-61.8			
40	9	21,951	-59.5			
30	9	23,767	-55.7			
25	9	24,935	-53.2			
20	7	26,388	-51.1			
15	5	28,287	-47.2			
10	5	30,999	-42.2			

ELY, NEV. (814 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,908	-8.0	52	184	10.1
1,000	30	273				
950	30	681				
900	30	1,112				
850	30	1,567				
800	30	2,045	2.2	40	216	3.5
750	30	2,568	3.1	29	333	4.3
700	30	3,125	.5	27	332	12.6
650	30	3,710	-2.3		324	18.5
600	30	4,348	-5.9		322	22.7
550	30	5,016	-10.1		319	25.3
500	30	5,753	-15.1		324	23.3
450	29	6,536	-20.6		318	21.2
400	29	7,403	-26.9		321	14.2
350	29	8,352	-34.5		318	22.3
300	29	9,411	-42.8		327	27.2
250	29	10,615	-52.3		318	26.8
200	28	12,030	-59.3			
175	28	12,863	-61.1			
150	28	13,818	-62.3			
125	27	14,946	-64.5			
100	27	16,303	-66.4			
80	27	17,652	-65.7			
60	27	19,408	-63.4			
50	27	20,531	-62.4			
40	27	21,912	-61.2			
30	26	23,704	-59.3			
25	26	24,850	-57.8			
20	23	26,259	-56.1			
15	14	28,133	-51.8			

FAIRBANKS, ALASKA (994 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	135	-13.3	74	16	3.1
1,000	30	87			56	4.1
950	30	485	-8.5	64	80	7.0
900	30	903	-8.3	66	106	9.5
850	30	1,348	-7.2	65	148	7.4
800	30	1,819	-9.1	63	169	7.2
750	30	2,316	-11.6	60	184	8.0
700	30	2,842	-14.7	58	206	7.0
650	30	3,399	-17.8	54	217	7.6
600	30	3,995	-21.7	55	237	10.7
550	30	4,627	-25.7	51	242	12.8
500	30	5,316	-30.4	52	252	15.0
450	30	6,049	-35.8		247	15.3
400	30	6,866	-41.9		252	15.9
350	30	7,759	-48.1		247	17.1
300	30	8,760	-54.7		256	20.0
250	30	9,917	-57.2		256	26.0
200	30	11,335	-55.6		253	22.9
175	30	12,188	-54.3		255	21.4
150	30	13,178	-54.0		260	22.9
125	29	14,351	-54.2		260	25.3
100	29	15,782	-54.6		277	24.1
80	29	17,209	-55.3		275	29.3
60	29	19,037	-56.6		278	34.0
50	28	20,193	-57.7		278	37.1
40	[illegible]	21,615	-58.9		293	40.0
30	21	23,456	-58.9			
25	16	24,619	-59.0			
20	[illegible]	26,029	-60.5			
15	8	27,718	-61.7			

FLINT, MICH. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	234	-1.0	82	230	3.3
1,000	30	140				
950	30	549	-1.3	74	255	7.6
900	30	979	-3.3	70	266	13.6
850	30	1,430	-5.0	69	267	17.9
800	30	1,906	-5.8	60	267	23.7
750	30	2,411	-7.5	55	265	28.4
700	30	2,946	-10.0	49	267	30.5
650	30	3,513	-12.6	48	266	34.6
600	30	4,123	-15.5	44	263	38.9
550	30	4,772	-19.3	44	261	44.5
500	30	5,477	-23.7	43	260	50.7
450	30	6,237	-27.9	41	262	57.7
400	30	7,079	-33.2		264	63.0
350	30	8,006	-39.1		264	66.8
300	30	9,049	-45.3		262	75.4
250	30	10,249	-51.2		260	75.0
200	30	11,686	-54.8		262	69.0
175	28	12,531	-54.3		259	69.0
150	28	13,517	-55.1		262	63.3
125	27	14,681	-56.2		260	55.4
100	24	16,101	-57.5		261	45.5
80	23	17,511	-57.4		257	38.5
60	20	19,328	-57.2		253	32.4
50	19	20,486	-56.3		252	33.8
40	19	21,906	-55.9		248	34.0
30	19	23,748	-53.9		249	31.1
25	18	24,926	-52.4		249	37.3
20	17	26,372	-51.1		245	36.3
15	15	28,262	-48.5		244	40.2
10	11	30,907	-46.3			
7	5	33,218	-46.2			

FORT WORTH, TEX. (1001 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	180	5.8	75	300	3.1
1,000	30	183			330	4.7
950	30	609	7.2	58	248	7.8
900	30	1,051	7.2	52	266	11.9
850	30	1,522	7.6	45	277	13.6
800	30	2,022	6.6	37	271	15.5
750	30	2,548	4.4	36	271	17.5
700	30	3,109	2.1	27	268	19.0
650	30	3,703	-.9		268	22.2
600	30	4,339	-4.6		274	24.7
550	30	5,014	-9.1		275	27.4
500	30	5,750	-14.3		270	30.3
450	30	6,537	-19.9		269	34.2
400	30	7,406	-25.6		267	39.6
350	30	8,361	-32.6		267	45.9
300	30	9,429	-40.4		267	52.5
250	30	10,650	-48.7		267	56.2
200	30	12,093	-56.1		269	63.7
175	29	12,933	-59.6		269	61.0
150	29	13,890	-62.8		271	57.3
125	29	15,006	-66.0		270	49.0
100	29	16,350	-68.6		271	39.8
80	28	17,687	-68.4		272	29.1
60	28	19,433	-63.7		269	22.7
50	28	20,558	-61.4		265	21.2
40	26	21,951	-58.8		260	25.3
30	25	23,772	-55.3		256	25.6
25	25	24,941	-53.4		252	29.1
20	25	26,386	-51.2		253	33.6
15	20	28,282	-48.6		257	36.1
10	11	30,968	-43.3			

GLASGOW, MONT. (936 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	696	-6.2	86	315	4.1
1,000	30	174				
950	30	577				
900	30	1,004	-3.7	72	315	11.7
850	30	1,455	-4.7	60	318	17.3
800	30	1,931	-6.3	57	316	22.0
750	30	2,434	-8.4	57	311	23.3
700	30	2,967	-11.0	57	307	26.2
650	30	3,530	-13.9	56	307	29.3
600	30	4,138	-17.3	57	310	31.1
550	30	4,779	-21.1	57	306	30.3
500	30	5,482	-25.5	57	307	33.2
450	30	6,231	-30.4	53	302	32.6
400	30	7,068	-36.0	53		
350	30	7,984	-41.5			
300	30	9,017	-47.6			
250	30	10,206	-53.6			
200	30	11,632	-55.9			
175	30	12,481	-56.0			
150	30	13,460	-56.8			
125	29	14,608	-57.9			
100	29	16,011	-58.6			
80	29	17,412	-58.8			
60	25	19,220	-59.6			
50	25	20,360	-60.0			
40	25	21,749	-60.3			
30	22	23,535	-60.2			
25	21	24,670	-59.7			
20	14	26,113	-59.5			

GRAND JUNCTION, COLO. (857 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,474	-0.7	61	108	6.0
1,000	30	223				
950	30	637				
900	30	1,077				
850	30	1,541	.6	52	112	6.0
800	30	2,031	1.8	40	145	4.1
750	30	2,548	-.1	40	245	6.0
700	30	3,100	-2.6	41	287	13.6
650	30	3,682	-5.6	41	297	17.5
600	30	4,309	-8.8	35	305	20.0
550	30	4,970	-12.8		309	25.6
500	30	5,699	-17.8		308	29.9
450	30	6,473	-23.3		306	34.8
400	30	7,332	-29.5		305	36.5
350	30	8,271	-36.4		318	43.5
300	30	9,323	-44.1		313	49.9
250	30	10,526	-51.8		308	52.8
200	30	11,951	-57.7		302	48.8
175	29	12,790	-59.1		297	45.7
150	28	13,754	-61.4		295	44.5
125	28	14,879	-63.7		297	42.0
100	24	16,236	-66.0		292	32.3
80	16	17,589	-65.4		307	31.3
60	13	19,363	-63.3		299	21.4
50	13	20,487	-61.8		292	15.0
40	13	21,873	-60.1		294	16.1
30	12	23,680	-57.8			
25	[illegible]	24,832	-57.3			
20	[illegible]	26,245	-55.9			
15	8	28,051	-54.7			
10	5	30,617	-53.8			

GREAT FALLS, MONT. (890 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,123	-2.3	66	235	8.4
1,000	30	181				
950	30	594				
900	30	1,030				
850	30	1,484	-1.2	52	260	19.8
800	30	1,966	-3.7	51	284	18.5
750	30	2,467	-6.4	53	290	22.2
700	30	3,009	-9.4	56	294	25.8
650	30	3,575	-11.9	54	297	33.6
600	30	4,189	-14.8	52	299	42.2
550	30	4,834	-18.6	53	301	44.5
500	30	5,548	-22.8	52	304	48.6
450	30	6,309	-27.5	49	306	56.0
400	30	7,153	-32.8	48	307	65.1
350	29	8,089	-39.3		305	70.5
300	29	9,129	-46.6		307	76.2
250	29	10,319	-53.8		307	74.8
200	29	11,737	-57.5		309	66.8
175	29	12,579	-58.3		307	62.8
150	28	13,540	-59.2		300	59.8
125	28	14,681	-59.7		298	57.7
100	28	16,071	-61.0		301	48.2
80	28	17,458	-60.8		300	40.2
60	26	19,248	-60.5		302	30.5
50	26	20,383	-61.1		303	28.2
40	26	21,766	-61.3		304	28.0
30	24	23,538	-61.2		305	24.9
25	20	24,704	-61.1		300	25.3
20	16	26,095	-61.1			
15	9	27,840	-59.7			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

GREEN BAY, WIS. (991 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	210	- 4.[illegible]	85	289	5.1
1,000	30	134				
950	30	539	- 4.6	74	289	7.0
900	30	964	- 5.7	68	288	10.1
850	30	1,411	- 7.2	63	286	12.0
800	30	1,883	- 7.8	53	277	15.5
750	30	2,383	- 9.9	50	273	18.8
700	30	2,913	-12.6	50	272	22.0
650	30	3,475	-15.4	50	264	24.3
600	30	4,077	-18.7	51	262	27.4
550	30	[illegible]	-22.2	49	255	33.2
500	30	5,417	-26.4	48	260	33.8
450	30	6,170	-31.1	46	254	34.6
400	30	6,999	-36.6		257	32.1
350	30	7,913	-42.0		247	50.9
300	30	8,945	-47.0		244	57.1
250	30	10,141	-51.5			
200	30	11,582	-53.3			
175	30	12,441	-53.9			
150	30	13,430	-54.3			
125	30	14,595	-55.7			
100	28	16,017	-57.2			
80	24	17,420	-57.3			
60	20	19,249	-57.3			
50	18	20,406	-57.2			
40	15	21,814	-56.2			
30	13	23,646	-54.8			
25	10	24,786	-53.4			
20	8	26,226	-49.6			
15	5	28,052	-47.6			
10						
7						
5						

GREENSBORO, N. C. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	273	4.4	83	319	1.7
1,000	30	178				
950	30	594	7.3	65	278	4.7
900	30	1,045	6.9	59	268	9.7
850	30	1,514	5.8	56	266	11.3
800	30	2,010	4.4	51	268	15.5
750	30	2,530	2.2	47	257	18.5
700	30	3,089	.1	44	259	23.3
650	30	3,676	- 2.6	39	257	26.8
600	30	4,311	- 6.3	36	256	30.7
550	30	4,980	-10.5	32	254	31.7
500	30	5,715	-15.0		254	35.0
450	30	6,496	-20.1		252	37.5
400	30	7,366	-26.1		253	44.9
350	30	8,320	-32.6		255	46.8
300	30	9,388	-40.5			
250	30	10,608	-48.8			
200	29	12,047	-56.5			
175	29	12,890	-59.2			
150	29	13,849	-62.3			
125	26	14,967	-64.6			
100	26	16,326	-65.9			
80	26	17,688	-63.6			
60	25	19,469	-59.3			
50	24	20,615	-56.8			
40	24	22,036	-54.8			
30	23	23,889	-51.6			
25	22	25,077	-49.8			
20	18	26,544	-47.7			
15	16	28,466	-43.2			
10						
7						
5						

HILO, HAWAII (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	11	20.8	87	256	3.1
1,000	30	134	22.2	79	278	2.9
950	30	581	19.4	81	70	4.7
900	30	1,044	16.4	83	76	6.6
850	30	1,529	13.3	85	68	6.8
800	30	2,039	11.7	72	73	8.2
750	30	2,581	9.8	59	83	9.7
700	30	3,149	7.9	35	90	11.5
650	30	3,755	4.9		95	8.9
600	28	4,406	1.0		79	5.6
550	28	5,095	- 3.2		41	3.1
500	28	5,848	- 8.2		14	2.3
450	28	6,652	-13.7		279	4.1
400	28	7,543	-19.7		268	8.0
350	28	8,521	-26.9		251	17.5
300	28	9,616	-34.4		256	28.4
250	28	10,866	-44.0		251	38.1
200	28	12,325	-55.8		261	33.8
175	28	13,163	-61.7		266	28.6
150	28	14,105	-67.5		266	20.8
125	28	15,188	-72.8		271	14.0
100	28	16,485	-75.6		284	9.7
80	26	17,777	-74.4		305	4.3
60	23	19,477	-67.1		52	2.7
50	22	20,590	-62.2		358	2.7
40	21	21,984	-57.7		309	2.5
30	19	23,817	-52.8		278	6.0
25	19	24,998	-50.9		290	4.7
20	16	26,454	-48.5		316	3.7
15	7	28,349	-45.7			
10						
7						
5						

INTERNAT. FALLS, MINN. (970 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	360	-10.9	73	263	2.7
1,000	30	139				
950	30	535	- 9.6	75	269	4.5
900	30	952	-10.4	72	295	8.4
850	30	1,392	-10.9	69	305	13.6
800	30	1,857	-11.7	63	307	16.1
750	30	2,348	-13.4	56	303	18.7
700	30	2,872	-15.9	54	302	21.2
650	30	3,423	-18.2	55	301	24.3
600	30	4,023	-21.4	52	300	26.6
550	30	4,651	-24.9	50	297	29.7
500	30	5,347	-29.2	49	294	31.7
450	30	6,086	-33.9	47	294	36.5
400	30	6,909	-39.4		295	41.8
350	30	7,812	-44.8		294	46.2
300	30	8,832	-49.6		294	52.1
250	30	10,017	-52.5		291	54.4
200	29	11,455	-52.9		290	52.7
175	28	12,311	-52.4		289	52.5
150	28	13,307	-52.9		285	45.5
125	26	14,477	-53.8		286	45.1
100	23	15,907	-55.3		279	38.7
80	21	17,331	-55.7		279	37.3
60	14	19,218	-56.1		287	29.1
50	11	20,366	-57.9		284	30.1
40	8	21,749	-58.3			
30	5	23,483	-58.7			
25	5	24,630	-58.0			
20						
15						
10						
7						
5						

JACKSON, MISS. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	101	6.2	84	328	1.6
1,000	30	179	7.3	72	13	3.5
950	30	605	8.9	64	302	3.1
900	30	1,053	9.1	59	286	8.4
850	30	1,525	7.8	55	275	11.7
800	30	2,024	6.5	48	272	16.1
750	30	2,553	4.3	41	271	19.0
700	30	3,111	2.0	41	268	22.3
650	30	3,704	- .9	40	269	25.3
600	30	4,341	- 4.4		268	29.1
550	30	5,017	- 8.3		267	32.8
500	30	5,755	-12.8		262	36.1
450	30	6,545	-18.4		262	41.2
400	30	7,419	-24.8		262	44.9
350	30	8,376	-31.8		264	44.9
300	30	9,449	-39.5		265	55.4
250	30	10,675	-47.8		268	57.3
200	30	12,118	-56.5		267	60.8
175	30	12,958	-59.9		268	58.7
150	30	13,912	-63.3		269	53.2
125	28	15,029	-66.3		265	47.0
100	26	16,368	-69.0		266	38.1
80	26	17,704	-67.8		263	29.9
60	26	19,456	-62.4		265	18.7
50	26	20,589	-59.7		256	18.1
40	25	21,993	-56.8		251	16.9
30	25	23,832	-52.7		251	17.9
25	25	25,014	-51.0		253	21.6
20	25	26,474	-48.4		259	30.9
15	21	28,393	-45.4		261	37.7
10	17	31,116	-41.4		265	55.8
7	12	33,534	-38.9			
5	7	35,849	-35.3			

JACKSONVILLE, FLA. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	12.4	92	349	5.6
1,000	30	166	14.3	82	13	8.2
950	30	595	14.1	76	37	5.8
900	30	1,056	12.9	67	25	.8
850	30	1,535	10.9	59	261	4.7
800	30	2,040	9.5	42	264	8.7
750	30	2,570	7.4	35	266	11.3
700	30	3,140	5.2	34	265	14.4
650	30	3,736	2.3		261	16.7
600	30	4,385	- 1.5		262	20.0
550	30	5,065	- 5.8		264	23.1
500	30	5,814	-10.9		265	27.6
450	30	6,605	-16.5		262	31.9
400	30	7,491	-22.9		261	34.8
350	30	8,456	-30.3		258	35.9
300	30	9,534	-38.4		261	41.6
250	30	10,765	-47.3		265	50.3
200	29	12,211	-57.0		265	53.6
175	29	13,047	-61.4		264	50.5
150	28	13,998	-64.9		265	50.5
125	27	15,101	-68.4		264	45.1
100	27	16,432	-71.1		263	37.7
80	26	17,756	-69.1		264	32.8
60	26	19,498	-63.1		260	16.7
50	25	20,627	-60.8		262	13.0
40	24	22,026	-57.4		249	6.2
30	24	23,861	-53.1		257	5.1
25	23	25,037	-51.0		225	3.9
20	22	26,500	-48.3		237	8.4
15	18	28,410	-45.3		260	11.5
10	13	31,148	-39.4			

KING SALMON, ALASKA (998 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	- 1.3	86	93	8.5
1,000	30	-3			107	8.9
950	30	411	.2	66	113	11.5
900	30	842	- 1.9	65	133	11.9
850	30	1,295	- 4.4	65	138	10.3
800	30	1,771	- 6.8	62	150	12.0
750	30	2,270	- 9.1	56	160	12.2
700	29	2,797	-12.1	51	171	11.5
650	29	3,356	-15.8	51	182	14.0
600	29	3,959	-19.8	52	185	15.3
550	29	4,595	-24.0	51	186	17.5
500	29	5,290	-28.9	48	183	18.8
450	29	6,030	-34.1	47	185	20.0
400	29	6,852	-39.9		190	21.4
350	29	7,753	-46.1		192	24.9
300	29	8,765	-51.6		198	29.7
250	29	9,941	-54.0		208	32.1
200	28	11,376	-53.2		218	31.3
175	28	12,239	-52.3		218	30.5
150	28	13,238	-52.0		222	27.4
125	27	14,419	-51.2		229	27.0
100	26	15,869	-51.3		237	25.1
80	23	17,301	-50.3		245	24.1
60	19	19,162	-51.0		246	23.7
50	18	20,354	-51.0		260	25.6
40	17	21,812	-51.7		266	26.6
30	13	23,674	-52.2		270	25.8
25	6	24,909	-52.6			
20						
15						
10						

KOTZEBUE, ALASKA (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	5	-12.8	73	75	9.9
1,000	29	84			78	13.4
950	29	478	- 9.9	59	89	14.0
900	29	896	-10.4	58	105	12.0
850	29	1,337	-10.6	56	104	8.2
800	29	1,803	-11.9	52	109	6.2
750	29	2,291	-14.0	48	113	5.8
700	28	2,817	-16.4	48	117	5.8
650	28	3,367	-19.6	47	128	4.5
600	28	3,962	-23.2	50	156	3.3
550	28	4,591	-26.9	50	202	4.1
500	28	5,278	-31.3	48	223	5.2
450	28	6,016	-36.3		222	7.4
400	28	6,826	-41.9		223	7.2
350	28	7,720	-47.8		217	8.7
300	28	8,724	-53.4		219	9.9
250	28	9,889	-55.9		233	12.8
200	28	11,311	-55.0		234	11.1
175	27	12,156	-53.7		245	11.5
150	27	13,146	-53.5		245	13.0
125	25	14,301	-53.1		247	14.2
100	22	15,717	-52.5		264	17.5
80	21	17,156	-53.5		266	21.8
60	17	19,011	-53.5		262	25.6
50	17	20,183	-54.4		265	31.5
40	13	21,618	-54.4			
30	10	23,478	-55.4			
25	10	24,639	-56.6			
20	8	26,101	-56.7			
15	5	27,964	-57.6			
10						

LAKE CHARLES, LA. (1021 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	5	9.2	82	16	4.5
1,000	30	177	11.0	65	38	8.0
950	30	605	11.3	57	19	6.4
900	30	1,059	11.0	53	327	3.9
850	30	1,536	10.0	48	294	7.6
800	30	2,039	8.5	40	288	10.5
750	30	2,568	6.3	39	284	13.8
700	30	3,135	3.9	35	279	17.3
650	30	3,727	.4	39	277	18.5
600	30	4,373	- 3.1	38	266	22.5
550	30	5,053	- 7.1		264	22.9
500	30	5,795	-11.8		266	26.6
450	30	6,587	-17.5		271	29.3
400	30	7,467	-23.6		277	31.3
350	30	8,431	-30.5		270	38.7
300	30	9,510	-38.3		272	44.7
250	30	10,741	-47.3		279	44.1
200	30	12,188	-56.3		283	46.4
175	29	13,024	-60.1			
150	26	13,975	-63.9			
125	25	15,082	-67.9			
100	16	16,417	-71.4			
80	13	17,752	-69.2			
60	10	19,489	-62.9			
50	10	20,621	-59.9			
40	10	22,026	-56.2			
30	9	23,875	-52.2			
25	9	25,062	-49.6			
20	9	26,533	-46.8			
15	9	28,458	-42.8			
10	9	31,226	-37.1			

LANDER, WYO. (830 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	1,696	- 6.1	68	263	1.7
1,000	29	214				
950	29	617				
900	29	1,052				
850	29	1,507				
800	29	1,988	.3	45	295	3.3
750	29	2,504	- .8	39	311	9.3
700	29	3,053	- 3.5	41	306	16.7
650	29	3,631	- 6.8	43	302	26.6
600	29	4,256	-10.5	42	308	36.7
550	29	4,912	-14.4	38	308	38.7
500	29	5,638	-19.1	33	310	41.0
450	29	6,405	-24.3	32	310	37.9
400	29	7,264	-30.2		316	37.7
350	29	8,200	-37.1			
300	29	9,249	-44.7			
250	29	10,447	-52.6			
200	29	11,866	-58.3			
175	29	12,705	-59.0			
150	26	13,676	-59.0			
125	20	14,795	-60.0			
100	17	16,169	-61.7			
80	12	17,529	-62.2			
60	8	19,326	-60.6			
50	6	20,476	-59.7			
40	5	21,881	-59.8			
30	5	23,681	-58.8			
25						
20						
15						
10						

LAS VEGAS, NEV. (944 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	660	6.8	52	242	3.7
1,000	30	183				
950	30	612				
900	30	1,061	12.5	27	15	7.0
850	30	1,538	10.6	26	10	8.9
800	30	2,041	8.2	25	10	8.0
750	30	2,566	5.9		360	7.4
700	30	3,132	3.3		351	7.0
650	30	3,725	- .2		348	9.3
600	30	4,365	- 4.3		345	10.9
550	30	5,038	- 8.9		337	11.9
500	30	5,775	-14.1		325	13.6
450	30	6,557	-20.0		319	14.6
400	30	7,428	-26.7		319	17.9
350	30	8,377	-34.0		319	18.5
300	30	9,439	-42.3		319	22.0
250	30	10,649	-50.6		312	26.4
200	30	12,077	-57.8		297	33.8
175	30	12,915	-60.0		293	35.6
150	30	13,872	-62.5		291	34.0
125	29	14,991	-65.2		292	30.9
100	29	16,340	-68.0		299	30.3
80	26	17,671	-68.8		301	23.5
60	26	19,408	-64.9		306	18.3
50	25	20,528	-63.2		302	13.4
40	25	21,903	-61.6		305	15.2
30	22	23,694	-59.6		293	15.9
25	22	24,837	-58.4		291	17.3
20	19	26,239	-56.8		281	28.8
15	13	28,074	-54.4		274	39.8
10	7	30,664	-50.0			

LITTLE ROCK, ARK. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	79	4.3	78	269	1.4
1,000	30	176	4.5	66	305	2.1
950	30	599	6.3	56	267	6.6
900	30	1,041	5.9	54	260	9.7
850	30	1,509	5.4	49	269	13.4
800	30	2,003	4.1	44	277	17.1
750	30	2,528	1.8	45	269	21.0
700	30	3,081	- .4	40	276	22.9
650	30	3,671	- 3.4	35	267	26.2
600	30	4,301	- 6.5	31	268	24.7
550	29	4,974	-10.6		267	27.8
500	29	5,705	-15.4		275	29.1
450	29	6,487	-20.9		273	32.8
400	29	7,353	-27.3		276	38.1
350	29	8,301	-34.0		276	41.2
300	29	9,364	-41.6		278	43.1
250	29	10,579	-49.5		285	41.0
200	29	12,014	-56.9			
175	29	12,855	-59.5			
150	28	13,817	-61.9			
125	28	14,936	-65.3			
100	23	16,272	-66.8			
80	22	17,628	-64.1			
60	21	19,397	-61.2			
50	21	20,536	-58.8			
40	21	21,945	-56.4			
30	21	23,786	-53.3			
25	20	24,967	-51.3			
20	18	26,422	-49.1			
15	10	28,278	-47.1			
10	6	31,000	-41.1			

McGRATH, ALASKA (995 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	103	-12.8	84	292	1.2
1,000	30	62			86	2.1
950	30	457	-10.3	76	79	8.9
900	30	873	- 7.7	74	97	10.1
850	30	1,319	- 6.6	67	131	8.7
800	30	1,791	- 8.4	66	152	8.0
750	30	2,283	-10.9	65	161	8.5
700	30	2,817	-13.8	64	169	10.3
650	30	3,369	-17.2	63	176	9.9
600	30	3,971	-21.2	60	180	10.1
550	30	4,601	-25.4	55	179	9.1
500	30	5,293	-30.1	53	190	9.5
450	30	6,026	-35.7		187	9.7
400	30	6,842	-41.8		191	12.4
350	30	7,734	-48.2		200	16.9
300	30	8,736	-53.6		202	18.8
250	30	9,900	-56.2		212	16.3
200	30	11,321	-54.8		218	20.6
175	30	12,178	-53.7		222	22.5
150	30	13,171	-53.1		230	19.4
125	30	14,347	-52.8		242	18.7
100	30	15,788	-53.1		244	21.6
80	30	17,227	-53.6		256	25.1
60	26	19,064	-54.3		271	30.3
50	26	20,231	-55.1		272	32.6
40	23	21,655	-55.1		275	35.8
30	17	23,502	-56.1		271	39.1
25	13	24,657	-56.1			
20	7	26,043	-58.7			
15						
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MEDFORD, OREG. (977 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	401	0.4	84	163	0.6
1,000	30	213				
950	30	635	5.9	72	280	1.4
900	30	1,076	8.8	53	158	2.7
850	30	1,549	8.6	39	197	3.9
800	30	2,048	6.7	33	272	6.2
750	30	2,575	4.5	29	294	10.9
700	30	3,135	1.7	25	293	15.3
650	30	3,725	- 1.7	25	289	18.7
600	30	4,361	- 5.6	24	296	21.0
550	30	5,031	-10.0		300	22.9
500	30	5,766	-15.5		298	22.0
450	30	6,545	-20.5		299	23.3
400	30	7,416	-26.9		302	24.1
350	30	8,365	-34.6		305	28.2
300	30	9,424	-42.9		306	30.7
250	30	10,630	-52.2		319	30.1
200	30	12,045	-60.6		309	29.0
175	30	12,873	-62.4		306	28.6
150	29	13,826	-62.7		303	34.4
125	25	14,957	-64.6		301	30.9
100	20	16,329	-66.4		301	21.8
80	13	17,702	-65.8			
60	12	19,464	-62.8			
50	12	20,592	-61.7			
40	11	21,995	-60.4			
30	11	23,793	-59.5			
25	10	24,940	-58.7			
20	9	26,351	-58.4			
15	6	28,153	-57.5			
10						

MIAMI, FLA. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	4	20.7	86	18	3.9
1,000	30	139	21.0	82	29	6.6
950	30	584	18.9	80	48	9.5
900	30	1,047	16.7	75	61	7.8
850	30	1,534	14.4	68	57	3.3
800	30	2,045	12.1	60	349	1.2
750	30	2,584	9.8	53	297	2.9
700	30	3,155	7.0	46	283	3.3
650	30	3,758	4.0	42	286	6.0
600	30	4,410	.4	35	279	9.3
550	30	5,094	- 3.8	30	272	10.9
500	30	5,850	- 8.7	33	275	11.3
450	30	6,654	-14.4		275	14.6
400	30	7,544	-20.8		275	18.1
350	30	8,518	-27.8		271	23.1
300	30	9,607	-36.4		274	29.3
250	30	10,846	-46.5		272	35.2
200	30	12,291	-57.6		263	42.0
175	29	13,126	-62.4		267	43.7
150	28	14,068	-66.5		272	35.8
125	27	15,163	-70.3		268	29.0
100	26	16,477	-73.3		267	22.2
80	26	17,789	-70.8		283	10.9
60	26	19,523	-64.5		197	3.3
50	26	20,647	-61.0		231	4.9
40	26	22,050	-56.7		207	1.7
30	25	23,896	-51.9		64	.8
25	24	25,085	-49.4		112	1.4
20	23	26,564	-45.9		280	6.4
15	19	28,484	-43.6		279	10.3
10	8	31,227	-37.6			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

NOVEMBER 1959

MIDLAND, TEX. (920 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	871	3.6	65	281	2.3
1,000	30	189				
950	30	613				
900	30	1,052	6.6	53	281	3.3
850	30	1,524	8.2	43	280	7.2
800	30	2,024	7.6	39	277	8.9
750	30	2,554	5.8	36	274	11.1
700	30	3,117	2.6		272	12.4
650	30	3,712	-.5		275	15.2
600	30	4,349	-4.4		276	20.6
550	30	5,025	-8.6		279	20.4
500	30	5,762	-13.6		272	25.1
450	30	6,552	-19.2		271	21.6
400	30	7,422	-25.2		274	25.1
350	30	8,379	-32.3		277	26.4
300	30	9,448	-40.6		280	31.3
250	29	10,666	-48.7		277	36.9
200	28	12,112	-56.5		282	51.3
175	27	12,953	-60.2			
150	22	13,905	-63.4			
125	19	15,001	-66.4			
100	18	16,341	-68.8			
80	12	17,684	-67.3			
60	10	19,438	-63.5			
50	10	20,565	-60.9			
40	8	21,974	-57.1			
30						
25						
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MONTGOMERY, ALA (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	61	7.6	81	[illegible]	2.1
1,000	30	177	9.1	73	360	1.4
950	30	605	10.2	63	199	2.9
900	30	1,055	9.9	53	258	5.6
850	30	1,529	8.5	47	276	9.9
800	30	2,030	7.2	39	275	13.6
750	30	2,561	5.2	36	272	17.3
700	30	3,120	2.6	33	267	20.4
650	30	3,714	-.3	34	266	24.3
600	30	4,353	-3.8		263	28.0
550	30	5,030	-7.7		266	32.4
500	30	5,771	-12.6		265	37.5
450	30	6,557	-17.9		263	39.4
400	30	7,440	-23.9		262	43.5
350	30	8,401	-31.0		263	49.9
300	30	9,476	-39.0		261	57.1
250	30	10,703	-47.5		262	63.9
200	30	12,147	-56.7		263	66.1
175	30	12,985	-60.6		264	66.1
150	30	13,938	-63.4		266	61.8
125	29	15,046	-66.8		266	54.6
100	27	16,382	-69.4		263	44.7
80	23	17,723	-67.9		262	36.5
60	22	19,477	-62.3		261	24.5
50	20	20,614	-59.1		258	20.8
40	20	22,025	-56.1		256	18.8
30	17	23,868	-53.2		253	16.9
25	16	25,049	-50.4		251	14.4
20	16	26,518	-47.7		249	21.8
15	14	28,416	-45.2		250	21.8
10	12	31,150	-41.1		249	32.8
7	9	33,567	-38.3			
5	6	35,909	-36.3			

NANTUCKET, MASS. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	26	14	7.3	83	329	2.5
1,000	26	151	7.8	77	328	4.1
950	[illegible]	[illegible]	6.3	71	278	7.0
900	[illegible]	1,016	5.1	67	261	12.2
850	26	1,482	3.8	57	255	17.1
800	26	1,973	2.1	55	255	21.6
750	26	2,493	.0	50	254	26.2
700	26	3,044	-2.4	50	257	27.0
650	26	3,630	-4.9	44	258	31.5
600	26	4,255	-8.4	39	254	33.2
550	26	4,922	-12.4	41	251	37.9
500	26	5,648	-16.8		252	39.2
450	26	6,425	-21.9	40		
400	26	7,289	-27.7			
350	26	8,236	-34.8			
300	26	9,293	-43.1			
250	26	10,499	-51.5			
200	26	11,924	-57.8			
175	26	12,761	-60.6			
150	26	13,718	-61.7			
125	26	14,844	-62.6			
100	26	16,217	-63.1			
80	26	17,601	-60.5			
60	26	19,399	-57.8			
50	26	20,553	-56.2			
40	26	21,975	-54.4			
30	23	23,829	-51.7			
25	20	25,013	-50.0			
20	20	26,476	-48.4			
15	17	28,387	-45.6			
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NASHVILLE, TENN (1000 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	177	3.9	84	267	3.1
1,000	29	175			336	3.5
950	29	592	4.7	61	263	7.2
900	29	1,034	4.0	59	276	10.3
850	29	1,499	3.4	50	274	13.0
800	29	1,990	2.2	42	272	16.1
750	29	2,508	.3	42	266	19.8
700	29	3,062	-2.1	39	268	22.0
650	28	3,644	-4.9	34	278	23.3
600	28	4,274	-8.3		275	26.8
550	28	4,940	-12.1		272	33.2
500	28	5,669	-16.7		267	36.3
450	28	6,447	-22.0		267	42.2
400	28	7,310	-27.6			
350	28	8,258	-34.4			
300	28	9,320	-41.9			
250	28	10,535	-49.6			
200	27	11,975	-56.7			
175	26	12,812	-58.9			
150	25	13,775	-61.4			
125	23	14,901	-63.7			
100	21	16,263	-65.4			
80	19	17,628	-64.3			
60	17	19,404	-60.6			
50	15	20,557	-57.5			
40	14	21,973	-55.3			
30	11	23,819	-54.5			
25	9	24,988	-53.1			
20	7	26,424	-51.8			
15	5	28,300	-47.3			
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7						
5						

N. Y. INT. AP, IDLEWILD (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	[illegible]	6.0	75	281	6.4
1,000	30	154	5.5	70	273	6.4
950	30	[illegible]	3.9	69	256	10.5
900	30	1,011	2.5	68	261	13.8
850	30	1,473	1.7	65	253	17.5
800	30	1,961	.5	[illegible]	248	21.8
750	30	2,480	-1.5	54	249	27.4
700	30	3,025	-4.5	52	249	32.3
650	30	3,607	-6.6	44	250	40.0
600	30	4,229	-9.5	41	247	43.9
550	30	4,898	-13.2	41	247	46.4
500	30	5,617	-17.5	43	249	51.9
450	30	6,396	-22.6	42	248	58.1
400	30	7,253	-28.5	43	248	62.2
350	30	8,197	-35.0		250	69.0
300	30	9,256	-42.6		254	70.7
250	30	10,465	-50.7		253	70.1
200	30	11,897	-57.2		250	76.4
175	30	12,738	-59.0		252	74.0
150	29	13,699	-60.6		252	66.1
125	27	14,837	-62.0		253	57.9
100	24	16,210	-63.2		255	44.3
80	24	17,586	-61.6		251	38.1
60	22	19,379	-58.5		251	31.9
50	22	20,530	-56.9		252	25.6
40	22	21,950	-54.9		249	27.8
30	22	23,801	-52.3		245	25.5
25	22	24,984	-50.9		244	23.7
20	22	26,444	-49.1		245	29.1
15	19	28,348	-46.1		248	25.5
10	14	31,000	-44.3		253	40.8
7	10	33,378	-43.0			
5						

NOME, ALASKA (1005 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	7	-7.1	74	55	10.5
1,000	30	48			57	9.3
950	30	447	7.0	68	79	10.1
900	30	870	-8.0	66	92	8.0
850	30	1,314	-9.1	62	90	7.6
800	30	1,782	-10.5	60	116	3.9
750	30	2,274	-12.7	59	137	3.3
700	30	2,801	-15.1	55	157	4.3
650	30	3,352	-18.5	53	186	4.7
600	30	3,951	-22.4	49	212	5.2
550	30	4,578	-26.4	45	206	9.1
500	30	5,268	-31.0	44	196	11.5
450	30	6,003	-36.2		216	11.5
400	30	6,816	-42.1		197	11.3
350	30	7,708	-48.3		191	12.6
300	30	8,710	-54.1		220	11.9
250	30	9,873	-56.0		203	9.9
200	30	11,298	-54.1		219	7.8
175	30	12,158	-53.0		226	9.7
150	30	13,153	-52.5		216	10.9
125	30	14,332	-52.4		243	12.2
100	29	15,771	-52.1		242	17.5
80	29	17,214	-52.6		253	24.5
60	28	19,078	-53.1		255	30.7
50	27	20,245	-53.7		257	30.5
40	27	21,678	-54.6		270	35.0
30	24	23,519	-55.4		273	44.1
25	22	24,695	-56.4		274	45.9
20	21	26,121	-57.3		277	57.5
15	14	27,924	-57.3			
10						
7						
5						

NORFOLK, VA. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	9	8.3	81	337	2.5
1,000	30	170	9.5	75	310	3.3
950	30	595	8.2	68	275	8.0
900	30	1,041	6.9	62	266	9.3
850	30	1,511	5.7	56	255	13.6
800	30	2,005	3.9	57	255	17.7
750	30	2,529	1.9	50	252	22.5
700	30	3,083	-.1	48	253	27.6
650	30	3,671	-2.8	39	252	32.3
600	30	4,304	-6.4	38	252	36.1
550	30	4,975	-9.9	37	251	41.0
500	30	5,710	-14.5		251	45.1
450	30	6,493	-19.9		252	48.4
400	30	7,364	-26.1		252	52.5
350	30	8,316	-33.2		257	56.7
300	30	9,383	-40.8		261	61.2
250	30	10,601	-49.0		260	68.2
200	30	12,038	-57.7		260	72.7
175	30	12,875	-60.8		260	68.2
150	29	13,828	-62.4		263	67.6
125	29	14,950	-64.1		261	57.9
100	29	16,307	-66.0		255	45.7
80	29	17,668	-63.9		254	35.4
60	29	19,450	-59.9		254	26.4
50	29	20,596	-57.7		249	21.0
40	29	22,012	-55.4		249	20.8
30	29	23,862	-52.4		237	16.7
25	29	25,048	-50.2		238	15.7
20	25	26,516	-47.9		239	19.4
15	21	28,436	-44.3		220	23.9
10	13	31,176	-40.2		239	41.6
7	9	33,629	-38.4			
5	6	35,911	-37.5			

NORTH PLATTE, NEBR. (919 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	848	-6.2	79	329	4.5
1,000	30	181				
950	30	586				
900	30	1,013	-2.1	65	305	6.6
850	30	1,471	.2	48	309	15.5
800	30	1,956	-.9	42	315	20.0
750	30	2,465	-2.7	41	310	22.9
700	30	3,016	-4.6	42	300	26.8
650	30	3,590	-7.5	41	298	30.7
600	30	4,216	-11.1	43	296	33.2
550	30	4,871	-15.5	44	293	37.1
500	30	5,593	-20.0	44	293	30.5
450	30	6,355	-25.4		276	34.6
400	30	7,211	-31.5	36		
350	30	8,143	-38.2			
300	30	9,187	-45.4			
250	29	10,389	-52.6			
200	25	11,822	-57.0			
175	24	12,666	-58.6			
150	23	13,637	-59.3			
125	22	14,779	-61.0			
100	20	16,163	-62.7			
80	15	17,550	-61.7			
60	14	19,339	-60.7			
50	14	20,478	-59.6			
40	13	21,895	-58.5			
30	11	23,726	-56.4			
25	11	24,888	-54.8			
20	11	26,323	-52.4			
15	8	28,228	-48.9			
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OAKLAND, CALIF. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	9.1	75	79	0.8
1,000	30	171	13.3	58	35	1.4
950	30	603	14.9	39	38	6.0
900	30	1,062	14.9	25	23	6.6
850	30	1,544	13.5		353	5.8
800	30	2,052	11.3		340	6.8
750	30	2,585	8.2		333	8.0
700	30	3,154	4.5		333	7.8
650	30	3,748	.7		329	9.3
600	30	4,392	-3.6		329	10.1
550	30	5,065	-8.7		329	12.0
500	30	5,806	-13.9		331	12.0
450	30	6,588	-19.6		321	13.8
400	30	7,463	-26.2		322	15.9
350	30	8,416	-33.4		327	18.3
300	30	9,481	-41.4		321	21.8
250	30	10,695	-50.7		317	24.1
200	30	12,123	-57.9		315	25.8
175	29	12,960	-60.1		311	28.8
150	28	13,922	-62.2		306	29.1
125	27	15,039	-65.2		297	25.6
100	23	16,382	-67.9		295	26.2
80	21	17,721	-67.4		295	22.2
60	21	19,466	-64.5		307	19.0
50	21	20,583	-62.8		312	15.9
40	20	21,963	-61.1		306	17.7
30	18	23,753	-59.3		307	23.1
25	18	24,898	-57.7		303	22.5
20	17	26,315	-56.2		298	24.7
15	13	28,156	-54.3			
10	5	30,751	-50.1			
7						
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OKLAHOMA CITY, OKLA. (975 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	392	1.9	77	234	1.2
1,000	30	181				
950	30	595	3.6	62	237	6.8
900	30	1,037	4.7	53	274	9.5
850	30	1,504	5.1	45	285	11.9
800	30	1,998	4.1	42	287	12.6
750	30	2,520	2.5	34	273	15.0
700	30	3,077	-.2	33	271	19.4
650	30	3,662	-3.2		274	23.7
600	30	4,297	-7.0		278	24.3
550	30	4,964	-11.1		277	27.0
500	30	5,696	-16.2		276	29.3
450	30	6,474	-21.7		272	36.3
400	30	7,338	-28.1		277	40.0
350	30	8,284	-34.7		282	41.4
300	30	9,343	-42.4		276	47.4
250	30	10,553	-50.6		278	52.8
200	28	11,984	-56.9			
175	28	12,826	-59.2			
150	26	13,792	-61.8			
125	21	14,922	-63.5			
100	15	16,258	-64.8			
80	9	17,612	-63.5			
60	8	19,390	-60.6			
50	8	20,528	-59.8			
40	7	21,925	-58.2			
30	6	23,759	-54.5			
25						
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OMAHA, NEBR. (970 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	403	-4.1	78	300	3.1
1,000	30	162				
950	30	571	-2.6	65	295	6.2
900	30	999	-1.1	56	309	12.4
850	30	1,455	-1.3	50	313	13.8
800	30	1,938	-2.6	48	297	16.9
750	30	2,445	-4.4	48	295	21.2
700	30	2,991	-6.7	45	290	24.7
650	30	3,564	-9.3	43	291	29.0
600	30	4,184	-12.2	39	290	33.4
550	30	4,841	-16.0	37	289	36.7
500	30	5,557	-20.9	40	288	38.1
450	30	6,321	-26.2	40	286	40.0
400	30	7,171	-32.6		287	43.5
350	30	8,099	-39.0		287	47.2
300	30	9,142	-45.4		287	52.8
250	30	10,342	-51.2		285	58.1
200	30	11,775	-56.1		280	57.7
175	30	12,623	-57.0		280	57.7
150	30	13,597	-58.2		277	51.7
125	24	14,745	-58.1		282	47.8
100	23	16,145	-60.0		287	42.9
80	21	17,541	-60.6		280	33.6
60	18	19,337	-59.8		279	25.3
50	17	20,474	-59.4		284	26.4
40	14	21,876	-59.3		289	21.0
30	11	23,676	-58.2		274	20.0
25	9	24,829	-57.5			
20	7	26,232	-56.6			
15	5	28,035	-55.4			
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PEORIA, ILL. (995 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	201	-2.0	80	267	3.7
1,000	30	158			276	3.9
950	30	568	-1.2	66	268	10.7
900	30	998	-1.5	58	277	15.5
850	30	1,454	-1.9	50	279	18.3
800	30	1,936	-3.3	53	279	22.3
750	30	2,444	-5.2	50	275	25.6
700	30	2,985	-7.4	44	274	29.7
650	30	3,553	-10.4	40	274	33.0
600	30	4,173	-13.4	40	275	39.2
550	30	4,823	-16.9	41	273	43.1
500	30	5,542	-21.2	44	271	45.5
450	30	6,305	-26.3	44	269	47.8
400	30	7,154	-31.8	41	264	52.7
350	30	8,087	-37.9		256	59.1
300	30	9,134	-44.6		259	66.6
250	30	10,336	-51.0		258	63.9
200	29	11,773	-55.8		258	66.8
175	29	12,622	-56.3		262	72.3
150	27	13,596	-57.2		263	64.5
125	27	14,745	-59.1		263	56.3
100	25	16,146	-60.4		261	51.1
80	21	17,530	-60.5		265	38.9
60	19	19,336	-59.0		264	29.1
50	19	20,481	-58.4		253	23.1
40	19	21,885	-57.8		255	28.4
30	17	23,706	-55.1		256	25.5
25	15	24,870	-53.1		246	37.3
20	14	26,326	-51.8		245	39.2
15	12	28,220	-48.0		239	45.5
10	12	30,912	-45.3			
7	6	33,205	-47.0			
5	5	35 291	-48.3			

PITTSBURGH, PA. (977 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	353	1.8	78	240	3.7
1,000	30	161				
950	30	574	2.2	69	236	10.3
900	30	1,013	.3	72	252	20.2
850	30	1,470	-.7	67	259	26.4
800	30	1,954	-2.1	65	259	28.6
750	30	2,466	-4.2	66	261	31.5
700	30	3,008	-6.6	63	259	35.2
650	30	3,584	-9.4	60	260	40.8
600	30	4,200	-12.5	53	258	45.1
550	30	4,860	-15.7	47	253	48.0
500	30	5,575	-20.1	43	253	54.2
450	30	6,342	-25.0	44	255	61.4
400	30	7,197	-30.5	45	250	67.2
350	30	8,133	-37.1		247	68.0
300	30	9,183	-44.4		247	74.6
250	30	10,385	-51.7		246	77.9
200	30	11,814	-56.3		241	80.2
175	30	12,660	-57.6		245	75.8
150	30	13,631	-59.0		243	69.6
125	30	14,770	-60.9		248	63.9
100	30	16,153	-62.0		250	52.5
80	30	17,540	-60.5		251	39.2
60	29	19,339	-59.1		242	30.9
50	29	20,489	-57.1		239	31.1
40	29	21,905	-55.5		242	26.6
30	27	23,745	-53.6		243	25.5
25	26	24,923	-51.9		246	27.0
20	24	26,368	-50.6		248	24.1
15	19	28,231	-48.3		244	33.4
10	15	30,909	-46.1			
7	7	33,268	-45.1			
5						

POINT ARGUELLO, CALIF. (1005 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	113	9.7	70	88	4.3
1,000	30	157	12.7	59	77	4.5
950	30	597	17.1	34	49	3.3
900	30	1,054	16.2		93	3.7
850	30	1,537	13.9		90	3.7
800	30	2,045	11.4		57	4.1
750	30	2,579	8.2		34	5.4
700	30	3,147	4.7		23	6.4
650	30	3,746	.8		7	7.0
600	30	4,384	-3.5		360	7.6
550	30	5,061	-8.4		1	7.4
500	30	5,798	-13.4		1	8.9
450	30	6,587	-19.2		353	11.1
400	30	7,458	-25.8		346	12.8
350	30	8,412	-32.9		340	13.2
300	30	9,479	-40.9		327	15.9
250	30	10,697	-49.4		318	19.8
200	30	12,132	-57.0		307	24.5
175	30	12,973	-59.3		302	22.9
150	30	13,933	-62.3		298	23.9
125	30	15,051	-65.5		294	20.8
100	30	16,397	-68.6		291	20.0
80	30	17,729	-68.8		307	17.3
60	30	19,463	-65.6		317	11.7
50	30	20,575	-63.5		320	10.3
40	30	21,952	-61.4		319	10.5
30	30	23,747	-58.8		308	13.0
25	30	24,894	-57.4		301	16.3
20	29	26,308	-55.6		294	21.6
15	29	28,149	-53.5		283	31.3
10	25	30,768	-50.4		275	47.2
7	16	33,103	-48.1		271	69.2
5	12	35,320	-47.1			

PORTLAND, ME. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	20	1.9	89	270	2.1
1,000	30	148			275	3.1
950	30	564	2.0	72	237	9.7
900	30	999	1.0	69	243	13.8
850	30	1,458	-.1	64	248	18.1
800	30	1,942	-1.7	63	249	21.8
750	30	2,452	-4.0	64	245	27.2
700	30	2,997	-6.2	61	245	31.7
650	30	3,569	-8.7	56	246	36.9
600	30	4,192	-11.8	54	248	40.4
550	30	4,848	-14.7	52	244	47.6
500	30	5,569	-19.5	46	247	51.9
450	30	6,337	-24.6	43	244	57.1
400	30	7,195	-30.2	41	246	61.6
350	30	8,133	-36.5		249	69.0
300	30	9,187	-43.3		250	76.0
250	30	10,397	-50.0		249	78.1
200	30	11,834	-56.1		247	77.1
175	30	12,680	-57.9		246	78.9
150	30	13,650	-58.6		248	69.4
125	30	14,795	-59.3		246	59.5
100	29	16,186	-60.2		246	57.5
80	29	17,581	-58.5		250	46.0
60	26	19,397	-56.6		244	35.4
50	25	20,553	-55.6		243	34.6
40	24	21,979	-54.4		241	34.0
30	23	23,834	-52.3		235	35.6
25	19	25,026	-50.3		234	34.2
20	19	26,488	-48.4		234	35.8
15	13	28,422	-46.3		221	34.8
10	8	31,156	-42.3			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

NOVEMBER 1959

RAPID CITY, S. DAK. (905 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	966	- 4.6	69	332	6.4
1,000--	30	173				
950----	30	581				
900----	30	1,012			330	8.4
850----	30	1,467	- 1.1	49	316	17.9
800----	30	1,949	- 3.3	49	316	22.7
750----	30	2,453	- 5.8	49	314	26.6
700----	30	2,996	- 8.4	50	311	31.7
650----	30	3,562	-11.1	54	303	33.6
600----	30	4,180	-14.1	50	299	35.9
550----	30	4,828	-18.0	48	299	41.8
500----	30	5,542	-22.8	51	299	44.7
450----	30	6,299	-27.8	51	301	50.5
400----	30	7,145	-33.3	44	301	55.8
350----	30	8,070	-39.9		300	58.1
300----	30	9,109	-46.5		302	60.2
250----	30	10,302	-53.1		299	58.9
200----	30	11,725	-57.1		297	57.7
175----	30	12,569	-57.4		294	53.8
150----	30	13,543	-58.1		294	52.1
125----	28	14,689	-59.6		291	47.8
100----	28	16,070	-61.8		291	40.8
80-----	27	17,451	-60.8		298	29.9
60-----	24	19,259	-60.9		293	24.3
50-----	23	20,390	-60.7		293	22.2
40-----	20	21,766	-60.1		293	18.7
30-----	15	23,590	-59.2		289	21.6
25-----	13	24,739	-59.9		278	23.5
20-----	9	26,127	-58.5			
15-----	9	27,939	-57.1			
10-----						
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ST. CLOUD, MINN. (979 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	316	- 6.9	78	284	3.5
1,000--	30	147				
950----	30	548	- 7.1	74	298	7.2
900----	30	970	- 6.4	65	308	10.9
850----	30	1,417	- 6.9	54	308	13.2
800----	30	1,889	- 8.2	53	308	15.3
750----	30	2,386	- 9.9	54	303	15.9
700----	30	2,919	-12.5	53	304	18.7
650----	30	3,481	-15.5	53	294	20.2
600----	30	4,086	-18.8	55	293	23.7
550----	30	4,728	-22.2	52	299	24.3
500----	30	5,424	-26.5	50	309	23.3
450----	30	6,177	-31.3	49	296	24.7
400----	30	7,005	-36.7		280	29.5
350----	30	7,918	-42.4			
300----	30	8,946	-48.5			
250----	29	10,132	-53.1			
200----	29	11,566	-54.2			
175----	29	12,422	-54.3			
150----	29	13,410	-54.8			
125----	29	14,570	-56.9			
100----	28	15,802	-57.4			
80-----	26	17,380	-57.8			
60-----	26	19,191	-58.3			
50-----	24	20,349	-58.5			
40-----	20	21,778	-58.1			
30-----	15	23,585	-58.1			
25-----	14	24,743	-57.3			
20-----	11	26,153	-56.2			
15-----	6	28,030	-52.5			
10-----						
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ST. PAUL IS., ALASKA (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	2.0	88	86	4.9
1,000--	30	-47				
950----	30	363	- .4	83	38	1.4
900----	30	796	- 3.3	81	93	1.0
850----	30	1,246	- 5.9	76	121	1.7
800----	30	1,719	- 8.8	68	185	2.1
750----	30	2,215	-11.7	57	296	1.0
700----	30	2,742	-14.9	54	301	.8
650----	30	3,295	-18.6	53		.0
600----	30	3,892	-22.6	52	179	2.9
550----	30	4,520	-26.9	52	156	5.2
500----	30	5,207	-31.7	52	162	6.2
450----	30	5,937	-37.0		178	4.5
400----	30	6,750	-42.8		169	4.1
350----	30	7,639	-48.6		168	5.4
300----	30	8,642	-53.1		241	8.0
250----	30	9,815	-53.3		233	13.0
200----	30	11,259	-51.1		237	12.6
175----	30	12,129	-50.2		238	15.7
150----	29	13,143	-49.6		242	15.3
125----	28	14,341	-49.9		238	16.1
100----	28	15,802	-49.5		246	18.1
80-----	28	17,264	-49.4		255	18.8
60-----	27	19,143	-49.9		257	21.6
50-----	25	20,327	-50.2		269	25.5
40-----	24	21,779	-50.3		278	24.9
30-----	20	23,648	-51.4		282	26.6
25-----	18	24,840	-52.2		282	31.1
20-----	18	26,282	-53.3		291	39.4
15-----	11	28,131	-54.2			
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SALEM, OREG. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	61	4.4	83	193	2.7
1,000--	30	196	6.5	75	201	3.5
950----	30	619	7.5	68	229	5.6
900----	30	1,064	7.6	59	262	8.4
850----	30	1,534	6.7	49	262	12.0
800----	30	2,030	4.7	40	277	14.2
750----	30	2,550	2.3	38	286	17.5
700----	30	3,108	- .7	42	289	21.6
650----	30	3,694	- 3.8	39	291	24.7
600----	30	4,324	- 7.6	40	293	28.6
550----	30	4,989	-11.9	39	294	30.7
500----	30	5,719	-16.7	39	295	34.0
450----	30	6,496	-22.1	38	292	37.1
400----	30	7,359	-28.1	37	293	41.8
350----	30	8,303	-35.4		294	46.0
300----	30	9,358	-43.8		295	49.4
250----	30	10,559	-52.4		296	51.9
200----	30	11,974	-60.2		298	52.3
175----	30	12,803	-62.0		301	50.9
150----	29	13,756	-62.9		298	48.0
125----	29	14,876	-64.0		296	46.4
100----	28	16,236	-65.3		294	41.4
80-----	27	17,602	-63.7		295	36.9
60-----	26	19,378	-62.3		302	25.8
50-----	25	20,506	-61.7		304	23.9
40-----	25	21,888	-61.5		306	22.0
30-----	21	23,696	-60.8		310	22.5
25-----	20	24,834	-60.2		316	22.2
20-----	18	26,224	-60.0		325	25.1
15-----	15	28,079	-58.8		331	22.9
10-----	14	30,620	-58.4		323	27.8
7------	8	32 860	-56.8			

SALT LAKE CITY, UTAH (878 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,288	- 1.5	68	158	4.5
1,000--	30	240				
950----	30	655				
900----	30	1,088				
850----	30	1,549	4.0	43	171	3.9
800----	30	2,042	3.1	36	239	4.1
750----	30	2,560	.1	37	286	10.5
700----	30	3,112	- 2.9	39	298	17.9
650----	30	3,694	- 5.8	38	302	23.7
600----	30	4,321	- 8.9	33	304	27.2
550----	30	4,983	-12.8	30	308	30.9
500----	30	5,711	-17.4		310	35.6
450----	30	6,491	-22.5		311	39.6
400----	30	7,350	-28.3		315	44.7
350----	30	8,294	-35.5		317	46.0
300----	30	9,350	-43.6		316	48.8
250----	30	10,552	-52.5		323	48.0
200----	30	11,973	-58.7		315	44.3
175----	27	12,804	-59.8		310	43.9
150----	26	13,770	-61.3		297	39.1
125----	26	14,894	-63.7		290	35.6
100----	22	16,244	-64.6		292	34.2
80-----	20	17,605	-64.9		297	30.9
60-----	20	19,370	-62.6		299	24.5
50-----	19	20,504	-62.3		294	18.5
40-----	19	21,884	-61.4		294	19.4
30-----	16	23,684	-59.6		292	20.0
25-----	16	24,826	-58.9		288	20.4
20-----	13	26,232	-56.8		285	19.2
15-----	10	28,079	-55.5			
10-----						
7------						

SAN ANTONIO, TEX. (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	243	6.9	83	354	5.2
1,000--	30	181				
950----	30	606	10.2	60	217	1.4
900----	30	1,056	10.3	53	235	6.4
850----	30	1,532	9.8	51	232	9.9
800----	30	2,035	8.4	44	263	9.5
750----	30	2,564	6.4	42	268	12.0
700----	30	3,130	3.3	44	261	15.0
650----	30	3,724	.1	41	260	17.7
600----	30	4,365	- 3.5		263	20.2
550----	30	5,040	- 7.7		257	24.9
500----	30	5,784	-12.5		272	22.3
450----	29	6,578	-17.7		270	29.5
400----	29	7,457	-23.9		273	35.8
350----	29	8,418	-30.9		276	37.9
300----	29	9,494	-38.8		286	38.5
250----	29	10,723	-47.4			
200----	28	12,173	-56.5			
175----	26	13,014	-61.0			
150----	24	13,961	-64.7			
125----	17	15,067	-69.2			
100----	14	16,397	-72.6			
80-----						
60-----						
50-----						
40-----						
30-----						
25-----						
20-----						
15-----						
10-----						

SAN DIEGO, CALIF. (1002 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	124	10.8	68	29	2.9
1,000--	30	144	13.1	60	22	2.3
950----	30	578	17.3	38	19	1.2
900----	30	1,042	15.3	33	38	2.1
850----	30	1,525	13.1	28	37	1.7
800----	30	2,033	10.6		47	2.7
750----	30	2,563	7.4		26	3.7
700----	30	3,133	4.2		360	4.1
650----	30	3,725	.6		346	4.5
600----	30	4,371	- 3.7		330	5.8
550----	30	5,043	- 8.5		317	7.0
500----	30	5,788	-14.0		307	6.2
450----	30	6,569	-19.7		307	7.8
400----	30	7,447	-25.8		296	13.2
350----	30	8,401	-32.7		300	17.1
300----	30	9,469	-40.4		278	22.5
250----	30	10,691	-48.7		275	29.1
200----	30	12,133	-56.2		274	31.9
175----	30	12,975	-59.5		274	31.3
150----	30	13,933	-62.7		275	27.0
125----	29	15,047	-66.4		278	22.0
100----	27	16,386	-69.4		294	20.0
80-----	24	17,708	-69.6		290	19.0
60-----	20	19,441	-65.8		306	13.2
50-----	20	20,554	-63.8		313	8.9
40-----	19	21,935	-61.1		287	9.1
30-----	18	23,735	-59.0		292	14.6
25-----	17	24,885	-57.0		288	13.8
20-----	15	26,303	-54.2		279	19.8
15-----	10	28,168	-51.2			
10-----	6	30,814	-49.6			

SAN JUAN, P. R. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	6	23.0	89	114	1.2
1,000--	30	123	24.5	77	100	6.6
950----	30	581	21.8	77	90	10.9
900----	30	1,040	19.0	75	93	10.7
850----	30	1,530	16.1	72	95	9.7
800----	30	2,044	13.2	70	88	8.4
750----	30	2,590	10.5	63	88	7.2
700----	30	3,158	7.5	55	85	6.0
650----	30	3,765	4.3	45	60	4.5
600----	30	4,413	.6	40	58	4.1
550----	30	5,102	- 3.4	35	61	3.3
500----	30	5,855	- 7.7	29	41	3.5
450----	30	6,662	-13.0		360	4.3
400----	30	7,556	-19.2		345	6.6
350----	30	8,534	-26.6		322	9.1
300----	30	9,627	-35.3		318	13.0
250----	30	10,872	-44.8		306	20.4
200----	30	12,329	-55.8		295	29.9
175----	30	13,167	-61.5		288	31.7
150----	30	14,108	-68.1		294	30.5
125----	29	15,190	-73.2		291	24.5
100----	29	16,485	-76.1		298	16.5
80-----	29	17,781	-73.4		315	8.0
60-----	27	19,490	-66.2		335	4.1
50-----	27	20,608	-61.6		320	2.3
40-----	27	22,006	-57.1		350	1.9
30-----	26	23,846	-52.0		70	3.5
25-----	22	25,030	-49.5		131	5.4
20-----	16	26,520	-46.1		111	3.9
15-----	8	28,419	-42.9			
10-----						

SANTA MONICA, CALIF. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	38	14.0	58	35	3.9
1,000--	30	149	17.0	48	41	2.7
950----	30	588	17.5	36	59	3.3
900----	30	1,047	15.9	29	60	3.9
850----	30	1,530	13.5	23	53	3.5
800----	30	2,037	10.5		38	2.1
750----	30	2,567	7.5		25	3.9
700----	30	3,135	4.2		15	5.2
650----	30	3,730	.4		16	6.4
600----	30	4,372	- 3.9		359	6.4
550----	30	5,044	- 8.9		355	7.6
500----	30	5,784	-14.3		341	8.2
450----	30	6,567	-19.9		343	10.5
400----	30	7,440	-26.2		331	13.2
350----	30	8,392	-33.0		320	15.0
300----	30	9,459	-41.0		310	17.5
250----	30	10,677	-49.3		302	24.1
200----	30	12,115	-56.6		294	27.0
175----	30	12,956	-59.6		286	27.6
150----	29	13,918	-62.6		286	25.8
125----	29	15,033	-66.3		287	22.7
100----	29	16,374	-69.6		295	22.3
80-----	28	17,699	-69.5		301	18.1
60-----	27	19,433	-66.1		314	11.7
50-----	27	20,543	-64.0		321	10.3
40-----	24	21,915	-61.5		313	9.1
30-----	23	23,709	-59.3		306	13.2
25-----	21	24,851	-58.3		301	17.1
20-----	20	26,257	-55.8		291	22.9
15-----	15	28,099	-53.6		280	35.4
10-----	10	30,707	-51.4			

SAULT STE. MARIE, MICH. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	221	- 4.4	79	307	1.9
1,000--	29	129				
950----	29	532	- 5.7	77	261	4.1
900----	29	955	- 7.9	80	290	7.6
850----	29	1,398	- 9.9	78	288	12.0
800----	29	1,865	-11.0	64	279	16.3
750----	29	2,359	-12.8	59	276	20.4
700----	29	2,883	-15.0	57	270	24.1
650----	29	3,437	-17.6	58	270	26.6
600----	29	4,039	-20.6	57	268	30.7
550----	29	4,672	-24.1	53	264	32.8
500----	29	5,367	-28.5	52	263	37.9
450----	29	6,110	-33.5	54	263	41.2
400----	29	6,934	-38.8		259	48.6
350----	29	7,838	-44.7		257	55.0
300----	29	8,859	-49.5		257	62.2
250----	29	10,045	-52.2		260	67.8
200----	27	11,486	-53.5		258	65.9
175----	27	12,343	-53.9		258	61.4
150----	26	13,332	-54.7		255	57.5
125----	26	14,496	-55.5		254	53.2
100----	25	15,910	-56.7		253	50.1
80-----	24	17,320	-57.4		249	45.9
60-----	22	19,126	-58.3		247	46.0
50-----	21	20,272	-58.2		251	42.2
40-----	20	21,687	-57.1		248	42.0
30-----	20	23,508	-56.0		248	39.4
25-----	18	24,703	-54.8		243	40.2
20-----	18	26,137	-53.4		245	40.2
15-----	16	28,012	-50.8		245	41.0
10-----	9	30,626	-50.7			

SEATTLE, WASH. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	125	5.2	89	108	2.5
1,000--	30	184			111	3.3
950----	30	603	5.9	73	187	5.4
900----	30	1,046	4.6	68	243	6.4
850----	30	1,511	3.0	60	248	11.1
800----	30	2,001	1.1	56	258	14.4
750----	30	2,517	- .8	50	273	20.0
700----	30	3,067	- 3.2	44	282	25.8
650----	30	3,646	- 6.1	45	286	30.1
600----	30	4,274	- 9.3	46	289	35.6
550----	30	4,937	-13.3	45	290	41.4
500----	30	5,662	-17.9	42	291	45.1
450----	30	6,433	-23.3	42	292	49.2
400----	30	7,293	-29.5	40	293	50.5
350----	30	8,233	-36.5		292	55.8
300----	30	9,284	-44.4		294	60.4
250----	29	10,480	-52.9		297	61.0
200----	29	11,897	-59.4		296	61.6
175----	28	12,735	-60.8		297	59.7
150----	28	13,692	-61.5		295	53.2
125----	27	14,822	-62.7		293	51.9
100----	26	16,194	-64.0		293	47.4
80-----	23	17,546	-62.6		298	45.7
60-----	23	19,323	-61.9		301	36.5
50-----	22	20,453	-61.6		301	36.3
40-----	21	21,842	-60.9		303	35.4
30-----	21	23,627	-61.6		305	36.9
25-----	21	24,755	-61.7		302	40.2
20-----	17	26,141	-61.1		302	46.8
15-----	13	27,933	-59.4		295	38.9
10-----	6	30,514	-58.0			
7------						

SHEMYA, ALASKA (995 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	37	1.7	78	328	7.0
1,000--	29	-7	1.2		342	1.6
950----	29	400	- 1.1	78	332	10.7
900----	29	834	- 4.4	81	329	11.3
850----	29	1,283	- 7.2	75	322	12.2
800----	29	1,753	-10.1	69	316	9.1
750----	29	2,243	-13.5	64	317	8.2
700----	29	2,769	-16.9	59	299	8.2
650----	29	3,318	-20.8	57	289	8.2
600----	29	3,909	-24.5	57	298	5.1
550----	29	4,533	-28.5	58	292	8.0
500----	29	5,214	-32.9	58	287	9.9
450----	29	5,939	-38.0		283	10.9
400----	29	6,751	-43.6		274	12.6
350----	29	7,639	-48.8		278	12.0
300----	29	8,641	-52.7		277	14.8
250----	29	9,819	-52.0		279	19.0
200----	29	11,273	-50.1		275	21.2
175----	29	12,148	-49.4		268	20.8
150----	29	13,159	-48.9		268	21.4
125----	28	14,358	-48.1		263	20.6
100----	28	15,831	-47.6		257	20.4
80-----	27	17,309	-47.2		258	20.8
60-----	27	19,215	-47.0		260	18.5
50-----	27	20,422	-47.1		251	18.5
40-----	27	21,902	-46.8		255	17.1
30-----	27	23,813	-46.2		269	19.6
25-----	26	25,020	-46.5		270	20.6
20-----	26	26,499	-47.6		270	20.4
15-----	23	28,379	-49.5		279	27.6
10-----	21	31,044	-49.8		294	28.0
7------	9	33,453	-47.5			

SHREVEPORT, LA. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	76	5.7	82	126	0.6
1,000--	30	177	7.2	68	58	1.2
950----	30	605	8.9	57	247	5.4
900----	30	1,049	8.4	52	270	8.2
850----	30	1,522	7.6	51	281	12.6
800----	30	2,019	6.1	46	280	15.7
750----	30	2,547	4.3	40	273	17.5
700----	30	3,106	1.8	37	270	20.2
650----	30	3,696	- 1.3	33	272	22.5
600----	30	4,334	- 4.9		268	27.6
550----	30	5,008	- 8.8		269	29.5
500----	30	5,745	-13.4		267	33.2
450----	30	6,535	-19.1		263	36.7
400----	30	7,406	-25.5		264	40.4
350----	30	8,362	-32.3		264	46.6
300----	30	9,432	-39.9		266	50.9
250----	30	10,655	-48.4		263	58.5
200----	30	12,093	-57.3		267	61.6
175----	30	12,931	-60.2		268	59.8
150----	29	13,887	-63.8		266	56.2
125----	26	14,992	-66.4		269	51.7
100----	24	16,339	-68.9		265	40.4
80-----	22	17,671	-67.6		263	33.6
60-----	20	19,421	-62.3		268	23.7
50-----	19	20,554	-60.0		257	19.8
40-----	19	21,955	-57.3		252	21.8
30-----	19	23,787	-54.3		257	23.5
25-----	18	24,959	-52.5		258	23.7
20-----	18	26,409	-49.8		257	28.0
15-----	16	28,295	-47.4		259	34.2
10-----	14	31,012	-42.5		262	61.8
7------	8	33,446	-40.3			

SPOKANE, WASH. (938 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	722	- 1.9	82	126	2.1
1,000--	30	204				
950----	30	618				
900----	30	1,048	.1	67	206	6.2
850----	30	1,506	- .5	60	248	11.1
800----	30	1,990	- 1.6	55	267	16.9
750----	30	2,501	- 3.2	52	280	21.6
700----	30	3,046	- 5.4	51	285	27.8
650----	30	3,619	- 8.2	52	288	34.4
600----	30	4,242	-11.3	51	292	39.4
550----	30	4,899	-15.1	53	296	43.7
500----	30	5,620	-19.3	49	299	47.4
450----	30	6,388	-24.2	46	301	53.2
400----	30	7,244	-30.2	43	299	57.7
350----	30	8,182	-37.1		301	62.6
300----	30	9,231	-44.7		303	63.7
250----	30	10,429	-52.9		303	66.6
200----	30	11,848	-58.9		302	68.6
175----	30	12,682	-60.2		300	67.2
150----	28	13,647	-59.5		297	64.3
125----	27	14,778	-60.7		300	52.3
100----	26	16,170	-61.5		298	42.9
80-----	25	17,547	-62.2		300	40.2
60-----	24	19,328	-61.9		303	35.8
50-----	24	20,455	-61.7		303	34.0
40-----	24	21,836	-61.7		306	33.2
30-----	22	23,612	-61.4		306	38.5
25-----	19	24,738	-60.8		300	36.5
20-----	14	26,137	-59.6		301	42.9
15-----	9	28,000	-57.8			
10-----						
7------						

SWAN ISLAND, W. I. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	10	25.9	83	28	7.4
1,000--	30	115	25.4	80	32	8.4
950----	30	565	21.8	81	41	8.7
900----	30	1,033	18.8	75	54	8.5
850----	30	1,523	16.1	69	58	7.0
800----	30	2,037	13.3	64	67	6.0
750----	30	2,577	10.5	60	65	6.2
700----	30	3,151	8.0	52	67	6.0
650----	30	3,758	4.9	45	67	5.8
600----	30	4,409	1.6	38	59	5.6
550----	30	5,101	- 2.2	33	42	5.2
500----	30	5,856	- 6.8		27	5.2
450----	30	6,669	-11.8		18	5.6
400----	30	7,564	-17.9		355	5.4
350----	30	8,547	-25.5		336	6.0
300----	30	9,646	-34.3		328	6.8
250----	30	10,894	-44.6		285	9.3
200----	30	12,349	-56.4		261	13.4
175----	30	13,185	-62.7		259	16.9
150----	29	14,119	-69.1		263	18.7
125----	27	15,191	-74.1		266	16.5
100----	25	16,488	-76.3		283	12.4
80-----	25	17,779	-74.7		294	6.0
60-----	24	19,494	-66.3		253	1.9
50-----	24	20,612	-61.5		290	2.5
40-----	24	22,011	-57.4		322	1.9
30-----	20	23,855	-52.3		36	3.9
25-----	18	25,038	-49.8		77	6.6
20-----	14	26,492	-47.8		81	9.9
15-----						
10-----						
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

NOVEMBER 1959

Standard pressure surface (mb.)	TAMPA, FLA. (1017 MB.)						TATOOSH IS., WASH. (1017 MB.)						TOPEKA, KANS. (988 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	8	16.2	89	22	5.1	29	31	7.6	82	130	6.4	30	269	- 1.3	75	258	2.3
1,000--	29	155	17.0	79	33	7.2	29	169	7.2	75	161	7.2	30	172				
950----	29	598	16.4	74	50	7.4	29	588	5.9	70	242	5.8	30	583	.4	61	267	7.4
900----	29	1,054	14.9	65	58	3.7	29	1,033	4.6	64	255	10.7	30	1,018	.5	51	289	12.8
850----	29	1,536	12.7	59	319	1.7	29	1,497	2.7	57	271	14.2	30	1,477	.9	41	296	15.9
800----	29	2,045	11.5	47	286	4.5	29	1,986	.6	53	277	20.0	30	1,963	- .2	39	291	18.8
750----	29	2,586	8.9	45	279	6.4	29	2,499	- 1.1	45	289	22.7	30	2,478	- 2.1	39	287	22.2
700----	29	3,152	6.5	36	277	7.8	29	3,052	- 3.4	41	289	29.1	30	3,024	- 4.4	36	283	24.7
650----	29	3,759	3.4		273	8.9	29	3,626	- 6.3	42	287	33.8	30	3,601	- 7.1	34	281	28.2
600----	29	4,403	- .4		280	11.3	29	4,258	- 9.8		285	38.5	30	4,226	-10.5		281	32.6
550----	29	5,088	- 5.2		276	12.8	28	4,917	-13.8		283	43.1	30	4,885	-14.8		283	35.0
500----	29	5,836	-10.1		269	17.3	28	5,646	-18.6	40	281	44.1	30	5,606	-19.8		281	36.9
450----	29	6,637	-15.8		263	21.2	28	6,415	-23.9	41	277	45.7	30	6,369	-25.3		283	40.4
400----	29	7,519	-22.2		265	23.7	28	7,276	-29.7	40	283	54.2	30	7,226	-31.2		286	44.1
350----	29	8,487	-29.4		260	29.0	27	8,214	-36.5		286	55.6	30	8,161	-36.9		285	54.6
300----	29	9,570	-37.7		264	32.8	27	9,264	-44.5		289	60.2	30	9,212	-43.5		284	60.6
250----	29	10,803	-47.3		266	41.4	27	10,461	-53.6		294	62.4	30	10,420	-50.7		282	65.5
200----	29	12,246	-57.7		267	45.9	27	11,871	-60.2		295	58.3	30	11,854	-56.4		276	63.9
175----	28	13,076	-62.3		268	41.8	27	12,701	-61.6		290	58.1	30	12,700	-57.7		279	63.7
150----	26	14,018	-66.5		269	39.1	26	13,658	-61.4		285	53.8	26	13,672	-58.5		274	58.7
125----	23	15,116	-69.9		263	33.0	26	14,786	-62.2		285	50.9	24	14,794	-59.4		278	51.9
100----	20	16,438	-72.5		258	25.3	25	16,166	-61.9		288	43.3	18	16,178	-61.4		276	42.9
80-----	19	17,754	-70.3		257	17.1	24	17,536	-62.1		287	33.8	10	17,538	-61.4		277	31.9
60-----	18	19,493	-63.4		245	10.1	24	19,320	-60.9		300	28.2	6	19,296	-60.6			
50-----	17	20,622	-60.2		209	5.2	23	20,453	-61.1		308	23.9	6	20,433	-60.2			
40-----	16	22,025	-56.8		191	4.7	20	21,840	-60.9		302	25.3	5	21,811	-59.4			
30-----	16	23,870	-51.5		162	1.4	17	23,652	-60.9		305	26.0						
25-----	16	25,059	-49.2		205	2.3	16	24,778	-60.7		312	23.5						
20-----	14	26,516	-46.5		297	8.0	15	26,153	-60.8		317	25.5						
15-----	10	28,467	-41.7				13	27,927	-60.9									
10-----																		
7------																		

Standard pressure surface (mb.)	TUCSON, ARIZ. (927 MB.)						WASHINGTON, D. C. (1009 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	781	10.0	63	131	7.0	30	88	5.5	76	233	1.9
1,000--	30	153					30	163	5.1	69	249	2.9
950----	30	580					30	585	5.5	64	254	9.7
900----	30	1,037	14.0	43	124	8.2	30	1,025	4.1	62	261	12.4
850----	30	1,518	12.4	40	110	8.0	30	1,490	3.5	54	259	17.5
800----	30	2,025	9.9	39	97	3.7	30	1,981	1.9	51	258	20.8
750----	30	2,551	7.2	38	38	1.7	30	2,500	- .1	48	257	25.5
700----	30	3,124	4.5		323	3.9	30	3,050	- 2.5	52	255	32.6
650----	30	3,717	1.1		285	5.1	30	3,633	- 5.5	48	253	37.9
600----	30	4,363	- 2.8		271	8.7	30	4,260	- 8.6	44	252	42.0
550----	30	5,040	- 7.4		276	11.9	30	4,926	-12.2	39	252	45.1
500----	30	5,784	-12.5		277	15.3	30	5,653	-16.4	38	250	49.2
450----	30	6,570	-18.2		276	19.8	30	6,432	-21.4	39	248	53.8
400----	30	7,451	-24.7		282	23.7	30	7,297	-27.4	42	252	56.0
350----	30	8,410	-31.8		283	30.5	30	8,245	-34.3	40	252	58.3
300----	30	9,482	-39.7		279	40.8	30	9,306	-42.0		250	58.9
250----	30	10,705	-48.4		280	47.6	30	10,519	-50.0		254	62.2
200----	30	12,149	-55.8		275	52.5	30	11,954	-56.7		247	59.7
175----	30	12,991	-59.5		275	51.9	30	12,796	-59.3		249	64.1
150----	30	13,948	-62.9		278	46.8	30	13,757	-61.3		250	58.1
125----	29	15,059	-66.3		279	39.8	29	14,879	-62.9		253	55.2
100----	29	16,399	-69.6		279	32.4	29	16,251	-63.3		251	47.2
80-----	28	17,729	-69.2		288	24.9	29	17,627	-62.2		248	39.6
60-----	28	19,463	-65.1		281	17.1	29	19,416	-59.4		245	26.0
50-----	27	20,584	-62.9		282	15.2	28	20,564	-57.3		245	26.4
40-----	26	21,965	-60.6		275	14.4	28	21,984	-54.9		242	29.0
30-----	23	23,767	-57.8		269	20.4	28	23,836	-52.2		243	24.7
25-----	21	24,923	-55.5		267	27.2	27	25,020	-50.3		237	23.1
20-----	17	26,355	-52.7		265	32.8	26	26,480	-48.4		233	20.4
15-----	16	28,222	-50.1		257	47.0	21	28,369	-45.8		231	23.7
10-----	7	30,881	-47.1				15	31,083	-42.1			
7------												

Standard pressure surface (mb.)	WINNEMUCCA, NEV. (876 MB.)						YAKUTAT, ALASKA (1010 MB.)						YUCCA FLAT, NEV. (887 MB.)					
	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,310	- 5.3	49	174	1.4	30	12	1.2	83	97	6.8	30	1,196	- 1.2	39	346	1.9
1,000--	30	253					30	88			107	6.8	30	225				
950----	30	664					30	500	.9	73	148	8.4	30	641				
900----	30	1,097					30	935	- 2.0	76	174	8.5	30	1,079				
850----	30	1,555	6.0	35	150	3.3	30	1,388	- 4.7	74	190	7.2	30	1,544	9.4	26	3	6.8
800----	30	2,053	5.6	30	254	4.1	30	1,862	- 7.8	74	205	8.9	30	2,046	7.7		11	7.2
750----	30	2,572	3.1	26	285	8.5	29	2,358	-10.4	64	218	10.5	30	2,571	5.3		358	7.8
700----	30	3,135	.4	24	306	12.4	29	2,891	-13.3	56	246	11.9	30	3,136	2.6		356	9.7
650----	30	3,721	- 2.6		304	16.9	29	3,444	-16.5	55	259	15.9	30	3,730	- .7		344	8.9
600----	30	4,357	- 6.3		308	19.8	29	4,050	-20.1	55	276	15.0	30	4,367	- 4.8		338	11.3
550----	30	5,025	-10.5		312	23.3	29	4,684	-24.1	56	281	18.5	30	5,042	- 9.4		332	14.2
500----	30	5,759	-15.4		311	24.5	29	5,380	-28.9	53	284	25.8	30	5,776	-14.7		327	16.1
450----	30	6,538	-20.7		315	26.8	29	6,116	-34.1	50	285	30.3	30	6,559	-20.5		325	17.3
400----	30	7,408	-27.2		312	28.8	29	6,943	-39.8		273	25.3	30	7,428	-26.8		319	18.3
350----	30	8,356	-34.8		311	28.6	29	7,843	-45.8		269	31.1	30	8,378	-34.0		320	17.3
300----	30	9,413	-43.0		317	33.2	29	8,860	-51.1		244	28.0	30	9,439	-42.3		327	21.6
250----	30	10,617	-52.6		320	36.9	29	10,035	-54.6				30	10,649	-50.8		320	26.2
200----	30	12,033	-59.8		319	37.3	28	11,460	-54.7				30	12,079	-57.3		304	30.1
175----	30	12,862	-62.5		312	34.4	28	12,315	-55.0				30	12,919	-59.4		294	34.6
150----	30	13,812	-62.9		301	35.9	27	13,296	-55.0				30	13,878	-61.6		296	31.9
125----	30	14,933	-63.9		304	35.8	26	14,464	-54.5				30	15,001	-64.5		294	31.5
100----	30	16,291	-66.7		303	31.3	25	15,891	-54.9				30	16,356	-67.2		301	28.4
80-----	30	17,640	-65.8		300	27.8	23	17,309	-54.8				30	17,702	-66.7		303	22.5
60-----	30	19,397	-63.5		303	21.4	21	19,133	-57.1				30	19,454	-63.8		309	17.5
50-----	30	20,519	-62.3		309	20.2	20	20,280	-58.0				30	20,576	-62.4		310	13.8
40-----	30	21,898	-61.9		309	20.6	18	21,672	-59.4				29	21,961	-60.8		306	15.0
30-----	30	23,682	-60.4		307	21.0	14	23,498	-59.6				28	23,758	-58.5		301	17.1
25-----	29	24,821	-59.5		304	25.1	13	24,605	-60.6				27	24,910	-57.3		295	20.0
20-----	27	26,206	-58.9		304	28.2	11	26,012	-60.8				25	26,328	-55.6		286	27.4
15-----	24	28,034	-56.9		296	32.4	6	27,832	-60.4				22	28,155	-52.9		277	39.8
10-----	19	30,620	-54.3		288	49.5							8	30,741	-49.6			
7------	5	32,830	-53.4															

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessens. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun. NOVEMBER 1959

LINCOLN, NEBR.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Nov.									
1-----	0.83	0.89	1.02	1.14	1.19	1.15	1.02	0.92	0.84
2-----	----	----	----	----	----	1.15	1.01	.91	.78
6-----	----	----	----	----	1.22	1.22	1.06	.96	.86
9-----	----	----	----	----	----	----	----	----	.80
14----	----	----	----	1.16	1.18	1.16	1.00	.88	.80
17----	.80	.99	----	----	----	----	----	----	----
20----	----	----	----	----	1.20	----	1.08	1.00	.89
26----	----	----	----	----	----	----	1.06	.98	----
29----	.94	----	1.11	----	----	----	1.06	.95	.86
30----	----	----	----	----	----	----	1.04	.89	.84
Averages	0.88	0.94	1.07	1.15	1.20	1.17	1.04	0.94	0.83

MAUNA LOA OBS., HAWAII

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Nov.									
4-----	----	----	----	1.55	----	----	----	----	1.12
5-----	----	----	----	1.57	----	----	1.47	1.38	1.31
15----	1.26	1.36	1.45	1.58	1.66	----	----	----	----
16----	1.26	1.35	1.45	1.56	1.65	1.54	1.42	1.33	1.25
17----	1.25	1.34	1.43	1.55	1.65	1.55	1.45	1.37	1.29
18----	1.27	1.35	1.46	1.57	1.67	1.59	1.49	1.41	1.27
19----	1.31	1.39	1.49	1.61	1.71	1.61	1.51	1.41	1.27
20----	1.36	1.43	1.52	1.63	1.72	1.61	1.47	1.34	1.22
21----	----	----	----	----	----	----	----	H 1.34	H 1.19
22----	1.34	1.42	1.51	1.61	1.72	1.58	1.46	1.37	1.29
24----	1.36	1.43	1.53	1.63	1.72	1.60	1.50	1.40	1.34
25----	1.31	1.39	1.48	1.61	1.69	1.55	1.46	1.39	1.32
26----	1.29	1.38	1.47	1.59	1.67	1.58	1.47	1.37	1.25
30----	1.31	1.39	----	----	----	----	----	----	----
Averages	1.30	1.38	1.48	1.59	1.69	1.58	1.47	1.37	1.26

TUCSON, ARIZ.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Nov.									
6-----	1.05	1.15	1.27	1.40	1.49	1.41	1.26	1.14	1.04
7-----	1.01	1.10	1.22	1.35	1.43	1.32	1.17	1.05	H .94
10----	H .89	H .98	H 1.10	H 1.27	H 1.35	H 1.28	H 1.11	H .99	H .89
17----	----	----	----	----	1.44	1.36	1.20	1.08	.99
22----	H .96	1.05	1.19	1.35	1.43	1.37	1.20	1.05	H .95
24----	1.01	1.09	1.19	1.34	1.42	1.36	1.22	1.08	.99
25----	1.04	1.11	1.25	1.36	1.42	1.33	1.16	1.09	H .97
27----	----	----	----	----	1.48	1.39	1.21	1.09	1.00
28----	1.14	1.22	1.32	1.46	1.49	1.40	1.25	1.14	1.05
29----	1.11	1.21	1.30	1.43	1.50	1.42	1.25	1.12	1.05
30----	.98	1.08	1.21	1.43	1.48	1.41	1.23	1.12	1.02
Averages	1.02	1.11	1.23	1.38	1.45	1.37	1.20	1.09	0.99

MADISON, WIS.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Nov.									
2-----	S 1.12	S 1.21	----	----	----	----	----	----	----
3-----	----	----	----	----	M 1.32	M 1.31	M 1.17	----	----
8-----	M 1.02	M 1.14	M 1.27	M 1.42	M 1.42	M 1.42	1.26	1.11	1.03
15----	1.11	1.21	1.31	----	1.43	----	1.28	1.17	1.08
25----	1.09	1.16	----	----	----	----	----	----	----
27----	M .99	M 1.12	M 1.24	----	M 1.35	----	S 1.20	S 1.07	----
Averages	1.07	1.17	1.27	1.42	1.38	1.37	1.23	1.12	1.06

ALBUQUERQUE, N. MEX. †

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Nov.									
3-----	----	1.01	1.13	----	----	----	----	----	----
4-----	----	----	1.13	1.27	1.38	1.30	1.12	0.99	0.88
5-----	0.99	1.13	1.25	1.40	1.45	1.37	1.27	1.16	1.07
6-----	1.09	1.17	1.27	1.41	1.45	1.36	1.24	1.15	1.06
7-----	1.07	1.15	1.26	1.38	1.43	1.34	1.23	1.15	1.06
8-----	1.05	1.14	1.21	1.38	1.41	1.03	1.03	1.04	.96
9-----	1.07	1.12	1.23	1.36	1.42	1.38	1.25	1.12	1.01
10----	1.04	1.13	1.24	1.38	1.42	1.37	1.25	1.14	1.05
11----	1.07	1.16	1.29	1.39	1.46	1.40	1.27	1.16	1.08
12----	1.05	1.14	1.25	1.40	----	1.34	1.19	1.12	1.01
14----	----	----	----	1.29	----	----	----	.87	.77
15----	----	----	----	----	----	1.28	1.11	.99	.87
16----	1.04	1.10	1.22	----	1.38	1.29	1.11	.99	.90
17----	.96	1.08	1.19	1.32	1.41	1.36	1.23	1.12	.99
20----	.99	1.10	1.22	1.34	1.37	1.28	----	.98	----
21----	1.03	1.14	1.24	1.39	1.44	----	----	----	----
22----	----	----	----	----	1.31	1.23	1.07	.95	.86
23----	1.03	1.11	1.20	1.34	1.39	----	----	----	----
24----	1.03	1.14	1.26	1.38	1.41	1.38	1.25	1.14	1.03
25----	1.13	1.22	1.31	1.42	1.45	1.41	1.24	1.12	1.01
26----	D .67	D .76	D .89	D 1.21	----	D 1.13	D .87	D .48	D .35
27----	1.07	1.15	1.25	1.29	1.41	1.42	1.26	1.16	1.08
28----	1.08	1.19	1.29	1.40	1.45	1.41	1.29	1.20	1.11
29----	1.12	1.22	1.32	1.43	1.47	1.42	1.28	1.17	1.08
30----	1.07	1.15	1.26	1.35	1.44	1.42	1.27	1.14	1.03
Averages	1.05	1.14	1.24	1.38	1.42	1.36	1.22	1.10	1.01

OMAHA, NEBR.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Nov.									
1-----	S 0.97	S 1.07	S 1.18	S 1.33	S 1.38	S 1.36	S 1.19	S 1.08	#
2-----	S .98	S 1.08	S 1.19	S 1.30	M 1.27	S 1.34	S 1.17	S 1.07	#
3-----	F .09	F .16	F .30	M 1.24	----	----	----	----	#
6‡----	S 1.06	S 1.14	S 1.25	S 1.40	S 1.42	1.41	1.26	1.11	#
14----	S 1.10	S 1.20	S 1.32	----	----	----	----	----	----
16----	1.11	1.22	1.31	----	----	----	----	----	----
18----	----	----	----	----	S 1.39	----	----	----	----
20----	----	----	----	----	I 1.34	----	1.26	1.11	1.05
27----	S 1.08	S 1.17	S 1.27	----	----	----	----	----	----
29----	1.07	1.20	1.27	----	----	----	----	----	----
30----	M 1.00	M 1.12	M 1.22	----	----	----	----	----	----
Averages	0.94	1.04	1.15	1.32	1.36	1.37	1.22	1.09	1.05

BLUE HILL, MASS.

Date	A.M. 78.7°	A.M. 75.7°	A.M. 70.7°	A.M. 60.0°	*	P.M. 60.0°	P.M. 70.7°	P.M. 75.7°	P.M. 78.7°
Air mass	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Nov.									
2-----	----	0.97	1.15	----	----	----	----	----	----
3-----	1.01	1.10	1.20	----	1.37	1.34	1.14	1.06	0.94
10----	.80	.91	----	1.10	1.18	1.16	1.00	.84	.80
11----	.95	1.04	1.14	----	----	----	----	----	----
20----	1.04	1.12	1.21	----	1.34	----	1.16	1.01	.89
Averages	0.95	1.03	1.18	1.10	1.30	1.25	1.10	0.97	0.88

* Values corresponding to true solar noon.
† Data should be considered doubtful due to moisture in instrument.
D Dust.
H Haze.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.
I Intense haze - indeterminable.
‡ Instrument believed to be out of adjustment.
\# Shadow obstruction.
F Fog.

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N. Mex.	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Boise, Idaho	Bismarck, N. Dak.	Blue Hill, Mass.	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area
Nov. 5	425	19	388	263	118	28	54	303	208	174	212	270	---
Nov. 6	428	67	58	155	189	5	60	250	228	220	228	190	---
Nov. 7	416	2	420	271	374	6	87	285	275	22	28	411	---
Nov. 8	405	0	382	249	366	7	36	276	213	21	27	404	---
Nov. 9	401	167	441	81	351	7	81	267	152	117	115	393	---
Nov. 10	399	14	440	235	361	1	100	261	60	239	268	387	---
Nov. 11	397	169	162	87	198	1	18	222	150	268	257	255	---
Average	410	63	327	191	279	8	62	266	184	152	162	330	---
Nov. 12	354	119	406	149	328	2	33	235	85	123	124	294	663
Nov. 13	203	30	362	---	215	5	13	281	220	132	142	262	624
Nov. 14	243	164	380	202	69	2	6	223	178	172	186	51	622
Nov. 15	337	150	374	107	114	2	10	198	170	67	77	161	401
Nov. 16	362	24	253	174	66	1	23	224	214	44	46	85	609
Nov. 17	378	47	236	17	179	3	26	217	113	32	25	74	528
Nov. 18	324	20	287	13	355	1	31	242	153	246	259	427	608
Average	314	79	328	110	189	2	20	231	[illegible]	116	123	193	579
Nov. 19	---	20	331	88	358	0	59	219	64	170	159	384	561
Nov. 20	359	42	291	6	358	---	31	161	62	250	251	397	610
Nov. 21	338	15	365	107	139	---	27	47	113	59	61	376	587
Nov. 22	310	57	380	7	326	---	27	35	72	63	42	339	601
Nov. 23	348	29	149	41	176	---	48	177	77	46	40	289	610
Nov. 24	348	110	82	87	---	---	27	192	45	26	26	398	620
Nov. 25	350	47	411	161	358	---	15	210	82	25	38	398	---
Average	342	46	287	71	286	---	33	149	73	91	88	369	598
Nov. 26	327	38	387	176	336	---	15	235	---	193	197	385	---
Nov. 27	361	6	271	181	118	---	28	245	125	92	91	169	---
Nov. 28	351	19	277	137	308	---	15	199	161	19	21	412	---
Nov. 29	347	68	416	137	354	---	30	195	153	49	44	400	---
Nov. 30	343	0	408	127	328	---	25	174	---	176	173	153	---
Dec. 1	334	18	395	108	264	---	25	193	154	170	149	178	---
Dec. 2	336	51	349	24	42	---	18	185	136	167	167	236	---
Average	343	29	358	127	250	---	22	204	[illegible]	124	120	276	—

1959	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Davis, Calif.	Dodge City, Kans.	East Lansing, Mich.	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Flaming Gorge, Utah	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.
Nov. 5	63	71	210	55	310	(418)	158	437	375	28	394	433	296	420
Nov. 6	37	257	53	257	330	408	89	454	365	38	336	475	297	300
Nov. 7	42	11	71	243	335	366	157	438	360	18	249	467	291	64
Nov. 8	65	87	245	342	321	371	99	411	357	22	337	445	291	314
Nov. 9	64	132	238	333	319	376	180	182	352	18	331	438	275	480
Nov. 10	246	382	217	322	316	368	186	406	343	56	335	128	280	472
Nov. 11	229	162	27	220	291	386	53	405	340	69	281	207	306	217
Average	106	157	152	253	317	(385)	132	391	356	36	323	370	291	324
Nov. 12	28	343	242	17	283	343	109	366	338	18	313	172	272	374
Nov. 13	(141)	240	69	11	303	158	33	86	344	31	313	77	252	311
Nov. 14	71	288	10	315	260	394	112	206	249	20	196	215	251	410
Nov. 15	179	165	243	157	276	368	277	262	320	20	326	146	234	414
Nov. 16	108	93	---	147	219	371	52	351	322	9	312	246	238	121
Nov. 17	68	302	153	325	275	356	149	398	324	11	315	(416)	228	371
Nov. 18	127	330	67	302	258	292	85	376	272	11	235	409	235	228
Average	(103)	252	131	182	268	326	117	292	310	17	287	(240)	244	318
Nov. 19	145	362	49	241	280	104	165	328	241	27	111	364	218	189
Nov. 20	206	331	115	120	275	251	89	340	311	13	286	---	224	374
Nov. 21	117	35	156	288	278	323	69	389	300	22	209	324	241	140
Nov. 22	124	192	202	206	286	303	213	388	243	25	243	356	223	366
Nov. 23	137	244	79	132	271	275	73	383	278	9	87	370	237	291
Nov. 24	16	69	35	127	261	286	18	370	299	16	290	372	251	231
Nov. 25	22	355	61	119	249	271	68	385	258	11	220	363	225	423
Average	109	227	100	176	271	259	99	369	276	18	207	358	231	288
Nov. 26	110	---	130	54	286	143	71	381	306	6	---	264	(237)	418
Nov. 27	47	---	38	220	245	300	193	380	292	9	---	375	247	240
Nov. 28	11	---	---	254	260	272	116	380	276	13	---	386	249	199
Nov. 29	33	---	---	299	263	305	98	384	284	5	---	370	240	434
Nov. 30	98	---	---	217	236	(298)	118	374	277	16	---	351	219	421
Dec. 1	206	---	---	196	234	306	174	375	273	2	---	304	217	288
Dec. 2	161	---	---	112	231	301	134	370	271	11	---	374	200	213
Average	95	---	---	193	251	(275)	129	378	283	[illegible]	---	346	(230)	316

1959	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Hartford, Conn.	Hatteras, N. C.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.	Laramie, Wyo.
Nov. 5	269	346	260	197	126	133	388	216	462	171	355	391	313
Nov. 6	152	358	99	115	224	---	404	95	454	9	383	239	294
Nov. 7	260	356	232	72	406	31	54	---	451	---	454	295	67
Nov. 8	---	347	211	372	443	69	62	257	443	266	439	329	268
Nov. 9	146	344	64	356	430	323	255	148	432	---	416	---	294
Nov. 10	136	334	128	---	427	312	397	300	434	230	342	---	269
Nov. 11	116	325	69	262	213	269	365	28	418	78	---	---	49
Average	180	344	152	229	324	190	275	174	442	151	382	313	222
Nov. 12	170	335	184	274	404	156	366	82	407	76	376	---	142
Nov. 13	254	337	256	114	274	151	(335)	175	410	18	296	--	289
Nov. 14	76	324	110	160	152	134	294	86	404	34	57	---	186
Nov. 15	109	328	137	159	142	115	57	306	391	194	93	---	276
Nov. 16	246	319	225	140	137	187	119	57	389	42	279	---	282
Nov. 17	127	315	89	144	243	18	175	376	365	49	149	---	246
Nov. 18	85	247	82	352	419	290	153	283	372	122	416	---	164
Average	152	315	155	192	250	150	(214)	195	391	77	238	---	226
Nov. 19	123	220	139	335	408	137	391	282	381	26	381	---	159
Nov. 20	112	309	45	291	396	250	368	206	394	106	360	---	258
Nov. 21	75	230	21	100	216	62	143	276	358	67	352	---	220
Nov. 22	122	293	23	316	360	80	343	207	366	149	282	---	198
Nov. 23	85	276	88	153	143	31	326	107	369	114	86	---	227
Nov. 24	56	292	57	31	84	14	174	104	376	---	363	---	232
Nov. 25	93	123	70	305	400	44	329	262	366	33	378	---	110
Average	95	249	63	219	287	88	296	206	373	82	315	---	201
Nov. 26	121	297	142	298	379	214	355	85	379	84	271	---	251
Nov. 27	205	275	171	160	152	32	310	99	379	2	261	---	164
Nov. 28	208	291	114	229	349	8	25	161	373	---	390	---	247
Nov. 29	128	291	142	269	393	101	189	275	365	---	375	256	178
Nov. 30	169	264	150	313	401	176	366	177	363	66	361	189	191
Dec. 1	147	284	131	298	363	126	355	174	362	25	251	255	234
Dec. 2	166	286	117	248	60	184	211	115	291	140	369	257	223
Average	164	284	138	259	300	120	259	155	359	64	325	239	213

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Las Vegas, Nev.	Lemont, Ill.	Lexington, Ky.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Manhattan, Kans.	Matanuska, Alaska	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Tex.
Nov. 5------	410	25	---	145	---	349	376	239	24	715	278	428	439
Nov. 6------	397	58	---	(353)	434	375	400	393	22	464	262	399	464
Nov. 7------	391	---	---	163	416	375	404	288	20	264	257	369	457
Nov. 8------	381	269	---	---	403	372	388	361	122	---	263	262	436
Nov. 9------	379	163	---	303	376	349	383	347	71	---	252	285	349
Nov. 10------	376	258	---	(280)	288	329	354	298	114	---	235	347	328
Nov. 11------	348	191	---	---	46	294	321	269	28	---	220	281	227
Average-------	383	199	---	(249)	327	349	375	313	57	---	253	339	386
Nov. 12------	362	24	---	15	289	274	286	8	33	---	225	277	376
Nov. 13------	343	4	---	---	84	256	314	52	57	95	234	299	163
Nov. 14------	358	279	---	---	139	205	297	367	---	360	234	424	169
Nov. 15------	280	267	---	---	103	68	79	339	---	603	210	359	244
Nov. 16------	342	---	---	296	64	307	(330)	343	---	605	236	342	353
Nov. 17------	292	254	379	268	397	299	318	371	32	607	214	382	416
Nov. 18------	252	135	346	268	315	276	284	354	53	618	123	197	404
Average-------	318	161	---	212	199	241	(273)	262	44	481	211	325	304
Nov. 19------	314	234	349	---	324	236	272	162	86	622	132	23	332
Nov. 20------	344	25	261	271	270	312	330	236	55	626	100	121	269
Nov. 21------	282	195	313	126	322	298	308	241	8	616	208	205	382
Nov. 22------	308	209	300	232	292	304	325	232	16	610	37	397	339
Nov. 23------	305	9	25	136	140	304	310	213	15	535	157	427	387
Nov. 24------	321	13	70	130	349	306	329	212	21	608	38	331	376
Nov. 25------	307	215	213	155	329	261	295	175	39	595	47	390	384
Average-------	312	129	219	175	28[illegible]	[illegible]89	310	210	34	602	103	271	353
Nov. 26------	327	11	134	242	44	298	329	97	13	597	185	382	---
Nov. 27------	334	223	31	264	185	290	326	238	24	530	199	312	384
Nov. 28------	333	134	126	181	223	309	340	273	14	285	197	301	383
Nov. 29------	326	236	116	258	350	305	333	260	15	493	155	419	389
Nov. 30------	316	147	318	228	303	289	306	241	19	553	177	310	365
Dec. 1------	308	139	290	29	79	291	318	204	10	449	140	273	368
Dec. 2------	299	37	101	244	263	265	230	256	11	580	81	124	343
Average-------	320	132	1[illegible]0	207	207	2[illegible]3	312	224	15	498	162	303	372

1959	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Page, Ariz.	Phoenix, Ariz.	Portland, Me.	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.
Nov. 5------	367	---	136	136	119	326	421	440	116	199	308	434	---
Nov. 6------	90	240	93	358	68	422	411	440	190	68	262	443	---
Nov. 7------	370	43	17	200	314	401	409	425	39	255	272	440	---
Nov. 8------	390	27	75	183	374	378	400	421	42	236	283	431	---
Nov. 9------	325	129	274	274	360	380	392	373	196	236	220	383	---
Nov. 10------	371	255	257	253	334	360	391	452	275	218	115	403	---
Nov. 11------	109	277	206	298	160	190	378	358	266	35	102	350	---
Average-------	289	162	151	243	247	337	400	416	161	178	223	412	---
Nov. 12------	312	164	145	43	293	254	381	403	64	113	189	360	---
Nov. 13------	312	244	112	138	277	55	233	220	83	250	304	353	---
Nov. 14------	55	229	96	---	54	332	381	379	57	137	194	360	---
Nov. 15------	67	56	88	265	206	352	364	261	97	132	194	120	---
Nov. 16------	44	61	88	310	34	84	353	391	61	234	293	374	---
Nov. 17------	377	27	11	280	254	356	344	413	29	101	219	350	---
Nov. 18------	296	267	181	279	341	331	215	290	256	93	265	298	---
Average-------	209	150	103	219	208	[illegible]52	324	337	93	151	237	316	---
Nov. 19------	289	169	220	186	320	282	254	295	177	113	69	330	---
Nov. 20------	246	268	249	268	286	135	360	353	250	28	179	386	53
Nov. 21------	292	63	91	85	211	351	263	333	55	105	191	350	111
Nov. 22------	199	46	226	196	273	207	336	357	164	21	219	384	72
Nov. 23------	22	77	48	120	62	337	311	334	29	138	44	359	57
Nov. 24------	159	20	20	127	112	335	338	343	42	---	136	369	179
Nov. 25------	225	47	152	126	224	327	317	337	30	190	211	345	98
Average-------	205	9[illegible]	144	158	213	282	311	336	107	99	150	360	95
Nov. 26------	126	229	198	263	179	141	352	351	228	201	144	364	189
Nov. 27------	40	133	40	226	22	347	334	357	32	187	140	371	198
Nov. 28------	135	20	2	154	87	339	339	355	21	43	185	368	215
Nov. 29------	282	65	56	263	222	324	337	343	26	102	71	360	187
Nov. 30------	293	210	127	234	312	316	317	327	237	136	212	356	83
Dec. 1------	273	191	131	35	266	210	324	338	388	117	196	352	37
Dec. 2------	124	194	160	246	35	320	323	340	142	129	184	214	164
Average-------	182	14[illegible]	102	203	160	2[illegible]5	333	344	153	131	162	341	153

1959	Salt Lake City, Utah	San Antonio, Tex.	Santa Maria, Calif.	S.Ste. Marie, Mich.	Sayville, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Wake Island Pacific Area	Washington, D. C. (Obs & Fed Dev Ctr)
Nov. 5------	350	424	411	44	202	195	309	194	143	177	421	430	546	146
Nov. 6------	321	455	432	198	240	158	445	107	50	371	208	455	556	112
Nov. 7------	324	452	426	97	20	208	430	245	154	350	103	431	(569)	39
Nov. 8------	316	428	421	261	47	202	429	209	316	334	209	332	(565)	219
Nov. 9------	300	374	401	170	170	39	398	200	246	335	402	202	534	325
Nov. 10------	299	115	395	46	281	130	302	208	261	333	435	397	472	281
Nov. 11------	295	359	380	96	269	40	78	36	190	246	259	344	432	202
Average-------	315	372	409	130	176	139	342	171	194	306	291	370	(525)	189
Nov. 12------	317	233	(337)	253	173	152	307	203	233	200	328	176	424	233
Nov. 13------	322	86	267	72	154	180	---	216	151	37	326	149	546	247
Nov. 14------	274	72	260	179	169	183	74	128	86	310	412	140	535	167
Nov. 15------	296	93	238	148	92	62	106	155	275	308	421	266	521	113
Nov. 16------	293	277	329	60	179	135	174	205	150	72	234	362	518	79
Nov. 17------	280	370	(317)	240	24	27	326	36	129	329	309	393	---	55
Nov. 18------	275	418	244	127	233	48	380	71	186	296	280	305	446	234
Average-------	294	221	(2[illegible]5)	154	146	112	22[illegible]	145	173	222	330	256	498	161
Nov. 19------	240	384	(267)	219	234	69	378	81	125	209	324	346	517	295
Nov. 20------	282	333	284	119	272	14	301	64	213	143	158	377	493	261
Nov. 21------	104	185	270	81	82	160	307	98	125	310	172	388	455	41
Nov. 22------	169	326	276	91	231	18	301	47	226	241	372	382	540	256
Nov. 23------	115	213	275	24	65	50	83	117	58	289	304	373	480	150
Nov. 24------	266	380	276	74	15	38	352	117	9	298	351	371	---	---
Nov. 25------	188	382	284	198	89	(164)	350	186	95	292	439	367	(510)	179
Average-------	195	315	(276)	115	141	(73)	296	102	122	255	303	372	(499)	197
Nov. 26------	282	260	279	142	220	(156)	187	190	67	101	412	349	---	186
Nov. 27------	266	372	(281)	186	101	153	190	182	15	302	103	379	---	144
Nov. 28------	259	387	278	99	15	137	336	74	131	298	94	384	---	68
Nov. 29------	253	381	279	174	58	76	359	86	209	278	331	370	---	273
Nov. 30------	---	284	280	145	181	127	318	79	191	284	412	367	---	248
Dec. 1------	---	238	282	80	138	70	174	81	80	242	377	361	---	228
Dec. 2------	---	356	275	52	191	19	323	158	168	279	266	360	---	224
Average-------	265	340	(279)	125	129	(105)	270	121	123	255	285	367	---	19[illegible]

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

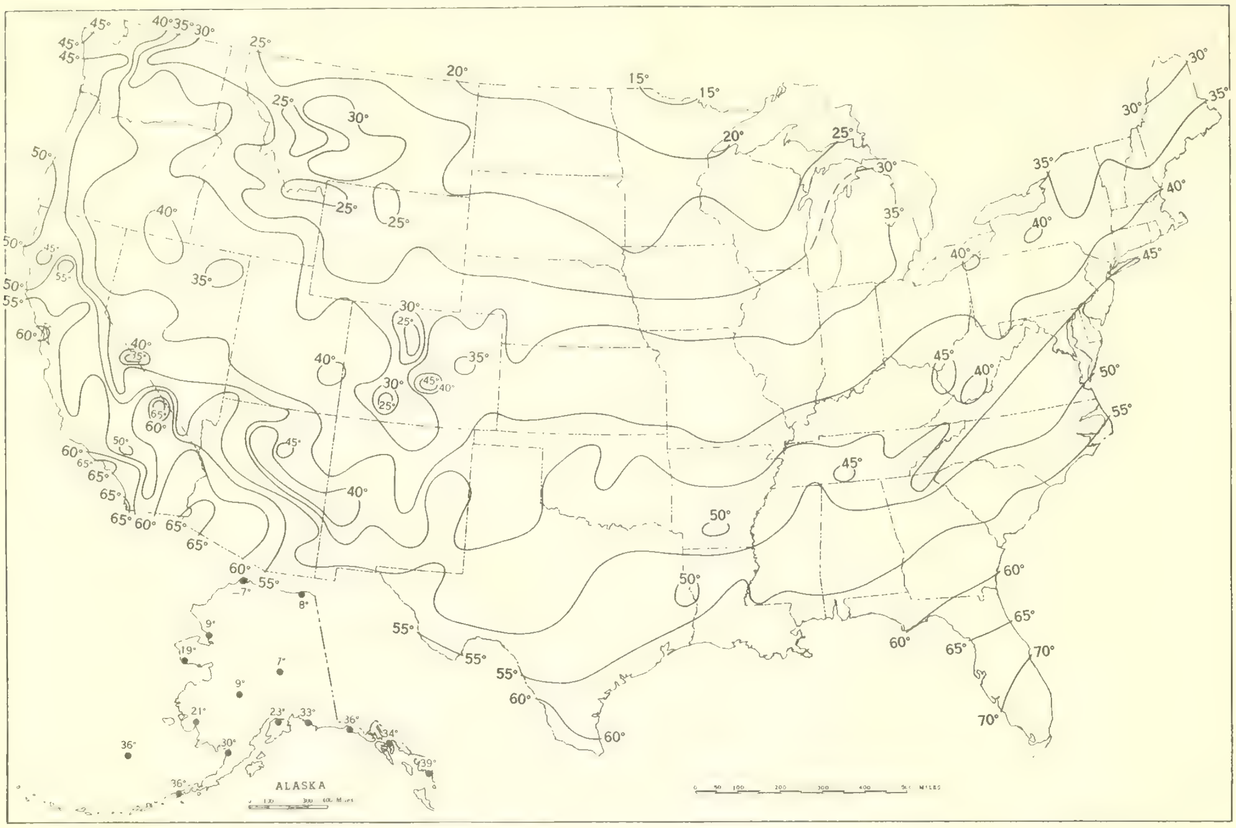
NOVEMBER 1959

Date	Bismarck, N. Dak.	Caribou, Me.	Ft. Worth, Tex.	Green Bay, Wis.	Washington, D.C. (Silver Hill Obs.)
NOV.					
1	.266	---	---	.304	---
2	.274	.371	---	.289	.328
3	---	---	---	---	.298
4	---	---	.287	---	---
5	---	---	.290	---	---
6	.311	---	.302	.292	---
7	.342	---	.292	---	---
8	---	---	.307	.324	.284
9	---	---	.293	.329	.291
10	---	.302	---	---	.330
11	---	.297	.303	.338	---
12	---	---	.305	.332	.356
13	---	---	---	---	.337
14	---	---	---	.343	.319
15	---	.330	---	---	---
16	.398	---	.297	---	---
17	---	---	.290	.393	---
18	.263	---	.276	.296	.314
19	---	---	.277	.270	.300
20	---	---	.284	---	.295
21	.290	---	.301	---	---
22	---	---	.296	---	.312
23	.311	---	.309	---	.292
24	---	---	.305	---	---
25	---	---	.292	---	.357
26	---	---	---	---	.296
27	---	---	.327	---	---
28	.274	---	.321	.355	---
29	---	---	.285	---	.385
30	---	---	.299	.276	.289

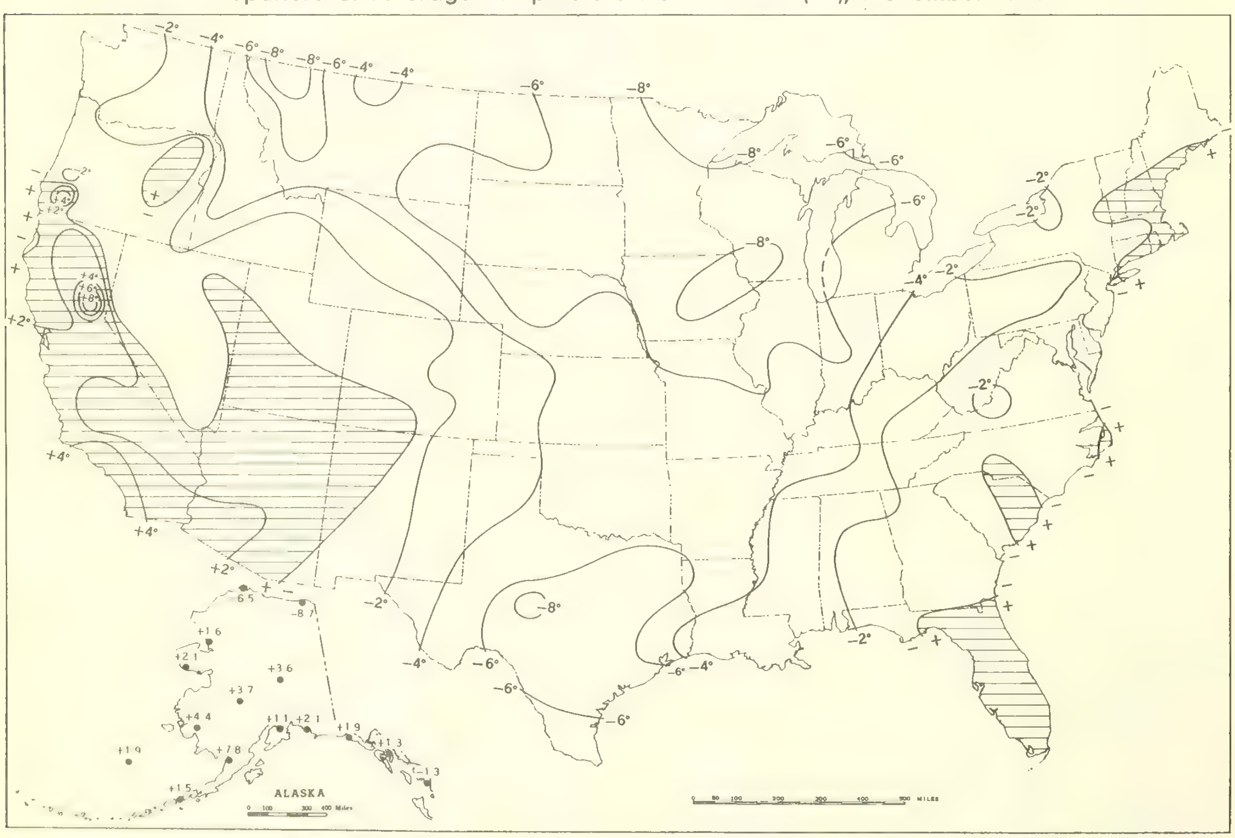
The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

Chart I. A. Average Temperature (°F.) at Surface, November 1959.

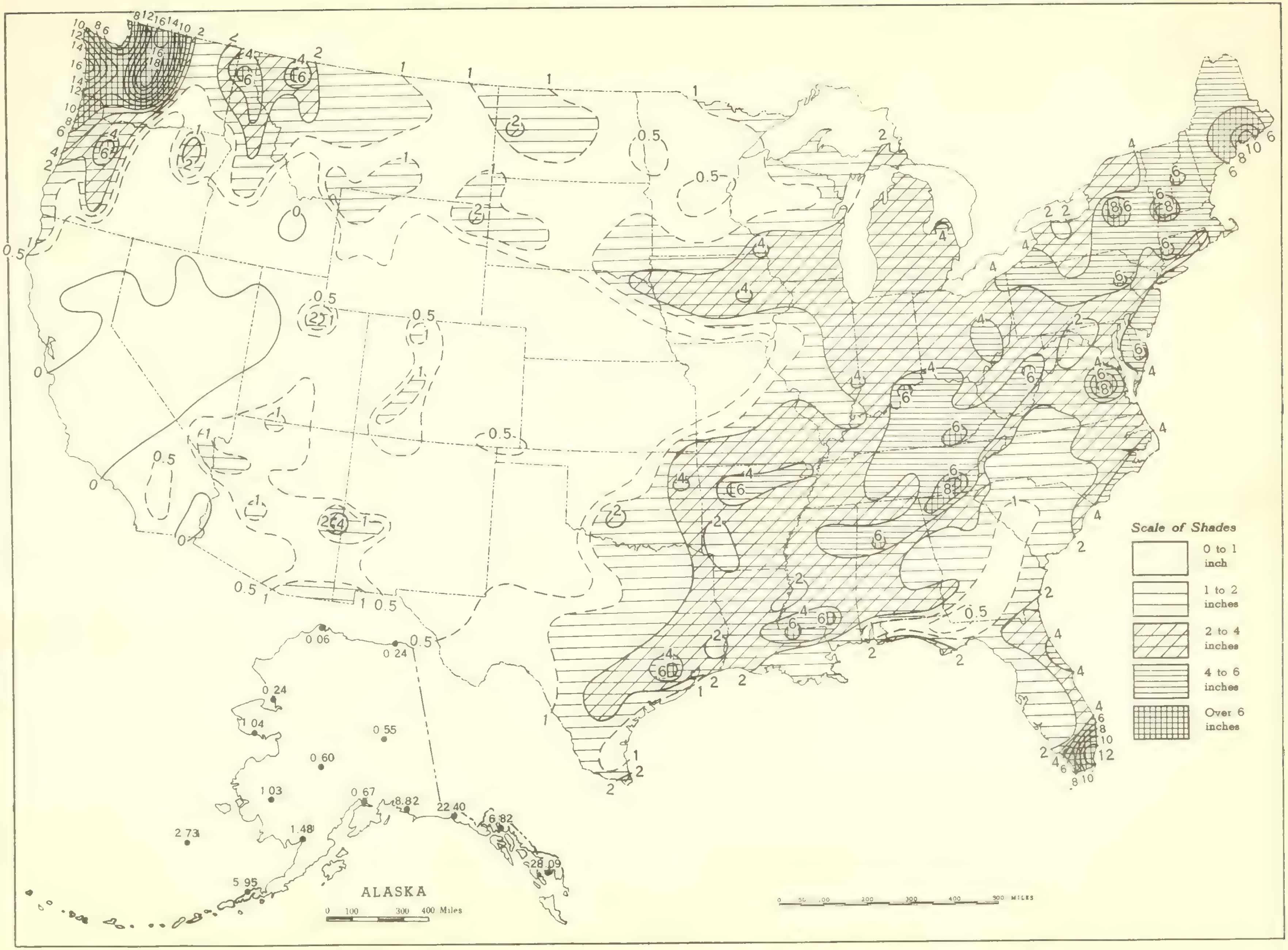


B. Departure of Average Temperature from Normal (°F.), November 1959.



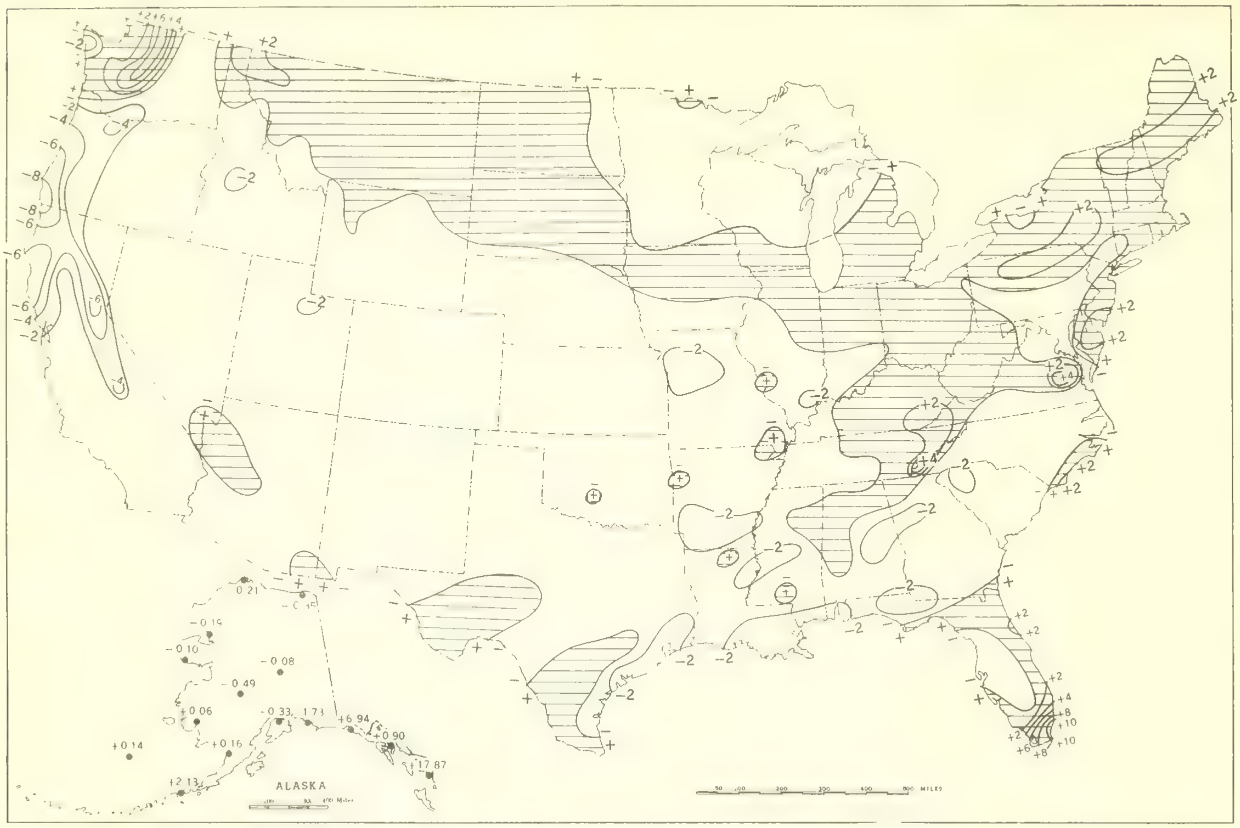
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), November 1959.

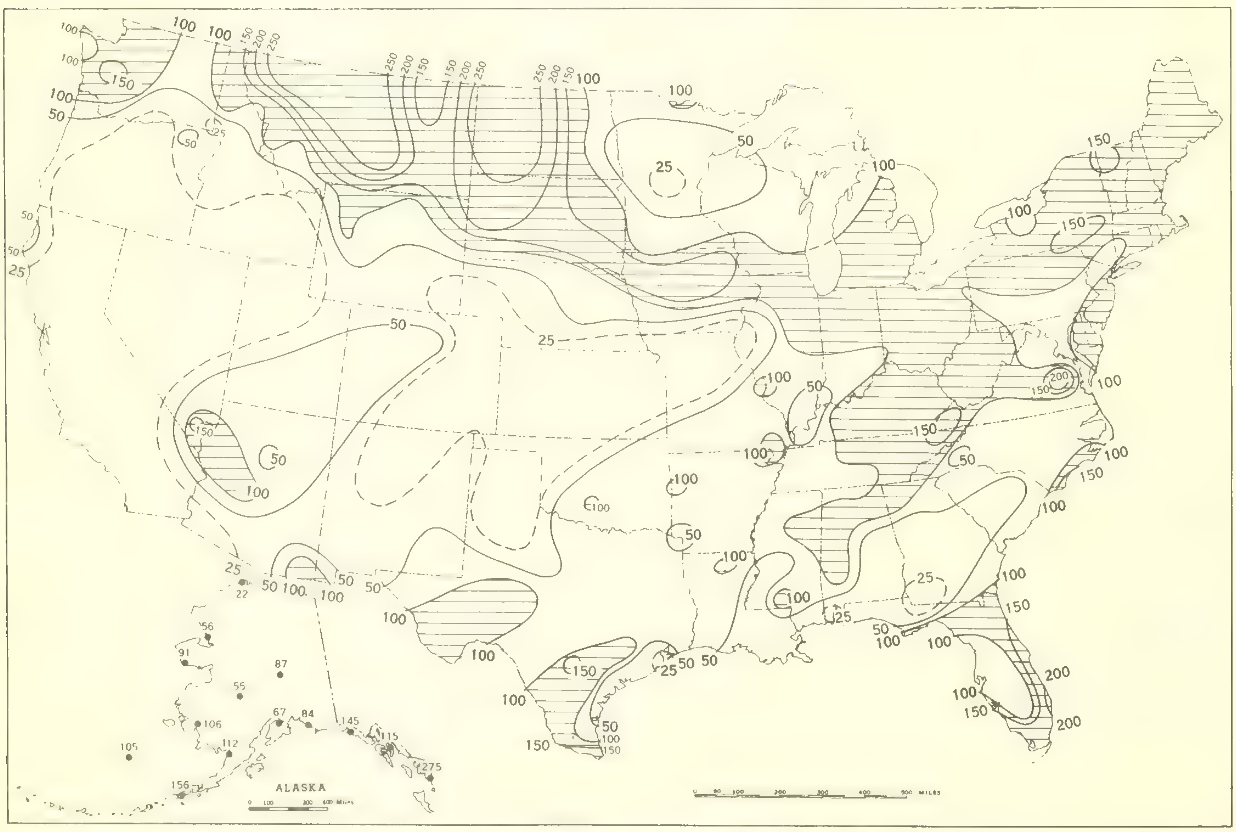


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), November 1959.

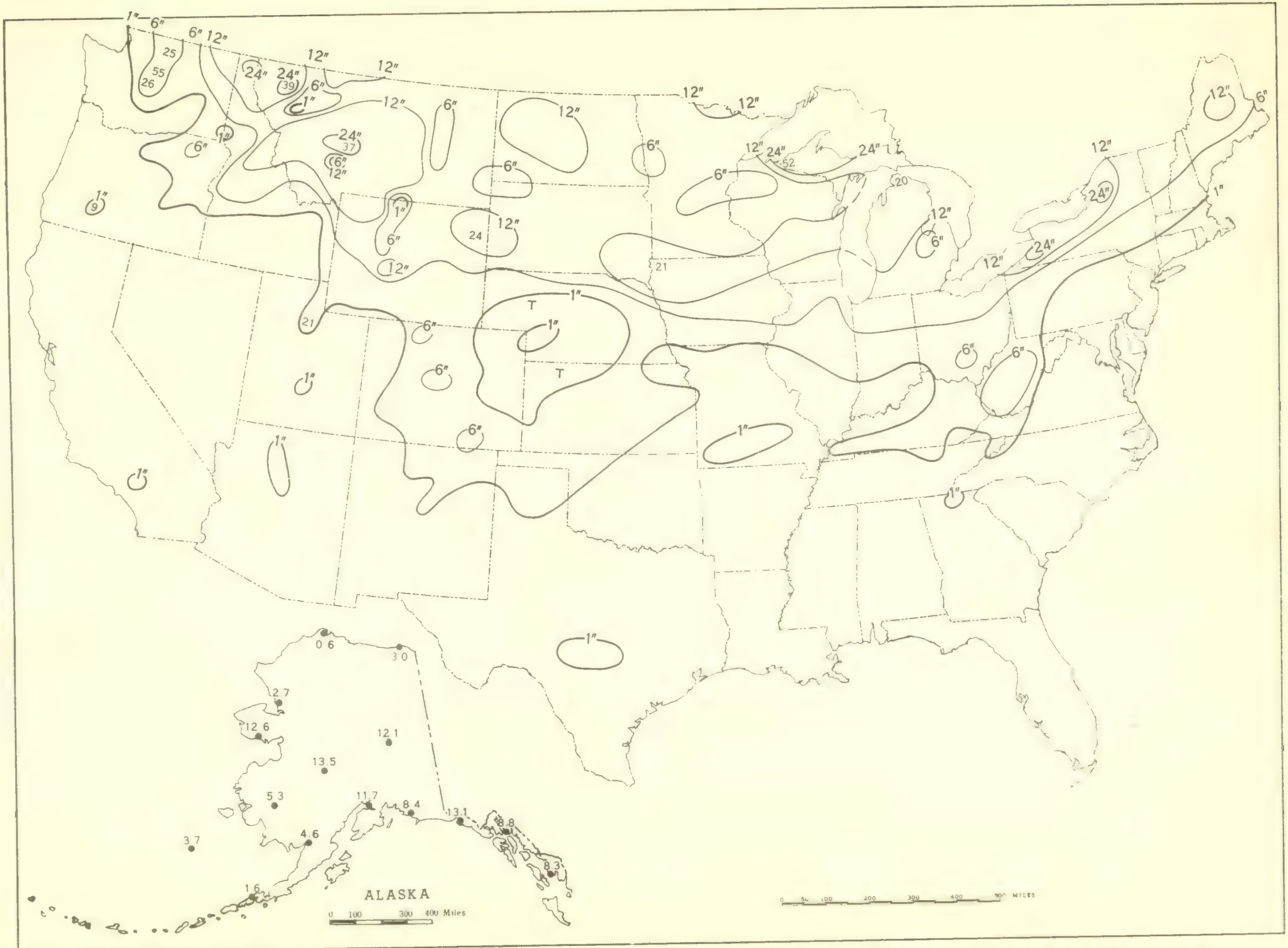


B. Percentage of Normal Precipitation, November 1959.



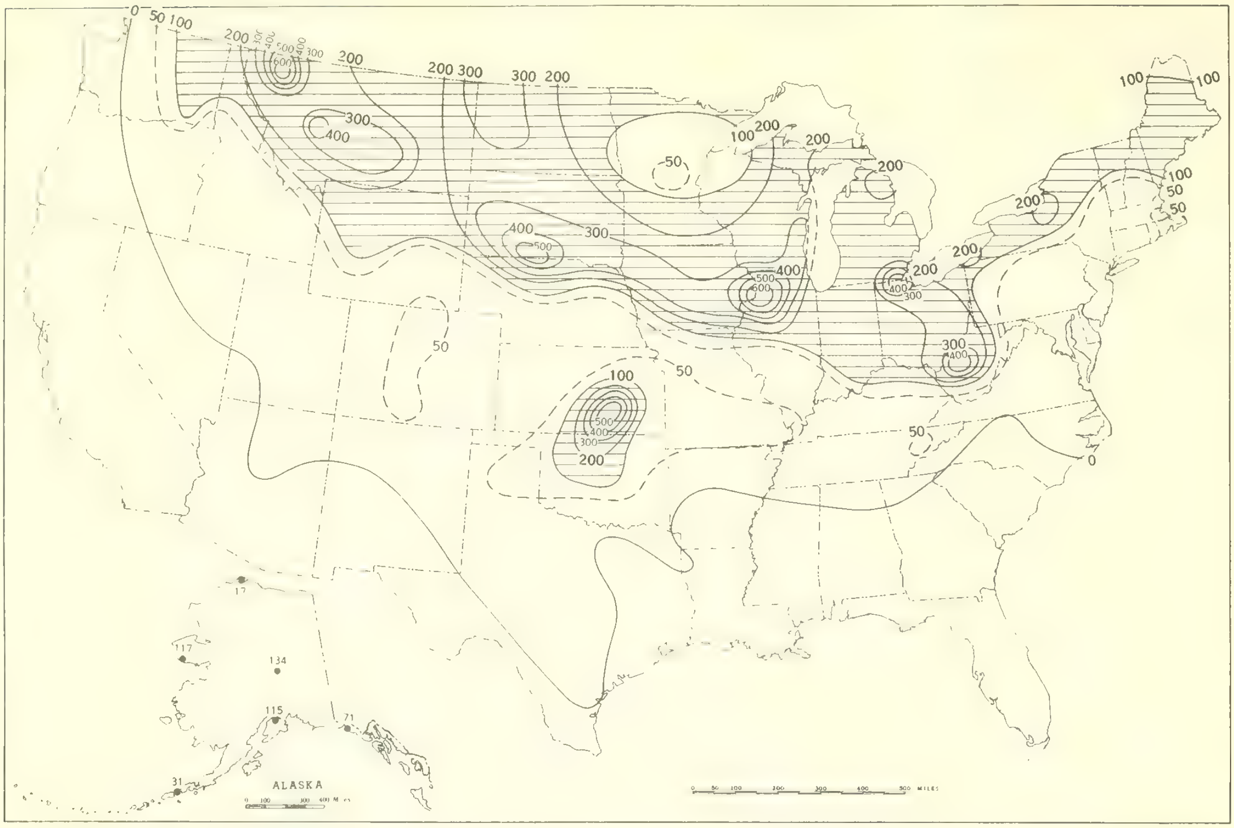
Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), November 1959.

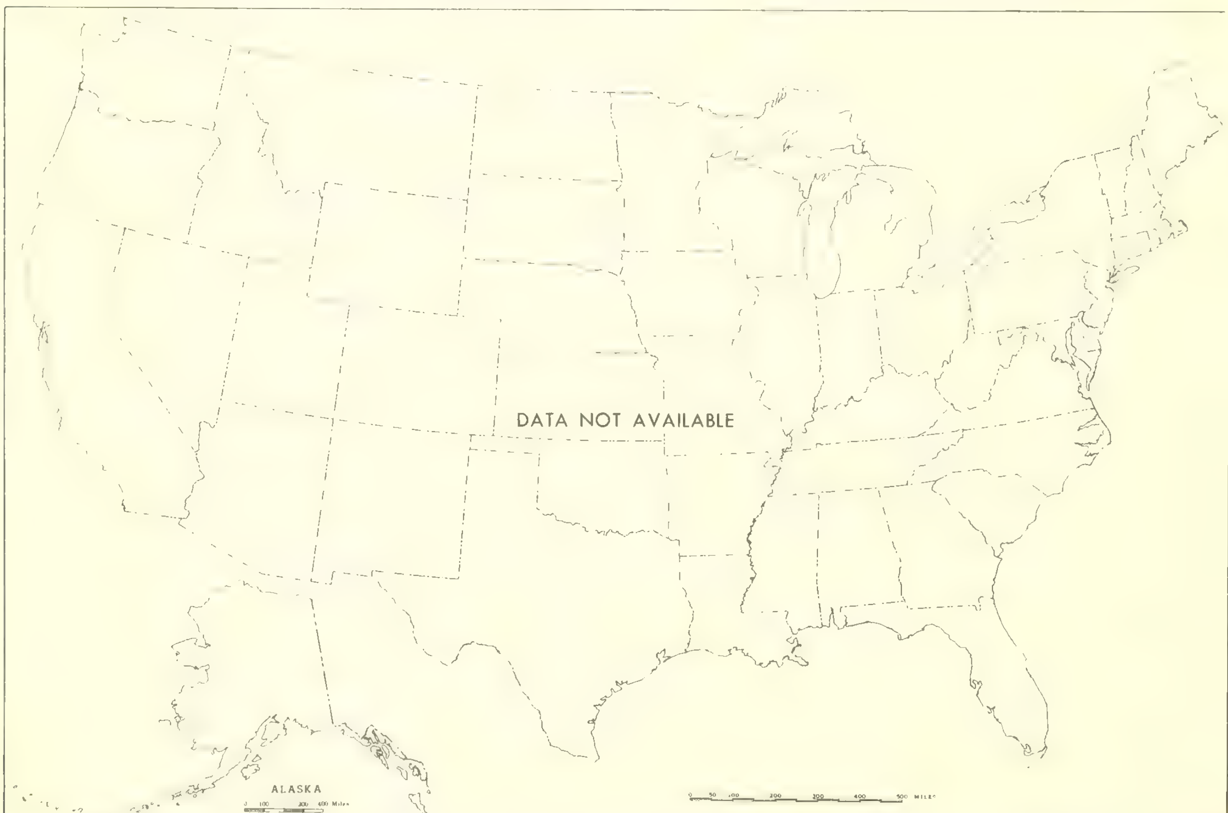


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Mean Monthly Snowfall, November 1959.

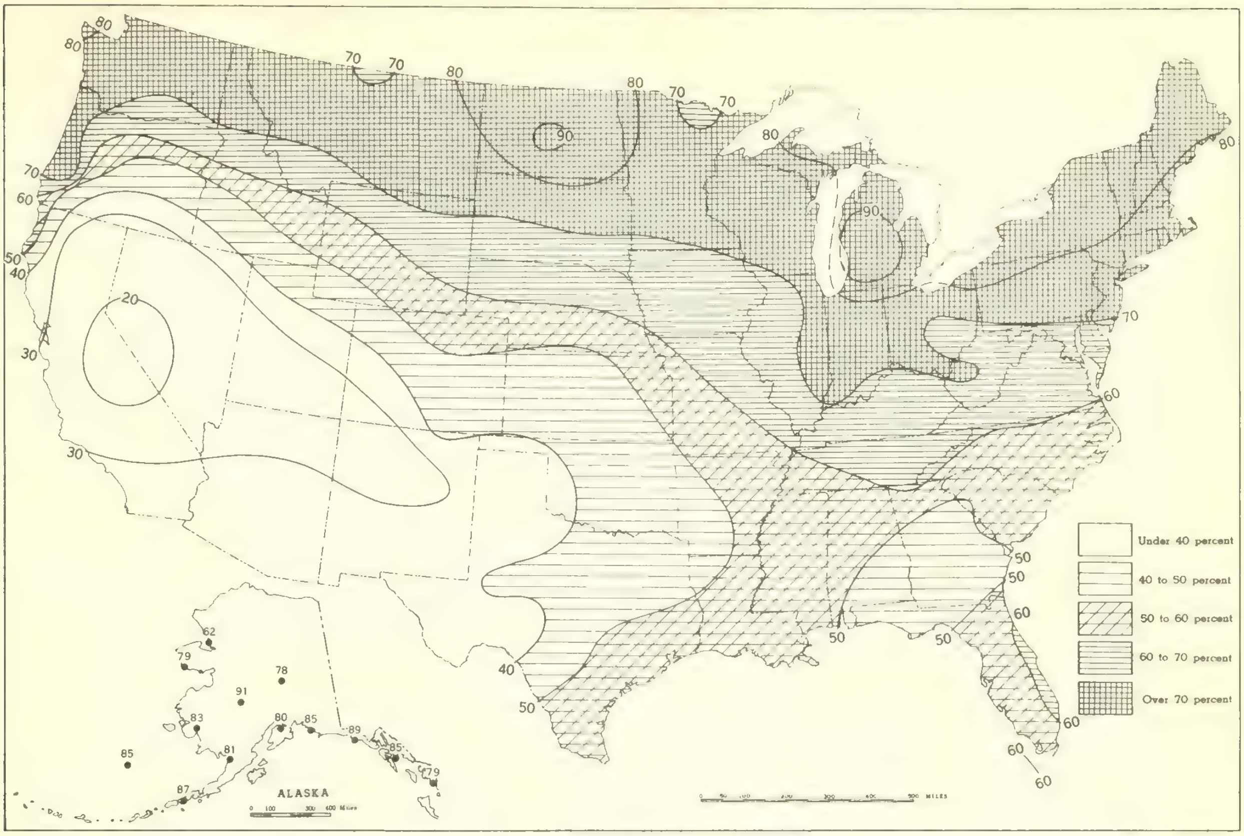


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., November 30, 1959

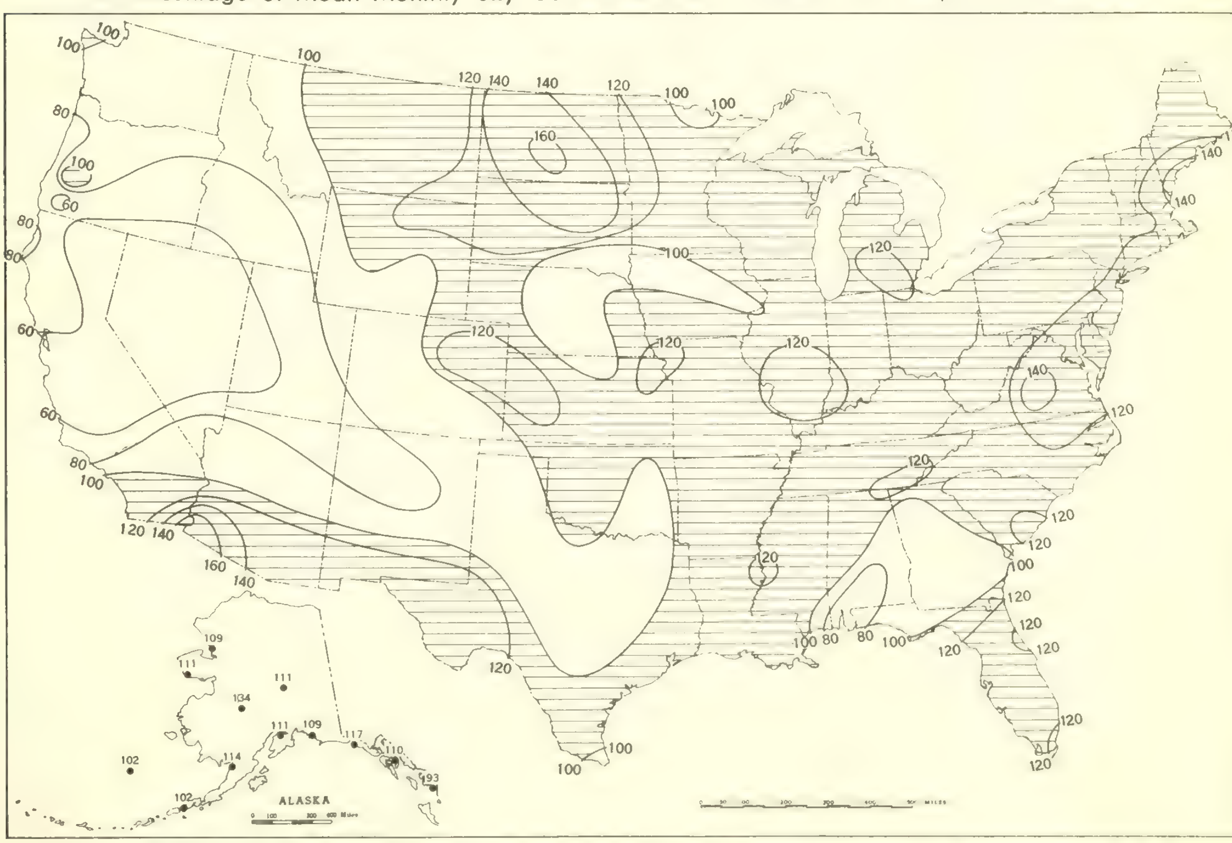


A. Amount of mean monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
B. Shows depth currently on ground at 7:00 a. m. E.S.T., of the Monday nearest the end of the month.
It is based on reports from Weather Bureau and cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, November 1959.

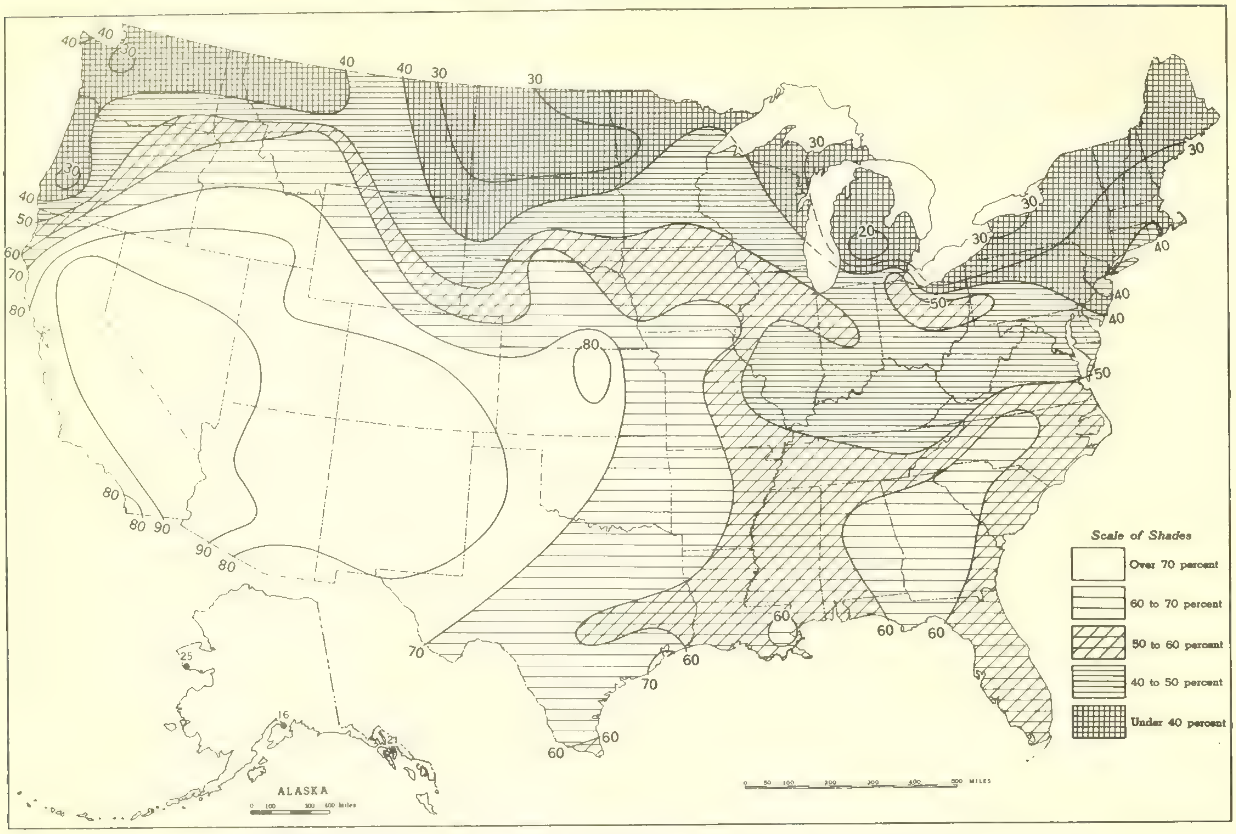


B. Percentage of Mean Monthly Sky Cover Between Sunrise and Sunset, November 1959.

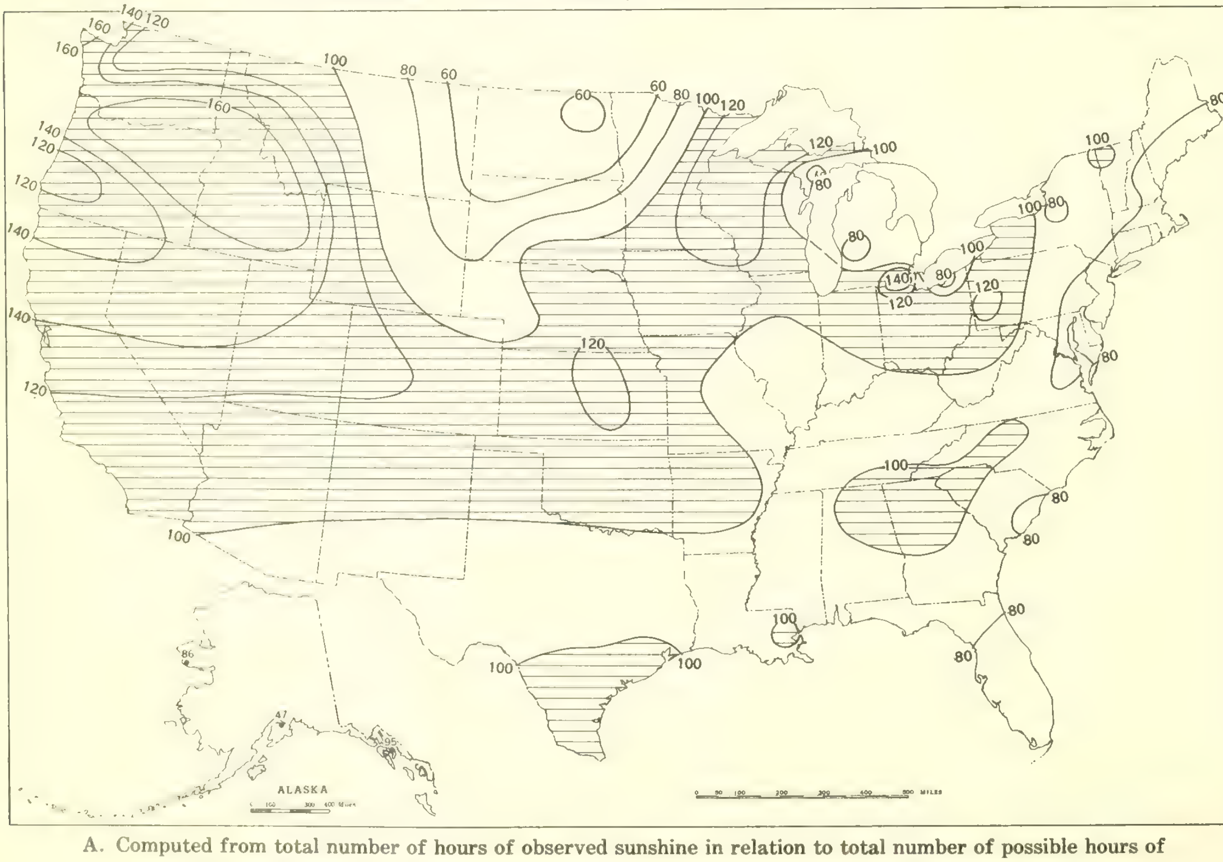


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of mean amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, November 1959.

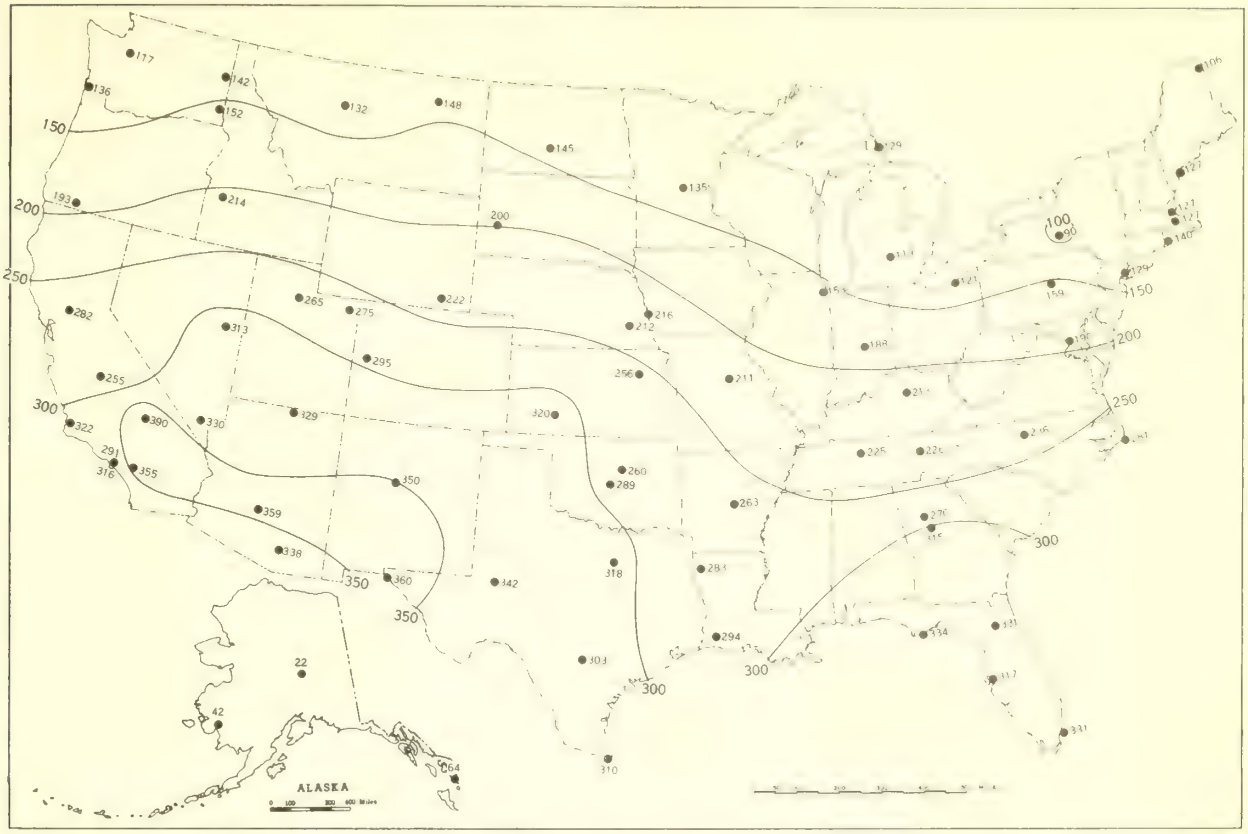


B. Percentage of Mean Monthly Sunshine, November 1959.

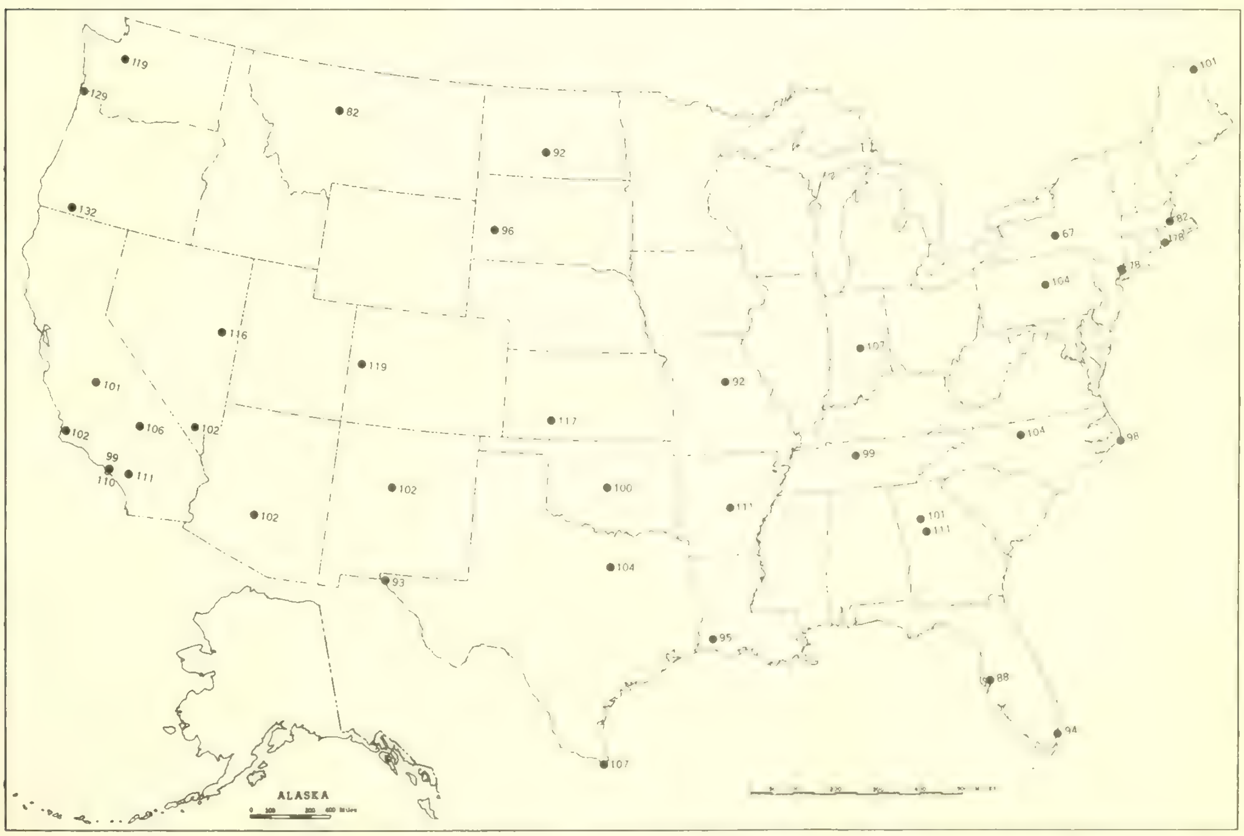


A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Means are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, November 1959.



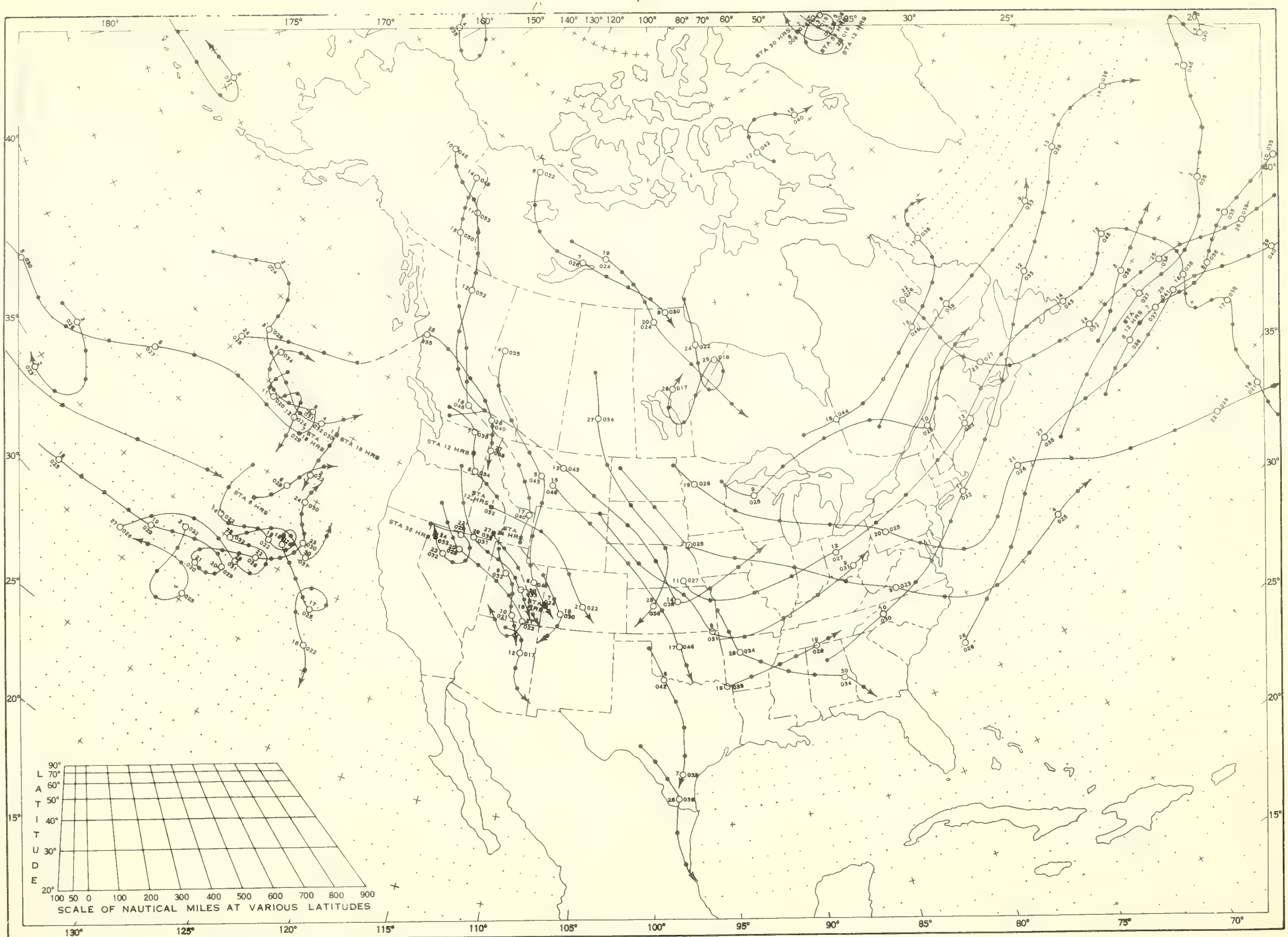
B. Percentage of Mean Daily Solar Radiation, November 1959.



A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley 1 gm. cal. cm.) and recorded in International Pyrheliometer Scale of 1956.

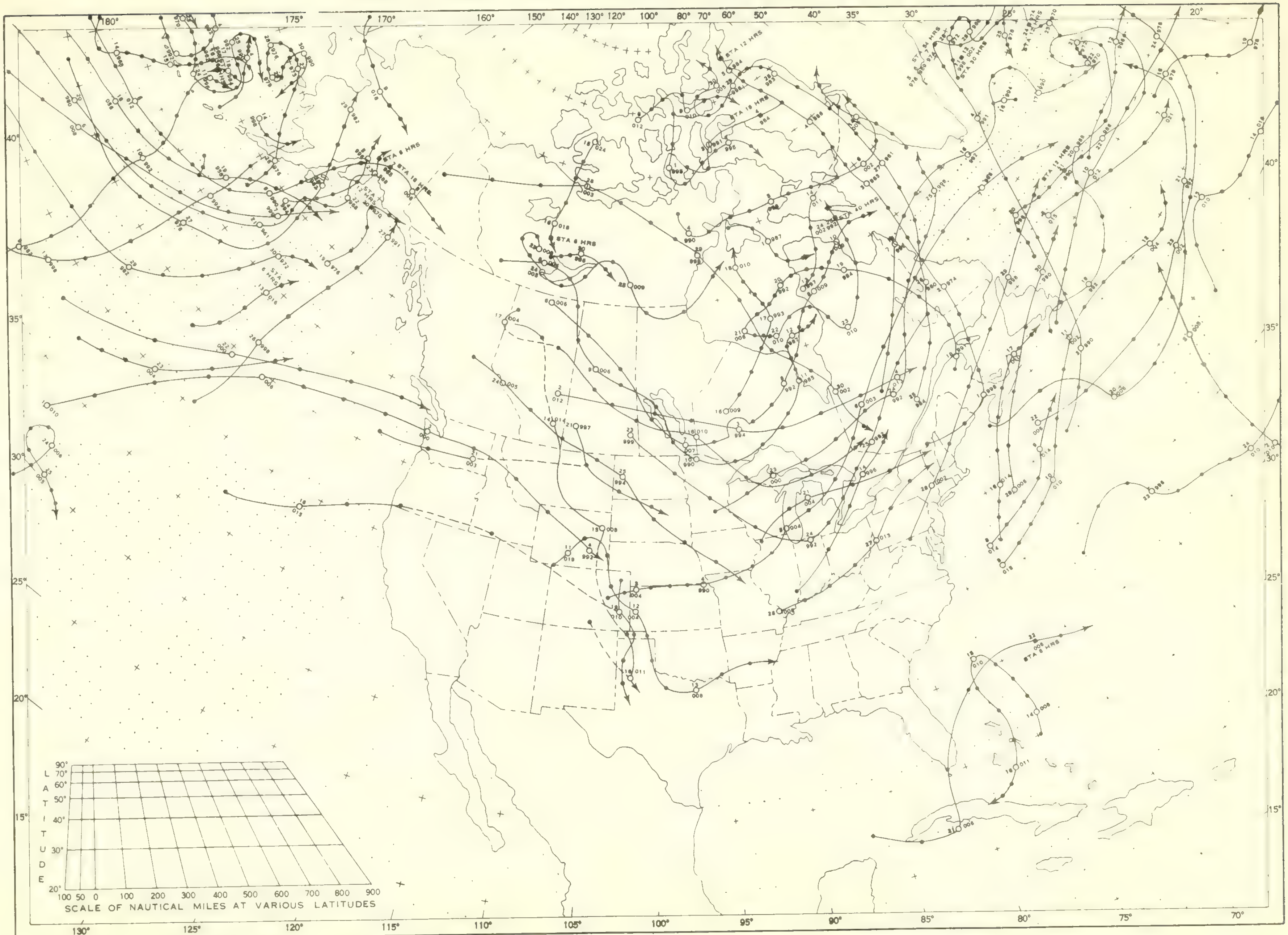
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, November 1959.



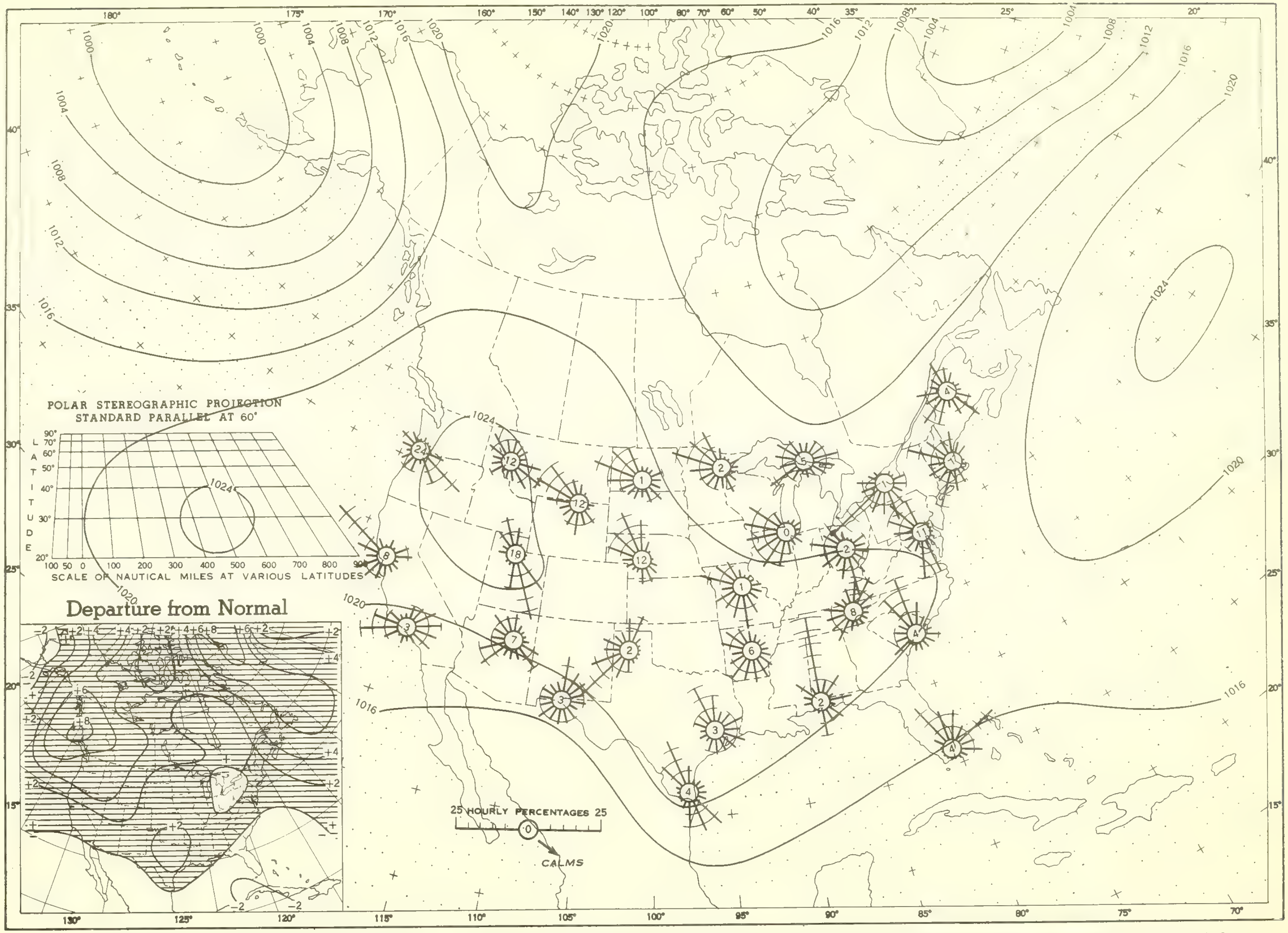
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, November 1959.



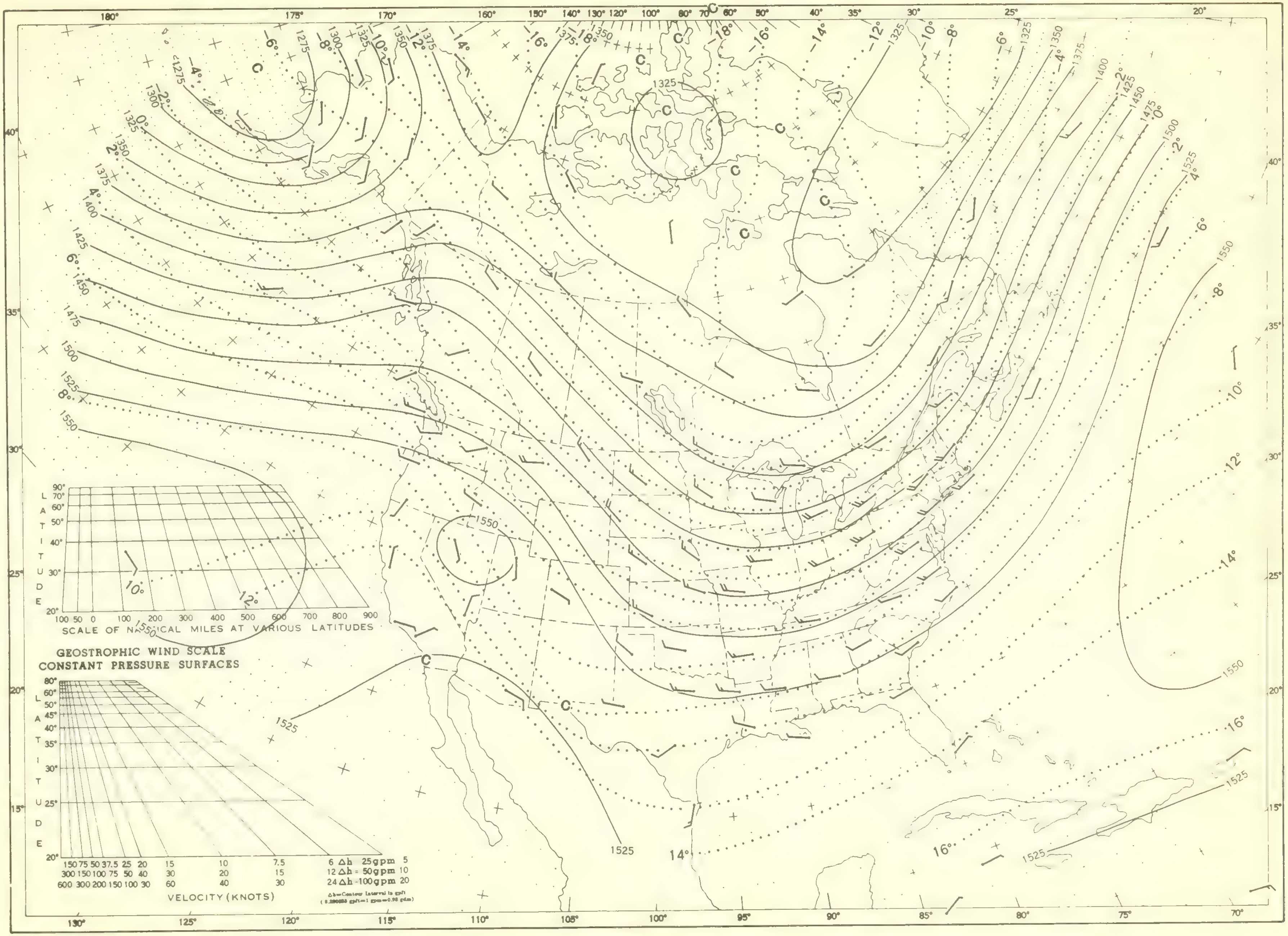
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, November 1959. Inset: Departure of Average Pressure (mb.) from Normal, November 1959.



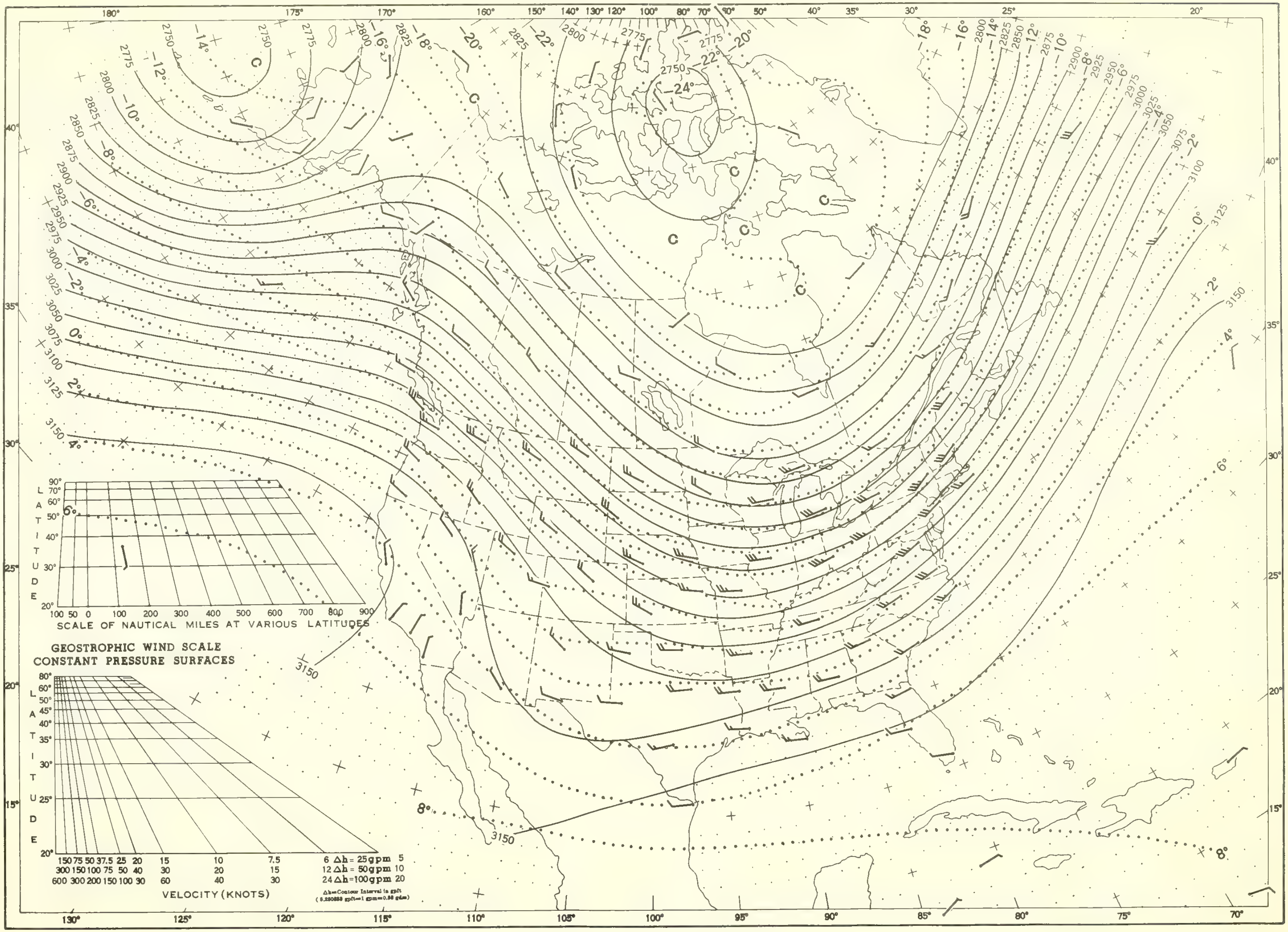
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, November 1959. Average Height and Temperature, and Resultant Winds.



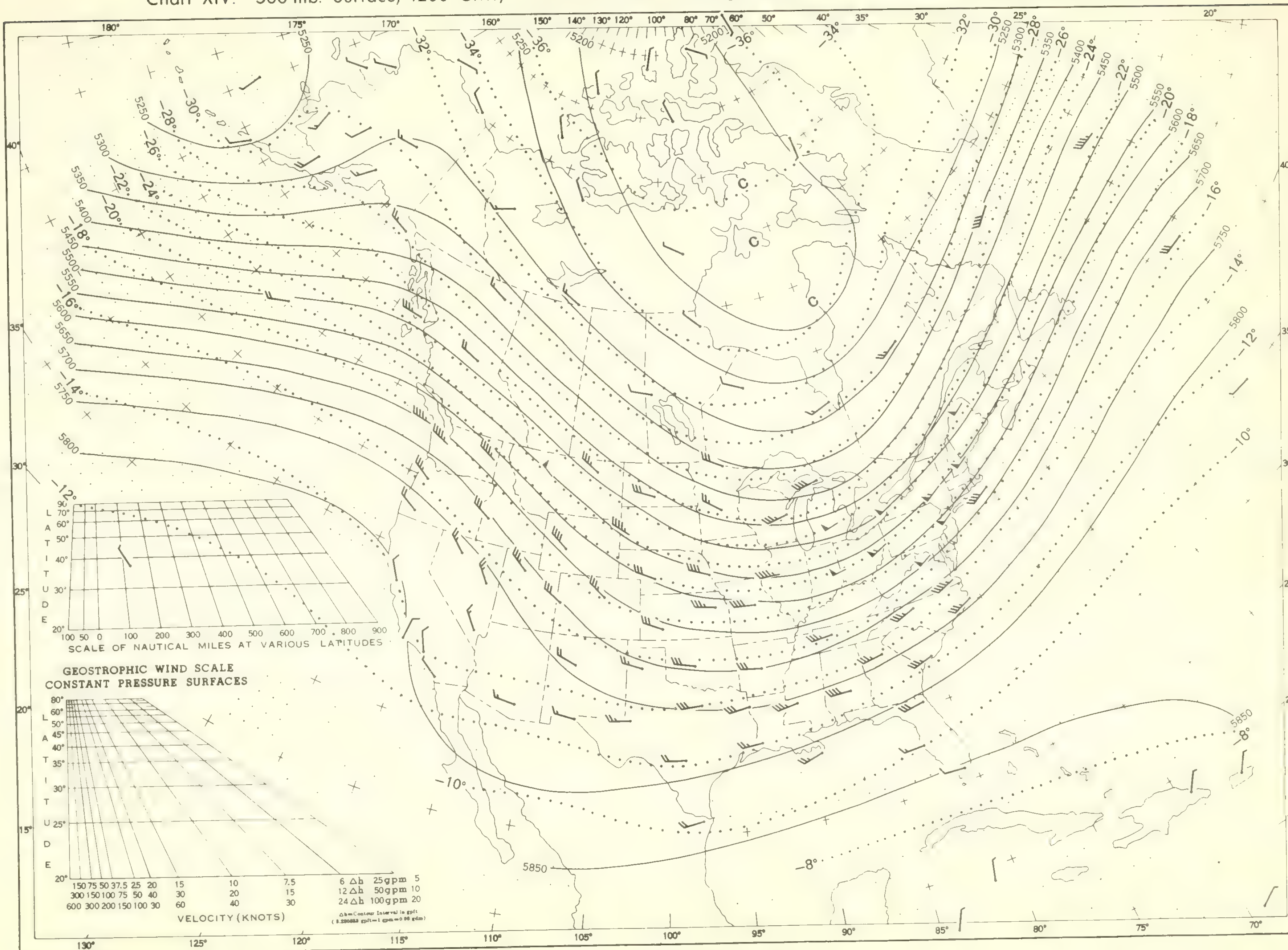
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, November 1959. Average Height and Temperature, and Resultant Winds.



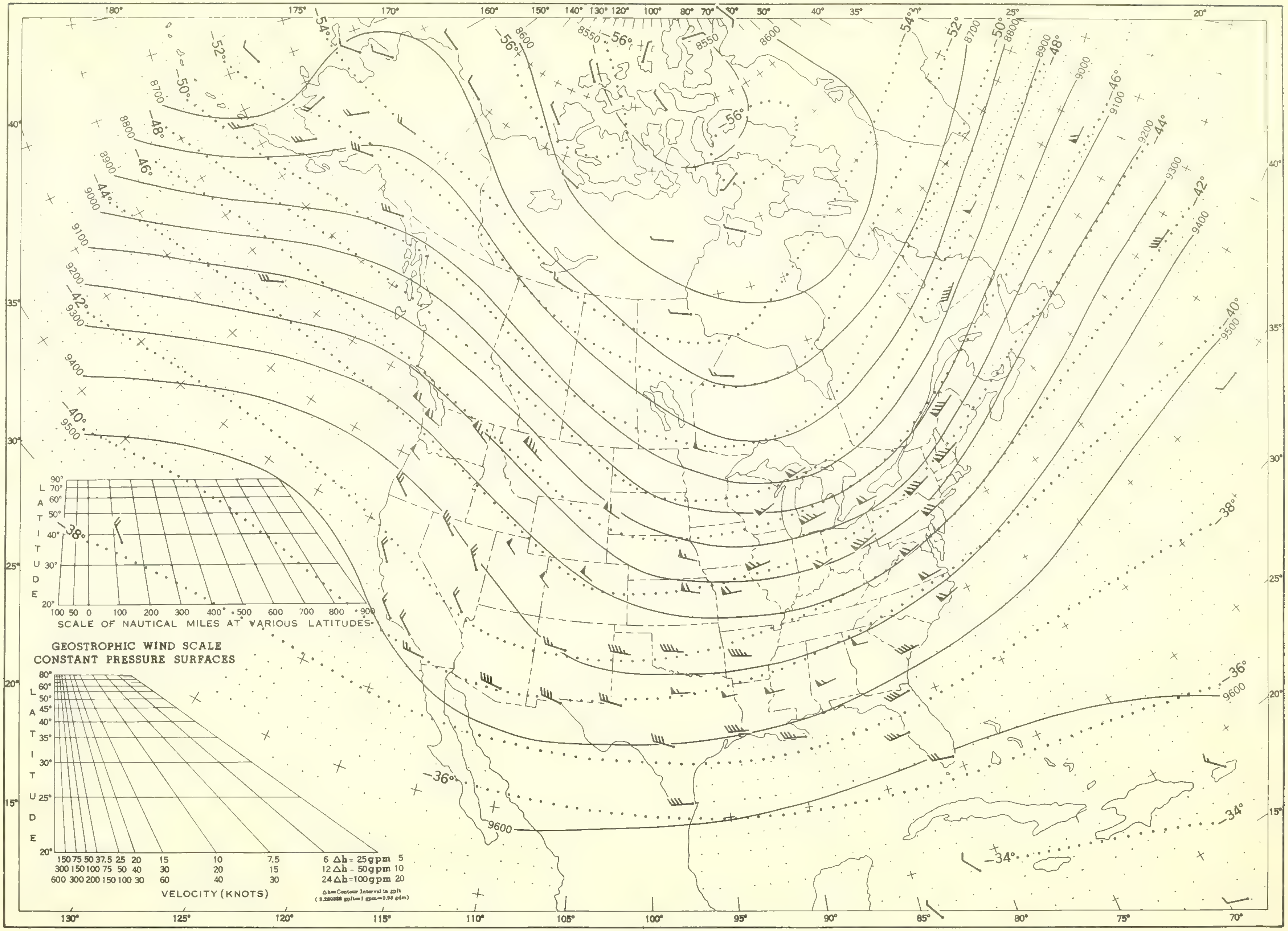
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, November 1959. Average Height and Temperature, and Resultant Winds.



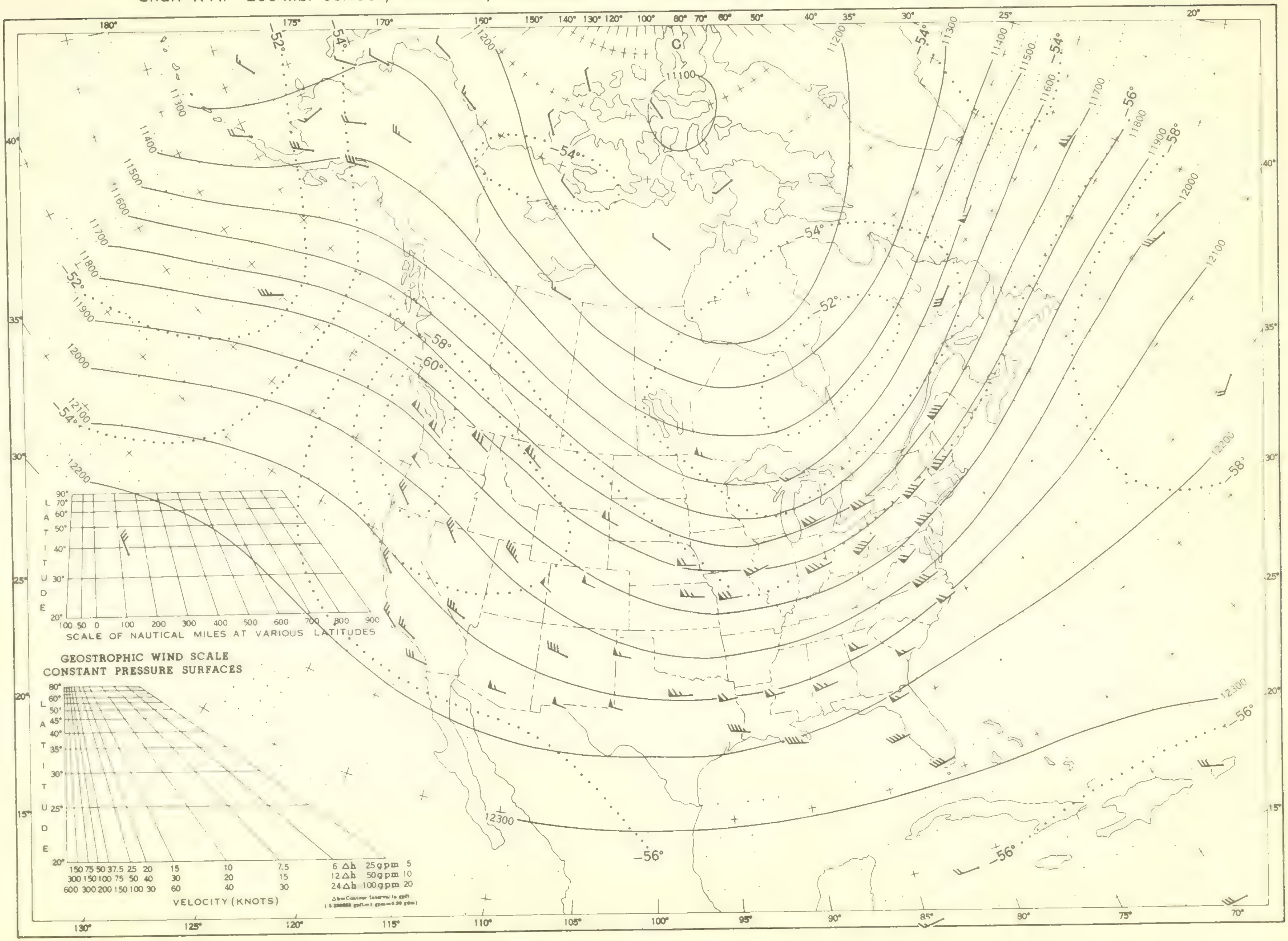
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, November 1959. Average Height and Temperature, and Resultant Winds.



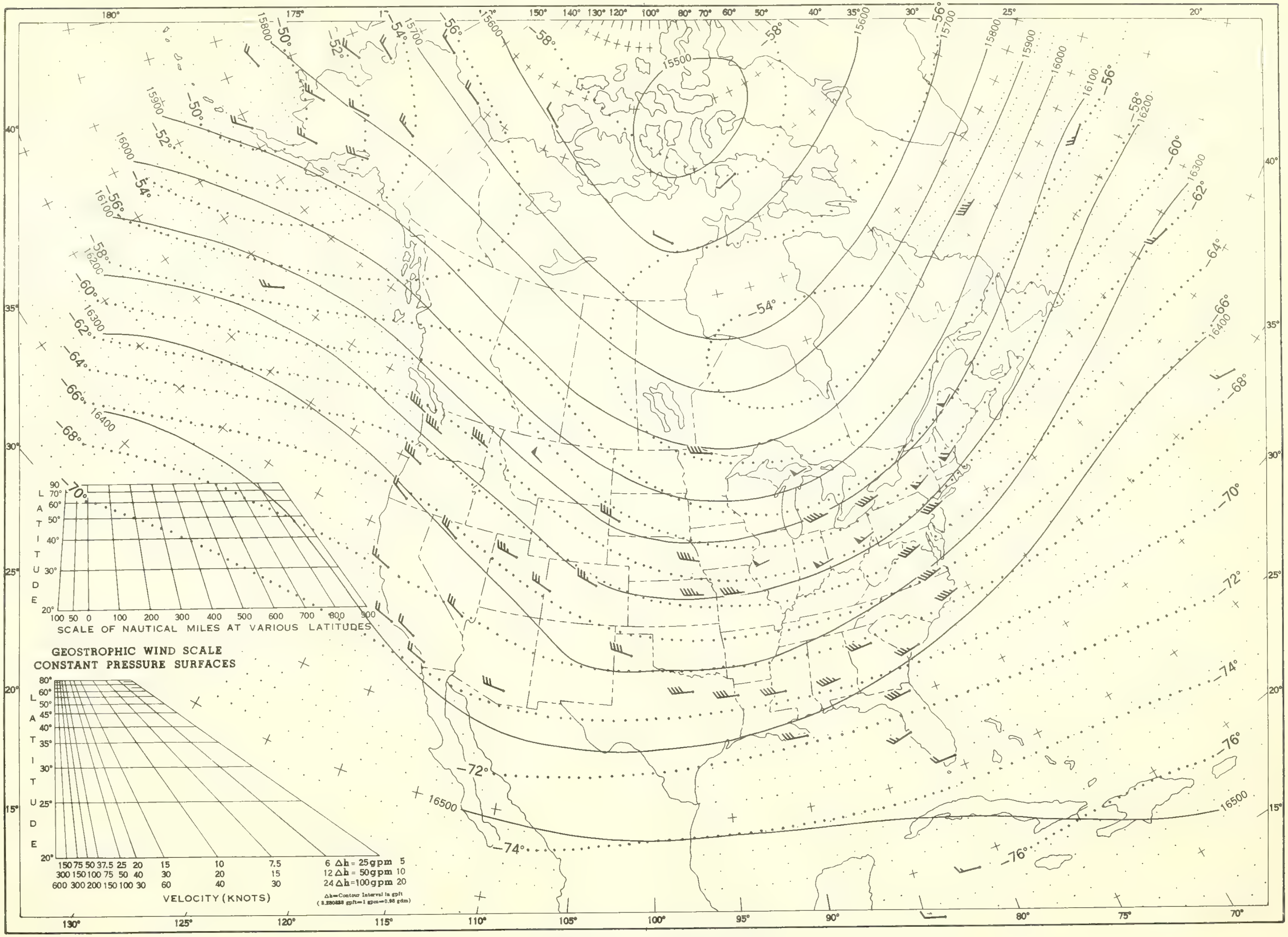
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, November 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, November 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 1/28/60 - 1900

U. S. DEPARTMENT OF COMMERCE
FREDERICK H. MUELLER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

DECEMBER 1959
Volume 10 No. 12

ASHEVILLE: 1960

CONTENTS

NOTE: Delayed data and corrections will be carried in the June and December issues of this publication.

STORM DATA AND UNUSUAL WEATHER PHENOMENA will hereafter be carried in the new publication entitled STORM DATA. Discontinuance of this table in this publication should result in its earlier issuance. The new publication will meet the needs of a small specialized group of users.

Paid subscribers to CLIMATOLOGICAL DATA NATIONAL SUMMARY will be listed to receive the new publication until their current subscription expires; thereafter, it will be necessary to subscribe for STORM DATA separately.

SUBSCRIPTION PRICE: Monthly 20 cents and annual 40 cents per copy; yearly subscription, including monthly and annual issues, $2.50 domestic, $3.50 foreign. Checks and money orders should be made payable to the Superintendent of Documents. Remittance and correspondence regarding subscriptions should be sent to "Superintendent of Documents, Government Printing Office, Washington 25, D. C."

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 12 DECEMBER 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

December 1959 was an abnormally mild month over the greater portion of the country. The exceptions were the Southeast and the Far Western Great Basin. This was the first warmer than normal weather in 6 to 10 weeks in north-central areas. Precipitation was abundant in much of the midcontinent area, Arizona and some adjacent areas, the Northeast, and along the west coast of Florida. A major storm crossed New England on the 28th and 29th, and easterly gales combined with spring tides caused severe flooding along the Massachusetts coast. This region was declared a disaster area; many families evacuated their homes, and damage was estimated in the millions. Five major snowstorms occurred during the month, bringing heavy snowfall from Arizona and New Mexico to the Great Lakes region and the Northeast.

TEMPERATURE.--During the first week, the long, cold period, which began late in September, ended in the western Great Lakes and upper Mississippi Valley, and warm weather continued over the midcontinent region until the last few days of the month. Temperature for the month averaged 6° to 12° above normal from Montana to the Great Lakes and in the central Great Plains. This was the warmest December in about 20 years over most of the North Central Interior, and one of the few times there that mean temperatures in December were higher than those of the preceding November. Past records show this to be the first year in the 20th Century that average temperatures for December in Illinois and most of Iowa exceeded those for November. This was also true for sections in Minnesota and the Dakotas. Temperatures at some stations including St. Cloud, Minn., and Bismarck, N. Dak., were above normal every day and at the latter station, it was the first time since 1877 that the minimum temperature in December remained above zero.

Temperatures averaged from 2° to 4° above normal in the Northeast, although this area experienced its coldest weather of the winter to-date, as cool Canadian air moved in on the 19th and prevailed until after Christmas. From the middle Atlantic area southwestward over the southern Great Plains to southern California, the month was mostly mild, with temperatures near normal. Monthly averages were below normal over Florida and adjacent areas of nearby States, with lowest temperatures occurring early in the month. Daily averages in this area were 8° to 10° below normal on the 8th and freezing extended into central Florida, damaging tender vegetables.

In the Far West, temperatures averaged below normal in Oregon, Idaho, Nevada, and western Utah, where relatively warm days were more than offset by abnormally cold nights. The greatest negative departure of 5° occurred at Winnemucca, Nev., where the month was the coldest December since 1932. In California, a cool spell near the end of the month, reduced minima to near freezing, except along the immediate central and southern coasts.

Temperatures in Alaska for December were near seasonal over the southern Kenai Peninsula, but over the Cook Inlet area and over the Matanuska Valley and most of the Susitna Valley temperatures ranged from 2° to 9° above normal. In most of western Alaska, however, the month was extremely cold. At Nome the monthly average of -7.1°F. was the lowest for December since records began there in 1907.

PRECIPITATION.--Very heavy precipitation occurred in the Texas Panhandle, totaling over 600 percent of normal at Amarillo. Amarillo had a new December record total of 4.52 inches, 4.43 inches of which fell during continuous rains from the 14th through the 18th. Precipitation averaged over 150 percent of normal over all of northern Texas, most of Oklahoma, southern Kansas, extreme eastern New Mexico, and southwestern Arkansas. At Dallas, 3.16 inches in 24 hours on the 15th and 16th was the greatest for December in 31 years.

Another heavy precipitation area was in Arizona, western New Mexico, and some small sections of adjacent States where amounts ranged from 150 to 300 percent of normal. Phoenix, Ariz., reported one of the wettest Decembers on record, and Albuquerque, N. Mex., the heaviest December rainfall since 1914.

The upper Mississippi Valley received much above-normal precipitation, most of which occurred during the latter third of the month. Wettest sections were in southwestern Minnesota and eastern South Dakota and in the Dubuque, Iowa, and Green Bay, Wis., areas, with totals of over 200 percent of normal. Green Bay, reported the most for December since 1921, and Dubuque, Iowa, the most since 1884.

Above-normal precipitation in the Northeastern States resulted primarily from four stormy periods. The month began dry, but general precipitation developed over the weekend of the 6th, as a storm center moved northward from the Appalachians. Precipitation totaled 1 to 2 inches in New England, and 4 to 6 inches of snow fell in New York and Pennsylvania. Rainfall during another storm ranged from 1 to more than 2 inches over the Northeastern States on the 13th and 14th. Precipitation, mostly snow, fell in the Northeast on the 21st and 22d, and rain, snow, sleet, and glaze again from the 28th to the 30th.

In most of the middle Atlantic region precipitation was slightly below normal, and from the Ohio Valley across the central Great Plains slightly above. Heavy rains in the central and northern portions of Louisiana and Mississippi resulted in flooding of some streams from the 15th to 17th.

The month was quite dry in much of the Southeast and the Rio Grande Valley of Texas. Heavy rains on the southwest coast of Florida, however, ranged up to 300 percent of normal at Key West.

The western Great Plains, central and northern Rockies, and the Pacific coastal region, except the Puget Sound area, received below-normal rainfall. Dry conditions were slightly relieved in parts of California by light rains on the 22d, but the droughty situation intensified in Nevada and parts of Utah. Cheyenne, Wyo., reported the driest December since 1905, and at Kalispell, Mont., only 3 other Decembers since 1900 has less precipitation

than December 1959.

In Alaska, precipitation ranged from near seasonal to 50 percent above over the Anchorage-Matanuska Valley area, above normal on the Kenai Peninsula, and from near seasonal to 50 percent below over the Tanana Valley.

SNOWFALL.--Four storms accounted for most of the month's snowfall in the Northeast. The first occurred on the 7th and 8th, and the others on the 12th and 13th, 21st and 22d, and during the last few days of the month. Snowfall was above normal in northern New England and below in the southern portion. Most of it fell during the last 5 days, although locally heavy amounts were recorded on the 12th and 13th. Portland, Maine had 13 inches of snow on the ground on the 29th, deepest for December since 1946. At New York City, the snowstorm of the 21st and 22d brought depths ranging from 6 to 7 inches in lower Manhattan to 14 to 15 inches in the northern parts of the city. Reading, Pa., reported 5 inches on the 7th and 8th, but snow was much heavier to the south and east of Reading, with 15 to 16 inches in the Morgantown area. On the last 3 days of the month up to 4 inches or more fell in some sections of Pennsylvania, New York, and New England. No snowfall of importance fell until after the 20th in the upper Mississippi Valley and across the northern and central Great Plains. On the 23d and 24th heavy snow fell in the Great Lakes region, up to 8 inches in east-central and northeastern Iowa and 5 to 20 inches in Wisconsin. In the latter State over 8 inches of snow was the greatest storm total in 50 years for December at Madison, and 11.3 at Milwaukee in 24 hours on the 22d and 23d set a new December record there. Another storm on the 27th and 28th, was responsible for most of the monthly totals in Nebraska and the Dakotas.

In the Far West, snowfall, generally below normal, was above in Arizona and New Mexico. Most of the snowfall in the Pacific Northwest and northern Rocky Mountain regions occurred during two storms the last week. A storm brought the heaviest snowfall of the month to Arizona on the 13th and 14th, when Winslow measured 5.6 inches during a 24-hour period. Heavy snowfall in New Mexico resulted mainly from two storms at the middle and end of the month, respectively. At Albuquerque, a fall of 9.9 inches on the 14th and 15th was the second heaviest 24-hour amount there on record, and 14.7 inches for the month exceeded by 1/2 inch any previous total for any month at that station. During another storm in New Mexico from the afternoon of the 24th through the 26th, snowfall was heavy in the north-central mountains and moderately heavy in the central highlands. Monthly totals in New Mexico ranged from about 6 inches in the valleys to near 3 feet in the northern mountains.

In Alaska, snowfall was particularly heavy from the central Kenai Peninsula up over the upper Cook Inlet area. Ninilchik reported 60 inches of snowfall for the month, and Yakutat 84.9, but most stations from Kasilof northward through the Anchorage area to southeast of Palmer reported amounts ranging from 25 to 30 inches.

DESTRUCTIVE STORMS.--Gusty winds, occasionally reaching gale force, overspread New England on the 7th, when tides in Narragansett Bay were as much as 3 feet above normal, and Burlington, Vt., had its second December thunderstorm since 1883. Another storm on the 12th and 13th brought rain and fog to southern New England and sleet, glaze, and up to 6 inches of snow to northern Maine. Depths of heavy snow which fell from the 14th to 16th in eastern New Mexico ranged in depth from 10 to 14 inches in the Rio Grande Valley, 10 to 30 inches in the central highlands, and 6 to 18 inches in the central portion of the eastern plains. East of the central mountain ranges, high winds piled the snow into drifts up to 10 feet deep, which closed all roads and stranded several hundred motorists for a few days. Airlift of hay to snowbound livestock was necessary in areas of heaviest snowfall, but loss of livestock was unusually light for a storm of this severity. On the 24th heavy drifting snow closed roads for several hours in central and northern sections of the State.

The New Mexico storm of the 24th reached the Great Plains about the 27th, and high winds caused near blizzard conditions in some sections. On the 27th and 28th, strong winds over Lake Superior caused high waves which damaged shore installations. Wind gusts of 78 m.p.h., were recorded at Superior, Wis., on the 28th.

In New York, a mixture of snow, sleet, and freezing rain occurred from the 27th to the 29th. Glaze beginning on the 28th and continuing through the night resulted in the loss of one life and caused extensive damage throughout western New York. The glaze storm of the 28th and 29th at Rochester was reported as the worst on record, with many trees and powerlines downed from the weight of a 1-inch ice deposit. Snow, sleet, glaze, and wind overspread New England on the 28th and 29th. Ocean tides, already at the highest levels of the year, were driven to even further heights by the wind, causing much damage to shore property. Some coastal districts were declared disaster areas. Heavy snow covered the interior portions of New England, and travel conditions were extremely hazardous in all areas.

On the 30th, a major snowstorm developed in Arizona and New Mexico, bringing strong winds and local blizzard conditions in several areas.

An icestorm on the 15th broke limbs from thousands of trees at Amarillo, Tex., where broken powerlines left approximately 1,000 homes without electricity.

Windstorms on several days during the month resulted in some damage in scattered sections of the country. On the 5th, a Santa Ana wind estimated at 50 to 70 m.p.h., occurred in and near the foothills north of Burbank, Calif. Seven small aircraft were demolished, despite tie-down, and a hangar was blown over near San Fernando. High winds in Washington caused some damage to roofs, chimneys, and windows, and other miscellaneous damage on the 15th in the Yakima area. A windstorm at Lafayette, La., on the 16th wrecked a corrugated metal building and overturned a house trailer. A squall line on the 31st, preceded by strong, southerly winds and heavy showers, blew over an oil rig, broke lines to an oil-loading ship, and damaged numerous signs and trees at Corpus Christi, Tex.

A small tornado, 5 miles north of Fairgrove, Mo., on the 11th, destroyed some hay on one farm and a garage and henhouse on another farm. On the 26th, another small tornado causing only minor damage was reported to have occurred 3 miles west of Talmage, Kans. On the 16th a hailstorm caused damage to aircraft 6 miles west of Quitman, Tex.

A severe storm with hurricane force winds passed over Shemya, Alaska on December 21, causing extensive property damage and injuries to three persons.

CONDENSED CLIMATOLOGICAL SUMMARY

Section	Temperature: Monthly extremes						Precipitation: Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	Fairhope	78	11	Russellville 2	12	1	Youngs Store	9.30	Fort Morgan	1.40
Arizona	Yuma WB AP	85	2	Maverick	-11	27	Crown King	10.47	Gray Mountain TP	.39
Arkansas	Camden 1	74	8	Eureka Springs	11	6	Hopper	10.58	Rogers	1.65
California	2 Stations	93	2+	Boca	-8	26	Honeydew 2WSW	6.75	Bridgeport	T
Colorado	Holyoke	75	3	Cimarron 3SE	-25	30	Wolf Creek Pass 4W	7.09	9 Stations	.00
Connecticut	2 Stations	60	13	Falls Village	-8	24	2 Stations	6.23	Salisbury	3.38
Delaware	Selbyville	64	27	2 Stations	11	23	Newark University Farm	4.48	Dover	2.22
Florida	Naples	88	17	do	20	1	Key West WB City	4.93	Everglades	.36
Georgia	Surrency	81	27	Blairsville Exp Sta.	7	1	Flat Top	6.58	Atkinson 1W	.50
Idaho	Three Creek	64	2	Obsidian 3SSE	-29	27+	Sandpoint Exp Sta.	4.06	2 Stations	.04
Illinois	Fairfield Radio WFIW	68	27	2 Stations	5	22	Sparta	5.80	Mount Pulaski	.94
Indiana	3 Stations	70	28+	New Castle	-1	22	Petersburg 61 Bridge	4.39	Whiting	1.07
Iowa	Shenandoah	67	3	Carroll 2SSW	-3	31	Fairfield	3.45	Mason City FAA AP	.72
Kansas	McDonald	75	3	Oberlin	5	23	Pittsburg	2.71	2 Stations	.00
Kentucky	Inez	73	27	Hindman Settlement Sch.	10	1	Dunmor	5.91	Grayson 1SE	1.79
Louisiana	3 Stations	80	28+	Converse	21	1	Gueydan 5S	9.80	Cocodrie	.67
Maine	2 Stations	54	13	Squa Pan Dam	-17	22	Bar Harbor	6.50	East Sangerville 5S	2.17
Maryland	Westernport	70	27	Oakland 1SE	0	23	Cambridge 4W	5.71	Bethesda Nat Inst Hlth.	2.08
Massachusetts	Boston WB Airport	61	13	2 Stations	-4	24	Spot Pond	5.45	Hubbardston	2.45
Michigan	7 Stations	57	28+	Bergland Dam	-7	22	Harbor Beach 3NW	4.62	Cheboygan RR Light S	.95
Minnesota	Canby	60	3	Bigfork	-19	6	Farmington 3NW	3.18	Red Lake Indian Agency	.16
Mississippi	2 Stations	78	27+	Houston 2NE	18	7	Pontotoc Exp Sta.	9.84	Biloxi City	.79
Missouri	Neosho	68	10	2 Stations	3	31	Salem	7.33	Windsor 3NW	.91
Montana	2 Stations	67	2	Lakeview	-26	28	Summit	2.94	14 Stations	.00
Nebraska	Broken Bow 2W	75	3	2 Stations	-1	31	Bennet	2.23	7 Stations	.00
Nevada	Mesquite	77	2	Mountain City RS	-20	14	Pioche	3.06	Smokey Valley	.00
New Hampshire	Windham	55	3	First Conn Lake	-18	24	Dublin	7.20	Marlow	2.18
New Jersey	3 Stations	62	16+	Sussex 3N	-6	23	Long Valley	6.02	Capt May 3W	2.36
New Mexico	2 Stations	78	7+	2 Stations	-20	30+	McCauley Ranch	5.51	2 Stations	.04
New York	Poughkeepsie	62	8	Paul Smiths	-27	23	Peekamoose	6.66	Hemlock	2.16
North Carolina	Whiteville	76	28	3 Stations	9	20+	Coweeta 8	8.25	Enfield 3S	1.37
North Dakota	Medora 3NNE	56	2	2 Stations	-10	30	Wahpeton	1.02	3 Stations	T
Ohio	2 Stations	71	27	Barnesville Water Works	-5	23	Chardon	3.94	Glandorf 1SW	1.42
Oklahoma	5 Stations	76	7+	Grove 1E	14	6	Bear Mountain Tower	7.70	Regnier	.37
Oregon	2 Stations	68	16+	Seneca	-7	31	Valsetz	12.88	Merrill 2NW	.15
Pennsylvania	do	67	28+	Coudersport 3NW	-13	23	Shamokin	6.74	Donegal	1.48
Puerto Rico	do	95	6+	2 Stations	53	28+	Rio Blanco Upper	15.95	Santa Isabel 3NW	.53
Rhode Island	Greenville	59	13	Kingston	2	24	Block Island WB AP	5.37	Newport	3.82
South Carolina	3 Stations	76	29+	Caesars Head	15	7+	Lake City	5.95	Beaufort 7SW	1.27
South Dakota	Fort Meade	68	2	3 Stations	-3	31+	Centerville	1.86	7 Stations	T
Tennessee	2 Stations	69	10	Mountain City 2	7	8	Bethel	9.76	Ducktown	2.31
Texas	Rio Grande City 2ESE	87	11	2 Stations	10	15+	Edom 1W	9.30	2 Stations	.10
Utah	Zion NP	69	2	Scofield Dam	-19	28	Alta	3.35	Manila	.05
Vermont	Bennington 2NW	56	13	West Burke	-14	25	Manchester Center	6.05	Enosburg Falls	1.91
Virginia	Boykins	72	17	Monterey	5	23	Trout Dale	5.69	Mathews 1SSW	1.68
Washington	Walla Walla 3W	67	15	Republic	-4	29+	Amanda Park	18.30	Wapato	.07
West Virginia	Charleston 1	74	28	Canaan Valley	-5	23	Pickens 1	5.64	Brushy Run	1.50
Wisconsin	3 Stations	60	16	Mellen 2N	-11	7	Marinette	5.74	Brule Ranger Station	1.10
Wyoming	Torrington Exp Farm	69	3	Farson	-28	28	Moose	1.07	6 Stations	.00

\+ And also on an earlier date or dates.

Note: Dates in the above Condensed Climatological Summary apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

DECEMBER 1959

State and station	Elevation of ground	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet: Total	Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb.	°F	°F	°F	°F	°F		°F		#		°F	%	In.	In.	In.			In.	In.	M p. h.		M. p. h.			0-3	4-7	8-10	0-10	%
ALABAMA																																
Birmingham	610	994.6	1020.6	58	38	47.8	2.1	70	27	25	31	0	10	39	73	2.46	-2.79	0.86	9	1	T	0	11.4	E	33	SE	28	6	8	17	7.1	44
Huntsville	605	997.0	1020.8	55	37	46.1	----	68	9	23	31	0	10	37	72	5.74	-----	2.62	10	1	T	0	8.9	SE	*27	NNW	18	6	4	21	7.6	--
Mobile	211	1014.6	1020.4	62	42	52.0	-1.5	69	27+	31	1	0	3	42	74	2.97	-2.44	2.00	9	1	.0	0	11.4	SE	*38	NW	6	8	9	14	6.2	--
Montgomery	195	1012.4	1020.8	60	39	49.2	-.2	74	27	25	1	0	6	39	71	2.46	-2.08	.86	8	0	.0	0	9.0	NE	27	W	28+	8	6	17	6.6	60
ALASKA																																
Anchorage	90	939.2	994.4	24	12	18.0	4.2	38	21	-11	7	0	31	15	81	1.34	.50	.59	11	0	31.2	28	7.3	N	*25	S	21	1	4	26	8.9	14
Annette	110	1004.1	1008.0	43	35	39.1	3.0	50	5+	26	31	0	9	35	84	28.90	19.79	5.20	28	0	4.4	2	17.4	SE	*58	SSE	26	0	4	27	9.2	--
Barrow	22	1012.9	1013.6	-18	-29	-23.3	-12.9	3	6	-42	27+	0	31	-32	62	.15	-.05	.04	8	0	1.6	11	8.2	W	28	W	6	⊕	⊕	⊕	⊕	--
Barter Island	39	1010.2	1012.2	-16	-26	-20.7	-9.8	4	1	-42	10+	0	31	-28	67	.03	-.43	.02	2	0	.3	10	13.9	W	*46	W	7	⊕	⊕	⊕	⊕	--
Bethel	125	1001.0	1002.6	-1	-14	-7.6	-14.8	26	23	-32	19	0	31	-19	58	.59	-.26	.26	9	0	7.6	9	15.1	NNE	*40	NE	31+	13	7	11	5.0	--
Cold Bay	90	994.2	998.5	31	21	25.9	-3.9	41	29	11	26	0	27	21	80	1.41	-1.07	.55	19	0	6.8	3	17.2	NNW	*46	ESE	31+	0	6	25	8.8	--
Cordova	40	992.9	994.6	36	26	31.0	4.4	42	13+	7	27	0	27	28	89	9.12	2.16	1.20	28	0	65.4	18	7.3	ESE	*29	ESE	21	1	6	24	8.8	--
Fairbanks	436	984.8	1003.1	-1	-18	-9.4	-.3	21	23	-36	6	0	31	-15	73	.56	.06	.13	12	0	12.1	17	2.4	N	*12	N	31	4	6	21	7.7	--
Juneau	17	1002.4	1003.1	38	32	34.9	7.3	46	1	22	31	0	20	32	88	5.88	1.71	.68	28	0	12.0	1	11.9	ESE	*40	ESE	26	0	0	31	9.7	2
King Salmon	44	994.6	997.2	15	-3	6.0	-8.2	37	31	-25	19	0	31	-1	76	.68	-.61	.12	16	0	7.5	5	12.2	N	*39	N	9	2	8	21	8.2	--
Kotzebue	10	1008.5	1008.6	-9	-21	-14.7	-11.0	22	1	-34	31	0	31	-20	75	.33	-.02	.13	5	0	3.9	6	9.0	NE	*35	N	13	20	2	9	3.4	--
McGrath	334	989.2	1002.8	-4	-20	-12.1	-4.8	12	24	-43	20+	0	31	-16	76	.85	-.40	.23	17	0	21.6	23	3.8	N	*20	NNW	25	4	6	21	8.2	--
Nome	13	1006.1	1007.0	1	-15	-7.1	-14.8	27	1	-29	18+	0	31	-17	62	.16	-1.00	.10	3	0	2.0	13	8.2	N	*35	N	23	13	6	12	4.6	46
Shemya	122	995.9	1000.5	34	26	30.1	----	44	21	18	1	0	30	24	77	3.37	-----	.51	25	0	31.3	6	23.4	WSW	*97	SW	21	2	10	19	7.7	--
St. Paul Island	22	999.7	1001.0	30	22	25.9	-3.4	39	31	13	10	0	30	21	81	.65	-1.34	.15	13	0	6.3	4	----	---	--	---	--	0	8	23	8.7	--
Yakutat	28	997.6	999.0	38	28	32.7	4.9	45	1	13	31+	0	27	30	88	16.20	3.89	1.94	31	1	84.9	24	10.5	ENE	*52	S	18	0	0	31	9.5	--
ARIZONA																																
Flagstaff	6993	------	------	44	19	31.4	3.0	59	7	-1	27	0	31	--	--	3.68	1.82	1.54	8	0	17.4	8	----	---	--	---	--	12	4	15	5.8	--
Phoenix	1109	977.0	1016.5	63	44	53.6	1.5	78	2	34	27	0	0	39	63	3.46	2.49	.94	7	4	.0	0	5.9	NE	*24	SSE	31	13	3	15	5.5	75
Prescott	5014	847.6	1018.2	52	27	39.6	1.8	66	2	18	31+	0	26	25	--	2.35	.98	.79	10	1	3.1	3	8.6	SSW	47	SW	31	12	6	13	5.3	65
Tucson	2584	926.5	1015.6	63	40	51.4	-.6	76	1	28	27	0	5	34	57	1.97	1.03	.59	8	1	T	T	9.5	ESE	42	NW	13	12	5	14	5.6	67
Winslow	4880	854.4	1020.1	46	25	35.7	1.2	57	8	14	16	0	25	23	66	1.50	.97	.52	9	0	6.5	5	7.7	SE	*37	W	25	9	8	14	5.8	--
Yuma	199	1011.5	1016.9	69	46	57.5	.4	85	2	39	30	0	0	32	47	1.07	.52	.41	6	2	.0	0	7.5	N	47	W	13	14	6	11	4.8	75
ARKANSAS																																
Fort Smith	458	1002.0	1019.4	54	36	45.2	2.7	65	11+	24	6	0	12	37	75	4.21	1.07	1.45	13	2	T	0	10.0	ENE	30	W	27	9	1	21	7.0	36
Little Rock	257	1006.1	1019.6	55	39	46.6	2.7	67	17+	30	7+	0	7	37	73	8.12	4.04	3.19	12	0	T	0	6.9	ENE	18	WSW	28+	6	7	18	6.8	43
Texarkana	361	------	1019.6	59	41	49.6	1.6	70	8	29	30+	0	6	--	--	7.52	2.68	3.04	11	3	.0	0	7.1	WNW	--	---	--	--	--	--	----	--
CALIFORNIA																																
Bakersfield	494	1001.0	1018.1	61	37	49.3	.6	73	2	29	15	0	5	34	58	.35	-.68	.30	3	0	.0	0	4.3	ENE	*30	ESE	23	9	9	13	5.8	--
Bishop	4108	876.4	1019.3	59	23	40.6	1.5	73	1	14	30+	0	29	--	--	.12	-.77	.10	2	0	T	0	----	---	--	---	--	12	7	12	5.2	--
Blue Canyon	5280	839.5	1017.3	53	36	44.3	5.8	69	1	16	31	0	9	--	--	3.63	-5.12	2.57	6	0	6.5	3	8.1	ENE	38	NE	14+	13	3	15	5.5	--
Burbank	699	990.2	1016.3	69	46	57.3	2.6	86	1	38	27	0	0	35	48	1.30	-1.56	1.12	6	0	.0	0	3.1	NNW	*31	NW	13	13	4	14	5.3	
Eureka (U)	43	1018.0	1020.3	55	41	47.5	-1.1	66	5	33	31	0	0	--	--	3.64	-2.45	1.19	10	0	.0	0	5.3	⊛ E	35	N	30+	8	5	18	6.7	60
Fresno	331	1006.4	1018.8	60	33	46.4	.1	71	2	27	15+	0	18	32	63	.43	-1.20	.27	5	1	.0	0	4.9	NW	29	NW	30	14	6	11	4.8	87
Long Beach	34	1015.9	1016.9	69	48	58.1	----	87	1	41	27+	0	0	40	58	1.72	----	1.07	7	0	.0	0	6.3	WNW	*39	NW	13	12	8	11	5.1	--
Los Angeles (U)	312	------	------	69	52	60.7	3.4	85	1	45	31+	0	0	38	50	1.09	-2.02	.90	5	0	.0	0	7.3	⊛ N	38	NW	13	12	9	10	5.1	68
Los Angeles	99	1012.9	1016.5	69	50	59.6	4.0	88	1	42	29+	0	0	41	57	1.11	-1.50	.81	5	0	.0	0	8.3	ENE	*35	NNW	13	14	5	12	5.3	--
Mt. Shasta (U)	3544	895.0	1021.3	48	26	36.9	2.2	63	2	17	26	0	27	--	--	1.96	-3.43	1.02	6	0	2.2	1	----	---	--	---	--	10	9	12	5.6	--
Oakland	3	1018.6	1019.1	60	41	50.3	1.7	68	4+	34	26	0	0	38	67	1.46	-1.96	1.29	3	0	.0	0	5.2	SE	*25	WNW	12	14	8	9	4.6	--
Point Arguello	367	1003.4	1016.8	66	42	53.7	----	82	1	31	15	0	1	--	--	.41	----	.27	5	0	.0	0	8.9	----	*40	NW	31	12	8	11	5.3	--
Red Bluff	341	1006.4	1019.7	61	35	48.0	1.2	75	1	29	31+	0	13	25	49	1.06	-3.17	.86	4	0	T	0	9.3	WNW	34	NW	30	14	5	12	5.0	78
Sacramento	17	1018.3	1019.2	58	36	46.7	.9	71	3	29	30+	0	7	32	63	1.36	-1.65	1.07	4	0	.0	0	5.3	NNW	34	SW	12	16	4	11	4.6	82
Sandberg (R)	4517	861.8	1016.3	50	38	43.9	1.5	67	3	22	31+	0	7	--	--	1.97	-.88	1.42	7	0	1.9	2	15.9	E	*40	N	4	12	6	13	5.4	--
San Diego	19	1012.5	1015.9	69	51	60.2	3.3	83	2+	45	29+	0	0	44	60	1.44	-1.13	.89	7	0	.0	0	5.5	NE	29	SW	31	15	6	10	4.5	64
San Francisco (U)	52	------	------	61	49	54.9	3.0	71	1	44	31	0	0	--	--	1.71	-2.36	1.49	3	0	.0	0	5.3	⊛ NW	32	W	12	--	--	--	----	70
San Francisco	8	1018.3	1019.1	60	42	51.2	1.9	70	3+	37	29+	0	0	40	69	1.97	-1.62	1.74	4	0	.0	0	7.0	WNW	47	WNW	30	13	8	10	5.0	--
Santa Maria	238	1008.8	1017.6	68	39	53.7	1.3	85	1	30	31	0	3	33	53	.45	-2.16	.38	3	0	.0	0	6.5	WNW	*33	ESE	23	13	9	9	4.8	--
COLORADO																																
Alamosa	7536	770.7	1022.1	41	7	24.0	4.6	53	17+	-7	28	0	31	--	--	.26	.09	.10	6	0	6.3	2	----	---	--	---	--	16	2	13	4.9	--
Colorado Springs	6173	810.0	1019.6	49	20	34.5	3.0	68	3	4	5	0	31	14	48	.03	-.28	.02	2	0	.4	T	10.2	NE	*32	NNW	26+	12	6	13	5.5	--
Denver	5292	837.5	1018.0	50	23	36.5	4.8	68	3	7	5	0	29	17	51	.26	-.25	.16	2	0	2.7	2	9.3	SSW	32	S	13	10	12	9	5.1	76
Grand Junction	4849	862.2	1023.1	41	24	32.2	3.7	52	1	13	5	0	30	21	67	.88	.20	.23	10	0	6.6	2	6.8	ESE	35	NE	4	11	6	14	5.5	70
Pueblo	4639	857.1	1019.7	51	19	35.2	4.1	71	3	9	30	0	30	17	53	T	-.43	T	0	0	.1	T	6.8	W	57	N	26	11	8	12	5.3	75
CONNECTICUT																																
Bridgeport	7	1018.3	------	43	29	36.1	3.8	55	16	9	23	0	19	--	--	3.83	.75	1.33	10	0	5.2	3	----	---	--	---	--	8	5	18	6.9	--
Hartford	169	1012.5	1018.8	39	23	31.2	1.6	57	12	-1	23	0	28	24	77	4.45	1.16	1.30	12	0	9.1	5	6.6	N	32	S	7	5	9	17	7.1	42
New Haven	6	1018.3	------	43	27	34.9	3.0	56	12	10	23	0	22	--	--	4.48	.54	1.86	10	0	5.4	4	8.8	---	45	SW	7	5	7	19	7.3	45
DELAWARE																																
Wilmington	78	1016.1	1019.4	46	30	38.0	2.9	60	16	12	33	0	22	30	74	3.46	.47	1.08	9	0	3.1	2	7.7	WSW	*35	WSW	7	5	8	18	7.0	--
DIST. OF COLUMBIA																																
Washington (U)	72	------	------	49	35	42.0	3.8	66	27	18	23	0	12	--	--	2.80	.05	1.15	--	--	----	--	----	---	--	---	--	--	--	--	----	--
Wash. Nat'l. AP	14	1015.4	1020.0	49	35	42.0	4.0	63	27+	18	23	0	11	30	66	3.26	.65	1.37	14	0	T	T	8.7	N	37	NW	13	7	7	17	6.8	46
FLORIDA																																
Apalachicola (U)	13	1017.9	------	62	47	54.3	-2.0	72	18	35	1	0	0	--	--	1.10	-2.19	.49	6	1	.0	0	8.3	---	25	W	6	8	13	10	5.6	75
Daytona Beach	31	1018.0	1020.0	68	50	59.2	-1.3	80	28+	33	8	0	0	51	80	2.26	-.19	1.32	5	0	.0	0	9.6	N	25	N	24	5	12	14	6.6	--
Fort Myers	15	1017.9	------	74	53	63.6	-2.0	85	17	42	9+	0	0	--	--	1.79	.50	1.04	8	2	.0	0	8.2	---	35	NW	3	11	11	9	5.4	--
Jacksonville	24	1018.8	1020.4	64	45	54.8	-1.6	78	17	28	8	0	3	47	78	.95	-1.42	.46	4	0	.0	0	9.8	NE	38	S	12	7	[illegible]	16	6.7	46
Key West	4	1016.7	------	74	64	68.8	-3.0	80	28+	56	4	0	0	--	--	4.84	3.06	4.60	8	1	.0	0	11.0	---	28	NW	3	8	14	9	5.5	65
Lakeland (U)	214	------	------	69	52	60.9	-1.6	81	17	40	8+	0	0	--	--	1.71	-.29	.92	7	0	.0	0	7.8	---	--	---	--	8	12	11	5.7	62
Miami	7	1016.5	1017.9	75	60	67.1	-2.1	81	12	48	4	0	0	57	72	1.10	-.55	.80	7	0	.0	0	7.4	ENE	25	NW	3	8	17	6	5.4	--
Miami Beach	9	------	------	75	63	69.3	-1.6	80	21+	49	4	0	0	--	--	1.05	-.78	.74	8	0	.0	0	----	---	¢27	NW	3	7	20	4	----	¢57
Orlando	106	1015.0	1019.8	71	51	60.7	-2.0	81	28+	33	8	0	0	52	78	1.37	-.72	.95	[illegible]	0	.0	0	10.3	N	*32	ENE	25	[illegible]	8	15	6.1	--
Pensacola (U)	13	------	------	61	46	53.4	-1.7	68	27	34	1	0	0	--	--	2.56	-1.61	1.24	7	0	.0	0	9.9	---	26	NW	12	--	--	--	----	53
Tallahassee	64	1017.3	1020.2	64	42	53.1	-1.0	77	28	24	1	0	4	42	72	1.76	-1.92	.89	5	0	.0	0	6.4	NNW	--	---	--	7	9	15	6.2	--
Tampa	19	1017.9	1019.6	71	52	61.3	-1.4	82	17	40	8+	0	0	52	77	2.25	.29	.90	[illegible]	1	.0	0	9.1	N	28	NW	3	6	11	14	6.2	54
West Palm Beach	15	1017.3	1018.4	75	59	66.5	-2.2	84	18	44	7	0	0	57	73	1.75	-.45	.98	7	0	.0	0	11.7	ENE	*35	N	24	7	11	13	6.2	--
GEORGIA																																
Athens	798	991.8	1021.0	55	36	45.4	.2	68	27+	24	8	0	12	36	72	3.08	-1.64	1.32	8	0	.0	0	8.5	NE	*25	S	12	8	5	18	6.5	--
Atlanta	975	978.3	1020.9	55	38	46.3	1.1	67	27+	25	8	0	6	36	70	2.31	-2.24	.75	7	0	T	T	10.8	ENE	*35	WNW	19	6	8	17	6.6	48
Augusta	143	1013.7	1020.7	59	36	47.7	.2	73	28	24	1	0	13	38	72	2.39	-1.34	1.30	7	0	.0	0	5.9	W	*23	WNW	7	7	6	18	6.8	--
Columbus	385	1006.2	-----	60	37	48.5	.9	74	27	22	1	0	9	--	--	2.29	-2.28	1.13	8	0	T	T	8.7	---	*25	WSW	28	7	9	15	6.7	--
Macon	356	1006.7	1020.7	61	37	49.1	-.6	76	27	24	1	0	8	37	68	1.94	-2.30	.89	7	0	T	T	8.7	NE	29	SE	12	9	7	15	6.3	59
Rome	637	997.2	------	56	33	44.5	1.2	67	27+	17	8	0	15	33	70	2.25	-2.97	.68	8	0	T	T	5.0	---	--	---	--	8	6	17	6.3	--
Savannah	48	1018.0	1020.7	61	39	49.8	-1.9	74	28	24	1	0	7	40	74	1.46	-1.18	.61	6	0	.0	0	9.1	NE	32	NW	7	9	8	14	6.2	55
Thomasville	283	------	------	64	42	53.0	-1.6	77	27	29	1	0	3	--	--	4.85	1.32	3.90	6	0	.0	0	----	---								
HAWAII																																
Hilo	31	1014.9	1016.3	77	64	70.7	-.7	81	11	59	31+	0	0	64	82	13.97	-2.02	1.80	29	0	.0	[illegible]	8.9	SW	*32	NE	21	2	10	19	7.7	25
Honolulu	7	1016.6	1017.1	80	69	74.3	.6	85	3	63	29+	0	0	61	66	.39	-3.61	.17	[illegible]	0	.0	0	14.8	ENE	43	NE	21	9	16	6	5.4	55
Lihue	115	1012.2	1017.3	79	68	73.4	1.9	83	5	62	29+	0	0	64	74	2.88	-2.47	.62	20	0	.0	0	14.4	NE	35	NE	21	4	20	7	6.2	77

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F or above	No. of days: Min 32° F or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In	In	In			In	In	M p.h.		M p.h.			0-3	4-7	8-10	0-10	%
IDAHO																																
Boise	2842	925.8	1024.3	39	17	27.9	-3.1	51	23	10	14	0	31	18	70	0.53	-0.76	0.43	5	0	1.6	1	6.9	SSE	31	NW	13	10	8	13	5.9	76
Idaho Falls 46W (R)	4933	852.0	1026.8	34	3	18.4	-1.9	46	2	-12	27	0	31			1.13	.38	.95	3	0	6.1	5	3.5	W	a29	WSW	25	-	-	--	---	--
Idaho Falls 42NW (R)	4790	------	------	34	3	18.4	.6	47	2	-14	29	0	31	--		1.14	.53	1.05	4	-	-		1.0	NNE	a37	NNW	15	-	-	-	---	-
Lewiston	1413	970.9	1024.0	42	28	34.8	.8	57	15	19	29	0	26	--		.63	-.67	.34	6	0	5.2	5	----	---	--	---	--	1	1	23	8.0	--
Pocatello	4444	866.6	1025.4	38	14	26.0	-.8	51	2	6	29	0	31	17	72	.68	.46	.49	5	0	6.1	5	9.4	SW	42	SW	5	8	10	13	6.3	66
ILLINOIS																																
Cairo (U)	314	1006.4	------	49	36	42.6	2.9	63	27	24	7	0	10	--	--	4.14	.81	1.44	10	0	T	T	8.7	S	35	N	18	7	1	23	7.2	37
Chicago (O'Hare)	656	992.9	1018.3	40	29	34.4	----	57	27	15	22	0	22	29	82	1.99		.70	13	0	6.9	6	11.5	NNW	*30	SW	15	4	7	20	7.8	--
Chicago (Midway)	610	994.9	1018.5	42	30	35.9	7.9	58	27	21	7	0	22	29	79	2.00	.05	.71	14	0	10.4	6	11.9	NW	26	SW	15	5	6	20	7.7	35
Moline	589	995.9	1018.9	41	28	34.7	7.8	57	15	15	7	0	25	29	79	2.42	.85	.76	10	0	9.9	3	8.7	WSW	26	SW	27	4	4	23	8.0	26
Peoria	654	996.3	1019.2	41	29	34.7	6.1	58	27	15	7	0	25	28	78	1.89	-.15	.91	12	0	2.4	1	10.2	S	25	SE	27	6	2	23	7.7	31
Rockford	728	990.5	1018.6	39	26	32.6	7.1	55	27	14	22	0	27	27	82	2.77	1.13	1.09	9	0	8.9	6	8.2	NNW	*20	SSW	23+	5	5	21	7.8	--
Springfield	589	995.3	1019.3	43	31	37.0	6.4	60	27	14	7	0	17	31	79	1.33	-.70	.73	11	0	3.2	3	12.0	S	31	SW	27	4	4	23	8.0	25
INDIANA																																
Evansville	383	1003.4	1019.7	47	32	39.6	2.7	66	27	18	9	0	19	33	78	3.89	.71	1.32	11	0	T	0	9.9	NW	31	N	18	4	6	21	8.0	28
Fort Wayne	801	986.8	1019.2	41	29	34.9	6.1	60	27	12	22	0	22	29	82	2.48	.22	.83	14	0	3.5	1	10.3	WSW	28	W	7	6	5	20	7.5	57
Indianapolis	793	988.5	1019.4	43	29	35.9	4.8	67	27	17	22	0	22	30	82	2.90	.11	1.08	12	0	2.8	1	7.9	S	27	S	27	5	4	22	7.9	42
South Bend	768	989.2	1018.2	41	29	34.6	6.8	58	27	14	31	0	23	30	85	1.98	-.30	.54	12	0	8.7	3	10.9	SSW	*25	NW	7	5	4	22	7.8	--
IOWA																																
Burlington	694	992.6	1019.0	41	28	34.6	6.7	58	27	11	7	0	25	29	80	1.70	.02	.49	9	0	3.3	1	10.7	NNW	28	SW	27	4	6	21	7.9	36
Des Moines	948	985.1	1019.2	40	27	33.9	7.7	58	3	11	31	0	29	28	81	1.91	.77	.71	8	0	4.4	2	10.3	NW	29	NW	1	1	4	23	8.2	35
Dubuque	1065	992.9	1019.0	37	25	31.2	7.8	52	27	10	24	0	26	25	78	3.37	2.02	2.07	10	0	9.6	6	----	---	--	---	-	3	9	19	7.6	--
Sioux City	1094	976.3	1018.8	41	25	32.5	9.1	57	3	6	31	0	29	27	81	1.54	.80	1.18	8	0	5.8	4	10.7	SE	30	N	27	2	8	21	8.3	47
Waterloo	870	------	------	40	25	32.4	9.3	52	27+	10	7	0	29	--	84	1.78	.61	1.03	7	0	4.5	2	9.9	---	--	---	--	--	--	--	---	--
KANSAS																																
Concordia (U)	1375	967.2	------	47	28	37.6	5.8	67	3	17	21	0	27	-	67	.68	.07	.57	7	0	2.8	2	7.9	NW	31	NW	28	11	5	15	6.0	68
Dodge City	2594	928.5	1019.9	48	27	37.3	3.9	67	7+	16	23	0	29	26	67	.77	.27	.33	6	0	5.6	4	15.7	SSE	47	N	27	11	6	14	5.5	48
Goodland	3645	888.6	1018.6	48	20	34.2	5.6	74	3	10	30	0	31	20	63	.44	-.03	.42	3	0	4.0	2	11.5	NNW	*39	NNW	27	10	12	9	5.5	--
Topeka	877	986.1	1019.6	47	28	37.8	5.6	66	3	15	9	0	22	29	73	1.70	.54	1.21	8	1	.4	T	11.5	W	34	S	26+	8	3	20	7.4	39
Wichita	1321	968.5	1018.5	50	31	40.6	5.1	66	7	21	2	0	22	30	68	1.60	.50	.55	8	1	2.0	1	13.7	NNW	42	NW	27	9	4	18	6.9	52
KENTUCKY																																
Lexington	979	983.8	1020.6	46	31	38.5	2.6	65	27	20	22	0	17	33	82	4.43	.75	1.24	14	0	1.8	1	10.8	S	--	---	--	3	5	23	8.3	--
Louisville	474	1000.2	1020.0	48	32	39.9	3.0	69	27	21	9	0	19	33	78	3.77	.47	1.20	13	0	.3	T	8.2	SE	31	SE	27	4	4	23	8.2	22
LOUISIANA																																
Baton Rouge	64	1016.9	1020.0	64	43	53.5	-.1	76	27	30	4	0	3	42	68	5.87	.62	3.87	10	2	.0	0	9.3	SE	--	---	--	10	5	16	6.2	--
Lake Charles	12	1018.0	1019.4	62	45	53.7	-.3	71	9+	34	20+	0	0	46	77	3.55	-.21	2.39	11	3	.0	0	10.0	ESE	*29	SE	26	11	2	18	6.4	--
New Orleans (U)	9	------	------	63	49	56.1	-1.0	78	27	40	20+	0	0	--	76	2.76	-1.82	1.20	8	0	.0	0	7.0	-	19	E	31	11	9	11	5.4	60
New Orleans	3	1017.3	1019.8	64	47	55.6	-.5	80	27	36	30+	0	0	48	77	2.58	-2.09	1.25	8	0	.0	0	10.8	ENE	*35	W	17	11	5	15	5.6	--
Shreveport	252	1010.2	1019.5	60	41	50.4	.6	72	8	27	6	0	4	40	72	6.18	1.35	2.82	13	3	T	T	11.0	SSE	--	---	--	9	8	14	6.2	56
MAINE																																
Caribou	624	992.9	1017.4	25	12	18.5	3.9	43	7	-8	22	0	29	13	79	2.30	.07	1.42	11	0	12.2	5	11.3	NW	*40	SW	8	7	7	17	7.0	--
Portland	61	1013.7	1017.9	37	22	29.7	4.6	50	7	6	25	0	29	23	77	4.92	1.13	2.02	7	0	17.6	13	9.5	N	46	S	7	12	6	13	5.4	49
MARYLAND																																
Baltimore (U)	14	------	------	49	36	42.1	3.3	62	16	15	23	0	9	--	--	3.60	.65	1.27	10	0	----	--	----	---	--	---	--	-	-	--	----	--
Baltimore	146	1014.8	1019.8	47	31	39.0	3.3	57	28+	15	23	0	19	28	67	3.57	.62	1.28	11	2	1.5	1	8.7	W	56	W	7	5	10	16	6.9	36
Frederick	294	------	------	45	28	36.5	1.5	64	27	12	23	0	22	--	--	2.71	-.21	1.12	10	0	.7	1	----	---	--	---	--	-	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs.	629	952.2	------	39	26	32.6	----	59	13	5	23	0	25	--	72	4.50	.60	1.33	11	0	5.8	3	16.2	NW	51	SSW	7	--	--	--	----	41
Boston	15	1013.0	1017.9	42	30	36.3	3.5	61	13	12	23	0	18	25	67	4.64	1.27	1.40	9	0	5.5	2	14.1	NNW	43	SW	7	9	4	18	6.6	54
Nantucket	43	1017.0	1017.7	44	32	38.1	2.9	55	13	22	25	0	16	31	75	3.43	-.37	.96	10	0	7.9	8	14.5	NNW	43	SW	7	5	8	18	7.5	43
Pittsfield	1153	------	------	36	21	28.2	3.4	53	12	-3	24	0	29	--	--	3.68	.63	1.15	12	0	9.8	4	----	---	--	---	-	-			--	--
Worcester	986	------	1017.3	37	24	30.4	3.0	58	13+	3	23	0	28	19	64	4.74	1.12	1.79	13	0	8.5	5	8.9	WSW	-	-		8	4	19	6.9	--
MICHIGAN																																
Alpena	689	992.2	------	34	22	27.8	3.1	48	3	1	31	0	30	23	78	2.18	.25	.70	16	0	14.3	6	7.4	W	31	SW	9	5	3	23	7.8	31
Detroit (City AP)	619	991.2	1018.7	40	29	34.7	5.2	55	16	13	22	0	19	27	75	2.86	.66	.97	15	0	6.6	2	10.5	SW	34	W	9	5	6	20	7.6	38
Detroit (M. Wayne Co.)	630	993.9	1018.6	40	27	33.5	----	55	16	6	22	0	22	27	79	2.76	----	.95	15	0	7.1	2	10.5	SW	-	---	--		6	20	7.7	--
Detroit (Willow Run)	722	989.2	1018.3	40	28	34.1	5.4	56	27+	11	22	0	22	28	80	2.52	.48	.89	13	0	4.9	2	11.4	SW	*31	W	9	6	5	20	7.6	--
Escanaba (U)	594	994.2	------	34	24	29.2	6.8	40	15+	12	31	0	28	-	79	2.69	1.26	1.20	12	0	14.7	8	10.2		37	NE	6	6	5	20	7.3	30
Flint	761	989.8	1018.5	38	26	31.7	5.4	54	16	4	22	0	22	26	81	2.52	.62	.69	12	0	7.7	2	9.8	SW	*25	WSW	9	3	8	20	8.0	--
Grand Rapids	681	992.6	1018.4	39	27	32.9	5.6	54	27	11	31	0	24	27	82	2.52	.35	.85	13	0	10.6	3	9.6	ESE	29	NE	28	4	5	22	7.9	31
Lansing	852	985.4	1018.4	39	26	32.7	5.6	56	16	8	31	0	25	26	77	2.23	.11	.60	14	0	6.4	3	12.2	SW	42	W	9	4	6	21	8.0	38
Marquette (U)	677	990.2	------	34	25	29.5	6.4	45	3	15	20	0	30		75	1.46	-.58	.54	15	0	17.3	12	8.5	W	33	W	9	5	6	20	7.9	36
Muskegon	627	994.6	1018.7	38	28	33.1	3.9	52	28+	10	31	0	22	28	81	2.98	1.05	.77	12	0	10.0	4	--	---	-	--		1	4	23	8.0	-
Sault Ste. Marie	721	995.3	1019.2	30	20	25.0	5.1	42	3	1	22	0	30	19	78	2.07	-.23	.79	15	0	13.1	4	10.8	E	*43	WNW	9	6	4	21	7.8	30
MINNESOTA																																
Duluth	1409	974.9	1018.5	31	16	23.6	10.4	44	15+	2	31+	0	31	20	83	2.48	1.28	1.10	11	0	22.4	17	13.1	WNW	49	NE	28	3	10	18	7.6	43
Intern'l Falls	1179	975.6	1018.8	27	10	18.4	9.3	39	13+	-9	21+	0	31	14	81	.93	.08	.54	8	0	5.9	10	8.3	E	*27	WNW	9+	4	5	22	7.5	--
Minneapolis	830	984.1	1018.8	37	23	30.1	10.7	53	3	12	31+	0	29	25	81	1.28	.43	.79	8	0	3.5	1	7.7	SE	30	NE	27	1	9	18	7.4	47
Rochester	1017	980.4	1018.9	37	22	29.6	10.6	52	16	7	7	0	28	25	83	1.34	.32	.89	6	0	3.5	3	9.7	SSE	--	---	--	6	4	21	7.6	-
St. Cloud	1034	979.0	1018.7	35	18	26.1	10.6	50	3	1	6	0	29	22	83	1.69	1.00	.96	7	0	3.1	2	----	---	-	-	-	5	6	20	7.6	-
MISSISSIPPI																																
Jackson	305	1007.6	1020.0	59	39	48.7	-.3	73	27	26	20	0	8	40	73	5.96	.36	3.72	9	2	T	0	6.9	ESE	29	SE	11	9	5	17	6.3	44
Meridian	292	1006.2	1020.4	59	36	47.9	-.3	73	10	26	4	0	14	40	77	3.49	-2.05	1.30	7	0	.0	0	6.8	E	23	SW	11	6	10	15	6.5	--
Vicksburg (U)	234	1010.1	------	58	42	50.1	-.4	71	27	30	20	0	3	--	--	6.80	1.42	3.76	11	1	.0	0	8.3	---	25	S	11	8	9	14	6.2	49
MISSOURI																																
Columbia	778	990.2	1019.3	46	30	38.1	5.0	63	3	15	7	0	18	32	79	1.91	-.16	.84	9	1	.8	T	11.5	SE	27	NW	5	7	4	20	7.4	36
Kansas City	741	982.4	1018.7	48	2	40.4	6.7	66	3	20	6	0	17	30	68	1.78	.28	1.22	7	0	.8	1	8.9	S	34	NW	28	7	5	19	7.3	46
St. Joseph	809	982.7	------	46	29	37.2	6.0	65	3	15	31	0	23	-	--	.99	-.40	.64	8	0	1.3	1	9.1	S	*32	WNW	28	7	6	18	7.2	--
St. Louis (RFC)	465	------	------	46	34	40.2	4.0	59	4	20	7	0	12		--	2.79	.36	1.45	11	--	T	T	----	---	--	---	--	--	--	--	---	--
St. Louis	522	998.3	1019.5	45	33	39.3	4.2	58	27+	18	7	0	14	33	79	1.93	-.16	1.04	11	0	2	T	9.3	NW	33	SE	27	5	4	22	7.9	25
Springfield	1265	970.2	1019.0	48	32	39.8	4.1	60	11+	19	6	0	19	33	77	3.35	1.18	1.35	8	0	T	T	14.5	SSE	37	SW	27	7	4	20	7.0	39
MONTANA																																
Billings	3567	891.6	1018.7	43	25	34.1	6.9	62	2	15	31	0	28	18	54	.33	-.25	.27	2	0	3.9	2	13.8	SW	36	NW	26	7	7	17	6.9	57
Butte	5530	830.3	1024.9	36	8	21.8	3.3	49	6	-9	27	0	30	13	--	.13	-.18	.10	4	0	4.1	2	5.7	S	*29	WNW	11+	7	10	14	6.6	--
Glasgow	2277	941.4	1035.3	34	19	26.1	10.3	50	2	8	28+	0	30	--	81	.03	-.50	.01	3	0	.3	1	----	---	--	---	--	3	9	19	7.5	--
Great Falls	3664	888.6	1017.5	45	28	36.0	9.5	60	2	9	31	0	20	18	52	.43	-.27	.41	3	0	4.5	5	12.9	SW	42	SW	14	6	9	16	7.0	69
Havre (U)	2488	926.5	1018.0	41	22	31.8	11.4	57	2	11	29	0	27	-	--	.13	.43	.12	2	0	2.8	3	9.4	SW	37	SW	12	4	11	16	7.0	56

See footnotes at end of table.

State and station	Elevation (ground)	Pressure: Station Ø	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days: Partly cloudy	No. of days: Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
MONTANA (Cont'd.)																																
Helena	3893	875.4	1022.0	39	19	28.9	6.2	56	15	5	29	0	31	18	67	0.28	-0.36	0.20	5	0	4.5	3	6.7	W	34	NW	3	4	12	15	6.7	69
Kalispell	2965	-	------	31	17	24.2	.5	48	15	4	9+	0	30	--	--	.40	-1.14	.14	10	0	3.9	2	----	---	--	---	--	1	5	25	8.7	--
Miles City	2629	932.6	1019.3	40	21	30.6	9.9	56	15+	9	24+	0	30	22	--	.03	-.48	.03	1	0	T	T	9.1	W	*29	NW	26	4	8	19	7.4	--
Missoula	3200	906.2	1024.8	34	19	26.6	3.0	55	15	8	10	0	31	21	81	.27	-.76	.08	7	0	2.7	1	4.4	NW	18	N	31	1	9	21	8.3	46
NEBRASKA																																
Grand Island	1841	950.6	1018.6	45	23	33.9	6.9	71	3	12	30	0	29	24	70	.62	.07	.43	3	0	4.8	3	13.0	NNW	--	---	--	4	10	17	7.3	--
Lincoln (U)	1166	------	------	45	27	35.8	6.7	67	3	15	31	0	27	--	--	.88	.02	.73	7	1	5.1	5	10.5	S	37	NW	28+	4	8	19	7.6	45
Norfolk	1544	961.4	1018.7	42	22	31.7	8.0	66	3	13	31	0	29	24	73	.46	-.32	.41	5	0	4.2	4	----	---	--	---	--	2	10	19	8.0	--
North Platte	2779	916.4	1018.3	47	18	32.6	5.4	71	3	6	23	0	31	20	65	.23	-.17	.21	2	0	.3	T	11.5	NW	59	NW	27	8	11	12	6.1	67
Omaha	978	977.3	1018.7	43	27	34.9	7.5	64	3	10	31	0	28	28	78	1.13	.32	.65	9	1	5.1	4	12.2	SSE	41	NW	28	3	9	19	7.6	37
Omaha N.Omana AP	1323	968.8	------	41	25	33.3	8.0	62	3	6	31	0	29	--	--	1.47	.66	.89	11	1	4.2	3	----	---	--	---	--	3	5	23	8.0	--
Scottsbluff	3950	879.4	1019.5	47	19	32.8	5.8	66	3	6	30	0	31	18	60	.24	-.19	.24	1	0	2.8	3	10.8	NW	*39	NNW	27	10	8	13	5.5	--
Valentine	2587	924.8	------	43	21	32.0	6.8	62	3	5	24+	0	31	--	75	.04	-.42	.02	2	0	.6	T	10.9	W	41	N	26	9	5	17	6.5	62
NEVADA																																
Elko	5075	848.0	1024.7	39	7	23.3	-3.6	56	2+	-4	27	0	31	10	62	.16	-.89	.10	4	0	2.7	1	2.9	ENE	*21	W	25	11	9	11	5.5	--
Ely	6257	810.0	1022.1	42	9	25.9	-1.0	63	2	-11	27	0	31	11	58	.62	-.26	.32	7	0	10.6	3	11.9	S	38	SE	24	12	4	15	5.9	79
Las Vegas	2162	951.9	1018.3	59	36	47.4	.6	73	2	29	30+	0	7	22	42	1.38	.80	.83	5	0	T	0	8.6	WSW	*47	NNW	13	10	8	13	5.7	83
Reno	4404	864.9	1023.8	45	14	29.4	-3.8	59	2	6	8+	0	31	16	64	.45	-.49	.16	5	0	1.8	1	4.1	SW	38	SW	12	12	9	10	5.1	70
Winnemucca	4299	872.0	1025.4	43	7	25.3	-4.7	63	2	-10	14	0	31	13	61	.42	-.58	.25	4	0	3.4	3	5.6	NE	29	W	25	9	8	14	5.9	63
NEW HAMPSHIRE																																
Concord	339	1007.0	1018.2	38	21	29.3	5.3	51	7+	0	24	0	29	20	71	3.44	.63	1.38	9	0	15.3	13	6.8	NW	35	SE	7	10	6	15	6.1	52
Mt. Washington	6262	799.3	------	18	7	12.4	3.5	37	13	-10	21	0	31	--	84	5.70	-.15	1.34	23	0	39.5	9	36.6	W	‡117	W	16	6	5	20	7.5	34
NEW JERSEY																																
Atlantic City (U)	10	------	------	47	34	40.7	2.5	61	16	14	23	0	13	--	--	3.49	.18	1.09	10	--	----	--	9.5	---	34	SW	7	--	--	--	---	--
Atlantic City	58	1016.1	1019.3	47	31	39.0	2.3	61	16	11	23	0	20	31	75	3.15	.07	.97	8	1	1.5	T	11.8	NNW	--	---	--	6	9	16	7.0	--
Newark	11	1017.9	1019.2	45	31	38.0	4.0	59	16+	10	23	0	18	28	69	4.17	1.07	1.51	11	0	9.1	5	9.0	NNE	*30	SSW	7	6	7	18	7.0	--
Trenton (U)	56	1011.4	------	44	31	37.9	2.9	59	16+	11	23	0	16	--	--	3.58	.80	.89	12	0	6.2	5	8.6	---	35	S	7	8	9	14	6.5	49
NEW MEXICO																																
Albuquerque	5310	849.6	1018.6	48	29	38.2	2.2	59	1	20	30	0	25	24	62	1.85	1.26	.92	10	0	14.7	10	6.4	N	39	S	31	11	8	12	5.5	57
Clayton	4969	845.2	1017.3	50	24	37.0	1.9	70	3	16	30+	0	29	--	--	.68	.32	.21	7	0	5.1	3	----	---	--	---	--	10	9	12	5.5	--
Raton	6379	804.6	1018.3	48	17	32.3	2.9	64	2	5	28	0	30	—	--	.59	.24	.40	4	0	5.7	3	----	---	--	---	--	10	7	14	5.5	--
Roswell	3612	893.7	1016.9	56	29	42.4	1.6	70	7	14	6	0	22	26	56	.75	.22	.43	5	0	3.1	1	9.2	---	45	NW	26	12	7	12	5.4	--
NEW YORK																																
Albany	277	1015.0	1018.8	36	24	29.9	3.5	49	16+	0	24+	0	26	23	76	2.86	.69	1.06	12	0	6.9	4	9.0	SSE	51	W	8	4	6	21	7.6	35
Binghamton	1590	955.8	1017.6	36	25	30.5	5.1	52	12	0	23	0	24	25	81	3.24	.64	.86	15	0	15.1	5	7.8	S	43	W	8	3	7	21	8.0	31
Buffalo	693	989.2	1018.6	37	27	32.3	3.3	52	5	5	23	0	24	26	78	3.98	1.06	1.17	14	0	14.2	4	9.9	WSW	42	SW	15	2	10	19	7.8	36
New York (U)	10	1017.6	-----	44	33	38.8	3.1	57	13	10	23	0	13	--	--	4.96	1.89	1.56	11	0	8.0	7	13.0	---	66	SW	7	8	10	13	6.3	49
New York	19	1018.7	1019.0	45	34	39.2	3.5	58	16+	12	23	0	12	38	68	5.00	2.00	1.79	12	0	8.6	6	17.0	NE	43	N	22	7	6	18	7.0	--
Rochester	543	998.6	1018.5	36	25	30.9	2.7	49	5+	1	23	0	26	26	81	4.64	2.24	1.30	14	0	25.4	10	10.9	WSW	42	W	8	2	5	24	8.4	40
Schenectady	217	------	------	37	26	31.8	5.9	50	7	4	24+	0	23	--	--	2.95	.52	1.12	11	--	6.9	6	----	---	--	---	--	9	14	8	---	--
Syracuse	424	995.7	1018.6	36	26	31.1	2.0	53	5	0	23	0	24	24	77	5.01	2.27	1.40	16	0	11.6	4	9.7	WSW	42	W	8	2	8	21	8.1	21
NORTH CAROLINA																																
Asheville (U)	2203	939.2	------	50	32	40.7	.5	65	28+	19	7	0	20	--	--	1.97	-.99	.76	11	1	1.0	1	8.7	---	29	NW	19	8	4	19	7.1	37
Cape Hatteras	9	1018.5	1019.3	57	44	50.1	.6	69	12	29	2	0	2	44	81	5.58	.49	2.09	7	3	.0	0	13.0	N	33	N	3	12	6	13	5.5	--
Charlotte	725	991.7	1020.6	55	34	44.4	1.4	69	4	23	1	0	16	34	70	2.81	-.98	1.87	8	1	T	T	9.8	NNE	34	W	6	10	5	16	6.1	54
Greensboro	891	988.1	1021.2	52	31	41.4	1.3	66	27	20	23+	0	23	30	68	2.86	-.25	1.47	8	1	T	T	7.7	NE	26	NE	19	11	8	12	6.0	66
Raleigh	433	1006.8	1020.6	54	32	43.3	.9	67	28	20	23	0	21	32	69	2.25	-1.04	1.29	6	0	T	0	7.9	N	*23	N	19+	11	9	11	5.3	60
Wilmington	30	1018.7	1020.0	59	38	48.3	-.3	70	28+	25	23	0	9	39	76	3.28	-.18	1.66	6	0	T	0	10.3	N	30	W	7+	10	7	14	5.8	54
Winston-Salem	967	984.4	1020.7	52	32	42.1	1.5	65	27	21	23	0	18	29	62	3.00	-.23	1.55	11	1	T	0	8.5	NNE	*35	NE	19	9	9	13	5.8	--
NORTH DAKOTA																																
Bismarck	1650	956.3	1018.9	33	19	26.1	10.6	47	15	7	30	0	30	24	89	.39	-.01	.11	8	0	4.9	4	11.9	WNW	38	NW	26	5	6	20	7.5	45
Devils Lake (U)	1471	962.4	------	29	16	22.2	11.0	41	2	-3	30	0	31	--	87	.37	-.11	.24	4	0	3.4	3	7.9	W	23	W	8	6	7	18	7.2	49
Fargo	895	982.7	1018.9	33	19	25.9	13.0	45	26+	5	30	0	30	22	84	.53	-.07	.33	5	0	1.5	1	13.7	SSE	47	S	21	6	8	17	7.1	47
Williston (U)	1877	948.2	1018.2	34	21	27.5	11.8	47	2	6	23	0	30	21	78	.55	.01	.29	6	0	3.3	3	6.6	W	25	NW	26	7	6	18	6.9	42
OHIO																																
Akron	1210	979.5	1019.4	40	27	33.4	3.3	57	27	6	22	0	23	30	86	2.71	.13	1.12	15	1	7.5	5	11.1	S	--	---	--	3	5	23	8.2	--
Cincinnati Obs.	761	------	------	45	32	38.7	3.7	66	27	18	22	0	20	--	--	3.06	.22	1.39	17	0	2.4	1	6.4	---	24	N	18	--	--	--	---	27
Cincinnati	869	987.0	1019.9	45	31	37.7	4.1	64	27	15	22	0	21	31	77	3.03	.20	1.39	17	0	3.9	2	10.4	SW	*28	NNE	18	2	4	25	8.5	--
Cleveland	787	990.0	1018.8	42	30	36.0	5.1	62	27	14	22	0	19	30	79	2.39	.10	1.04	16	0	5.3	3	9.8	S	25	W	7	4	7	20	8.0	18
Columbus (U)	724	------	------	43	32	37.7	4.4	64	27	17	22	0	19	--	--	2.01	-.43	.82	13	--	3.5	2	----	---	--	---	--	--	--	--	---	--
Columbus	815	989.4	1020.4	43	30	36.4	4.7	66	27	8	22	0	21	30	79	2.27	-.22	.95	14	0	5.5	3	7.8	S	26	W	7	2	7	22	8.4	29
Dayton	1002	982.1	1019.6	42	29	35.7	4.0	64	27	12	22	0	22	30	80	2.40	-.07	.98	16	0	4.7	4	10.2	SSE	29	W	29	2	6	23	8.3	30
Sandusky (U)	603	995.7	------	42	31	36.0	4.5	62	27	20	23	0	19	--	--	2.54	.38	1.00	11	0	5.8	3	8.9	---	30	N	12	6	9	16	7.1	45
Toledo	676	992.9	1019.1	40	27	33.1	4.2	60	27	11	22	0	24	28	82	2.37	.08	.83	15	0	4.6	2	7.2	WSW	26	NW	7	5	5	21	7.7	43
Youngstown	1178	974.9	1018.9	39	28	33.5	3.5	58	27	9	22	0	25	28	81	3.29	.35	1.04	13	1	9.9	3	11.4	S	*27	WNW	7	4	5	22	8.2	--
OKLAHOMA																																
Oklahoma City	1280	974.6	1019.0	54	35	44.2	4.0	69	7+	22	6	0	11	34	71	3.26	1.78	1.73	7	1	T	T	12.9	SSE	42	SW	26	13	2	16	6.0	48
Tulsa	672	993.9	1018.7	55	35	44.9	4.1	67	7+	24	6	0	14	34	69	2.53	.84	1.00	8	1	.0	0	9.2	SSE	34	NE	18+	8	6	17	6.6	45
OREGON																																
Astoria	8	1019.3	1019.7	49	35	42.2	-.5	56	23+	26	6	0	10	39	88	8.36	-4.85	1.71	20	1	.0	0	8.2	ESE	*32	S	14	1	5	25	8.7	--
Burns (U)	4140	876.4	1023.7	40	14	26.7	-1.0	55	2	5	14	0	31	17	71	.67	-.77	.42	5	0	5.9	4	----	---	--	---	--	7	7	17	6.7	--
Eugene	361	1007.5	1021.4	47	35	40.9	.3	60	18+	25	29+	0	13	--	--	2.76	-3.24	.75	14	0	T	0	6.5	---	*35	S	12	1	2	28	9.1	--
Meacham	4050	------	------	37	26	31.1	2.0	51	2	15	31	0	29	--	--	1.17	-3.21	.30	13	0	9.9	8	----	---	--	---	--	6	8	17	7.4	--
Medford	1312	973.6	1023.0	43	26	34.6	-3.9	57	11	17	8	0	30	29	86	1.17	-1.96	.57	7	0	2.2	2	2.4	SE	*18	SE	23	2	3	26	8.8	--
Pendleton	1492	967.8	1023.2	40	28	33.6	-1.7	67	15	20	31+	0	27	29	85	.62	-1.07	.25	11	0	1.6	1	7.3	SE	*63	WNW	11	4	5	22	8.0	--
Portland	21	1015.6	1021.2	46	33	39.6	-1.2	59	15	22	6	0	16	35	83	3.08	-3.09	1.35	16	0	T	T	8.9	E	38	SE	14+	0	2	29	9.3	36
Roseburg	505	1002.4	1021.3	48	34	40.9	-.3	63	18	26	6	0	13	--	--	3.53	-1.40	1.10	11	0	.7	1	3.2	---	25	W	12	1	7	23	8.7	19
Salem	195	1014.6	1021.7	47	33	39.6	-1.4	59	18+	22	6+	0	13	37	88	3.97	-3.15	1.60	15	1	T	T	5.7	S	*23	SSW	14+	0	4	27	9.1	--
Sexton Summit (R)	3836	885.2	1020.7	44	32	37.7	1.0	60	1	18	31	0	16	--	--	2.69	-2.01	1.40	8	0	13.4	5	12.9	S	--	---	--	6	6	19	6.9	--
PACIFIC AREA																																
Canton Island	8	1007.1	1007.5	90	79	84.5	1.5	91	31+	77	16+	24	0	72	71	.13	-.82	.08	3	0	.0	0	15.3	E	*25	E	23	0	2	29	9.5	--
Guam (R)	361	------	------	84	75	79.4	1.3	86	2	69	21	0	0	--	--	6.31	1.40	2.29	24	0	.0	0	9.5	E	29	E	27	--	--	--	---	28
Johnston Island	7	1012.5	1013.1	81	73	76.8	---	83	5+	69	24+	0	0	68	75	5.64	----	4.30	20	0	.0	0	16.5	---	34	NE	21+	0	21	10	6.6	73
Koror (R)	94	1005.1	1008.9	87	76	81.3	.5	90	1	73	26+	1	0	76	86	10.41	-3.12	3.93	22	2	.0	0	5.2	NE	20	NW	15	0	4	27	9.1	52
Majuro	10	1007.5	1007.8	84	77	80.6	---	86	24+	74	16	0	0	75	81	14.00	----	2.48	25	0	.0	0	14.2	ENE	33	E	18	0	0	31	9.9	57
Ponape (R)	120	1002.7	1008.0	86	75	80.6	-.3	89	11+	71	12	0	0	75	84	26.11	8.92	4.23	27	3	.0	0	6.4	E	26	E	24	0	1	30	9.7	27
Truk, Moen Island	5	1007.5	1007.8	86	77	81.4	.3	89	7+	72	31	0	0	77	86	34.89	22.74	14.92	27	3	.0	0	8.8	NNE	33	SE	26	0	0	31	9.8	50
Wake Island	11	1014.6	1015.0	83	74	78.5	-.5	86	12	71	6	0	0	71	77	3.09	1.02	1.71	18	0	.0	0	17.9	ENE	*31	ENE	14	11	17	3	4.6	--
Yap (R)	55	1006.8	1008.8	87	77	81.7	.5	88	31+	73	7	0	0	76	84	11.16	1.01	4.87	23	4	.0	0	6.0	NNE	*32	E	15	0	0	31	10.0	72
PENNSYLVANIA																																
Allentown	376	1004.8	1019.1	42	27	34.1	3.0	58	12	5	23	0	24	27	77	3.76	.74	1.34	11	1	6.2	5	10.2	ENE	*40	WSW	7	7	7	17	6.8	--
Erie	732	------	-----	40	29	34.2	3.5	57	27	10	23	0	22	--	--	3.58	1.19	1.04	14	0	12.8	5	7.1	---	20	NNE	28	1	6	24	8.6	--
Harrisburg	335	1005.5	1019.6	43	29	36.0	2.1	59	16	11	23	0	21	25	68	3.01	.45	1.21	12	0	8.0	4	6.4	WSW	31	W	7	7	3	21	7.4	47

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station ø	Pressure: Sea level	Temp: Average maximum	Temp: Average minimum	Temp: Average	Temp: Departure from normal	Temp: Highest	Date	Temp: Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precip: Total	Precip: Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet: Total	Snow, Sleet: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb.	°F.	°F	°F.	°F.	°F		°F.				°F	%	In.	In.	In.			In.	In.	M p. h.		M. p h			0–3	4–7	8–10	0–10	%
PENNSYLVANIA (Cont'd.)																																
Philadelphia (U)	35	------	------	46	34	40.3	2.9	62	16	13	23	0	10	--	--	----	----	----	--	--	----	--	--		--	---	--				---	--
Philadelphia	7	1014.4	1019.1	46	31	38.2	2.3	59	16	13	23	0	19	29	72	3.62	0.95	1.11	10	0	5.7	2	8.0	WSW	35	NW	13	6	6	19	7.0	41
Pittsburgh (U)	749	------	------	45	33	38.7	3.5	61	27	12	23	0	14	--	--	2.55	-.02	.80	12	--	9.9	--	---	---	--	---	--				--	17
Pittsburgh	1151	989.0	1019.7	41	29	34.8	3.9	58	27	9	23	0	23	28	76	2.78	.27	.77	14	0	11.5	5	8.4	SW	27	WNW	12	4	5	22	8.1	51
Reading (U)	266	1007.2	------	44	31	37.2	2.4	59	16	12	23	0	20	--	--	4.69	1.89	2.12	11	1	7.3	5	9.2	---	47	NW	13	6	8	17	6.9	42
Scranton	940	983.7	1019.2	38	26	32.1	2.5	57	12	3	23	0	23	23	72	2.71	.34	.89	12	0	9.2	5	8.1	SW	26	SW	7	6	3	22	7.7	28
Williamsport	527	1000.0	1019.7	40	26	32.8	1.9	57	16	0	23	0	26	25	75	4.18	1.51	1.86	13	0	8.8	5	7.7	W	48	W	6	5	6	20	7.6	--
RHODE ISLAND																																
Block Island	110	1012.6	------	44	32	38.1	3.0	57	12	16	23	0	14	--	--	5.37	2.01	1.70	9	0	4.2	2			-	-		8	7	16	6.4	-
Providence	55	1012.0	1018.3	42	27	34.5	2.9	58	13+	8	23	0	25	25	69	4.17	.72	1.80	11	0	5.1	3	11.0	N	*43	S	7	7	5	19	6.9	48
SOUTH CAROLINA																																
Charleston (U)	9	------	------	59	44	51.2	-1.0	69	28+	33	23+	0	0	--	--	1.73	-.98	.76	8	--	.0	0	10.5	---	35	SW	6				---	--
Charleston	41	1018.8	1020.9	60	39	49.8	-.7	72	17	25	1	0	6	40	73	2.49	-.22	1.32	7	0	.0	0	9.3	N	38	W	7	9	7	15	6.3	84
Columbia	217	1007.7	1021.0	59	35	47.1	.1	74	28	24	22	0	12	36	70	2.42	-1.17	1.43	7	0	T	0	7.3	WSW	23	NNE	19	9	6	16	6.2	67
Florence	146	1014.1	1020.0	59	37	48.0	1.5	76	28	24	8	0	12	35	66	3.79	.54	3.27	5	0	T	0	7.9	N	28	SW	6	9	10	12	5.8	--
Greenville	1018	982.3	1020.6	53	36	44.3	.2	67	4	23	8	0	12	33	64	3.28	-1.23	1.22	9	1	.4	T	7.6	NE	31	S	12	10	4	17	6.5	49
Spartanburg	801	------	------	54	34	44.0	.1	66	9+	23	1	0	12	--	--	2.92	-1.07	1.10	9	0	.0	0	---		29	NW	13	-	-		---	--
SOUTH DAKOTA																																
Huron	1282	969.9	1018.8	38	21	29.5	9.9	55	15	5	31	0	30	25	83	1.08	.63	.58	8	0	5.9	4	12.3	SSE	32	N	27+	5	5	21	7.7	39
Rapid City	3165	901.5	1018.5	45	24	34.2	8.5	64	2	8	24	0	30	20	62	.26	-.08	.15	4	0	3.0	1	12.3	NNW	47	NW	26	9	8	14	5.8	55
Sioux Falls	1420	965.5	1018.6	37	22	29.3	9.9	52	26	5	31+	0	30	23	75	.88	.21	.75	6	0	3.7	3	9.9	N	*32	N	27	2	6	23	8.4	--
TENNESSEE																																
Bristol	1519	964.6	1020.6	49	31	39.7	1.0	67	27+	16	8	0	17	32	77	3.87	.44	1.35	11	0	4.1	4	6.4	NE	*23	NNE	18	3	4	24	8.0	--
Chattanooga	670	991.3	1020.8	53	35	43.8	1.7	67	9	21	8	0	10	35	75	4.50	-.81	2.33	8	0	T	0	6.6	S	30	S	27	8	3	20	7.4	41
Knoxville	950	984.5	1020.7	52	34	42.6	1.6	67	27	22	8	0	13	30	75	4.03	-.23	1.33	10	1	3.7	2	7.6	NE	37	SW	28	3	7	21	8.0	36
Memphis (U)	271	------	------	53	39	46.0	1.6	64	10	27	6	0	4	--	--	4.58	-.21	2.54	8	--	.0	0	---	---	--	---	--				---	--
Memphis	263	1005.2	1020.3	54	37	45.4	2.1	65	10	24	31	0	10	37	72	5.33	.24	2.49	9	1	.0	0	8.6	SE	32	N	18	6	7	18	7.0	44
Nashville	577	999.9	1020.4	52	35	43.1	1.5	66	10	22	7	0	15	37	81	5.04	.98	1.74	13	2	T	T	8.0	S	27	N	18	8	2	21	7.3	36
Oak Ridge	905	985.5	------	50	33	41.3	1.7	62	27+	20	8	0	14	--	--	5.37	-.29	1.69	9	0	1.1	1	---	---	35	---	29	6	5	20	7.4	--
TEXAS																																
Abilene	1759	955.6	1017.8	59	37	48.1	2.3	73	7+	22	6	0	8	35	64	2.12	.75	.83	6	2	.0	0	10.9	SSE	38	N	27	11	9	11	5.5	61
Amarillo	3590	889.3	1017.4	51	30	40.3	3.0	66	7+	23	9+	0	25	25	61	4.52	3.85	2.25	8	0	T	T	13.3	N	38	N	27	13	9	9	4.9	68
Austin	615	996.6	1018.8	63	44	53.7	1.5	75	7	33	20	0	0	43	71	2.11	-.60	.91	11	0	.0	0	8.7	NW	34	SE	15	9	3	19	6.4	47
Brownsville	16	1015.6	1018.4	74	52	62.7	.3	84	11	35	7	0	0	53	73	.61	-1.55	.43	7	0	.0	0	9.8	NNW	30	S	14	8	8	15	6.5	46
Corpus Christi	41	1018.0	1019.1	70	49	59.1	.3	77	11+	30	6	0	2	50	74	1.52	-.75	.76	6	1	.0	0	10.0	SSE	42	SE	31	7	11	13	6.2	58
Dallas	487	1000.0	1019.1	60	42	51.1	2.8	74	8	29	6	0	1	38	66	5.85	3.23	3.16	10	1	T	0	10.6	SSE	37	E	15	9	7	15	6.2	55
Del Rio (U)	957	------	------	65	43	53.9	.7	78	11	27	6	0	2	--	--	.72	-.16	.58	3	2	.0	0	----	---	--	---	--				---	--
El Paso	3920	887.6	1017.3	59	34	46.2	1.5	69	4	19	6	0	13	26	46	.29	-.20	.12	5	0	T	0	9.7	N	46	NW	26	15	5	11	4.7	71
Fort Worth	544	997.6	1018.8	60	41	50.2	2.1	74	8+	27	6	0	4	39	68	2.84	.36	1.39	8	1	T	0	12.0	S	*35	E	15	9	5	17	6.3	--
Galveston (U)	7	------	------	62	52	56.8	-.2	68	26+	40	6	0	0	--	--	3.23	-1.03	1.24	12	--	.0	0	13.0	---	34	E	15	--	--	--	---	53
Galveston	5	1017.3	1019.6	62	50	56.0	-.5	69	8	36	6	0	0	46	71	4.43	-.39	1.88	12	4	.0	0	10.2	E	--	---	--	8	7	16	6.6	--
Houston (U)	41	1013.5	------	64	49	56.2	.4	73	10+	33	6	0	0	--	--	4.67	.04	1.98	11	0	.0	0	10.8	SE	36	SE	15	9	4	18	6.6	51
Houston	50	1016.6	1019.7	64	46	55.0	-.2	75	10	30	6	0	1	47	77	5.34	.88	2.61	11	4	.0	0	12.1	ESE	--	---	--	7	4	20	7.0	--
Laredo	500	1002.7	1018.3	72	48	60.0	.7	83	11	34	7+	0	0	43	59	.22	-1.22	.11	3	0	.0	0	8.1	SE	*23	WNW	31+	8	11	12	5.7	--
Lubbock	3243	904.2	1018.1	55	30	42.3	1.7	70	7	16	6	0	21	30	66	1.47	.81	1.12	7	0	T	T	13.3	N	*37	NE	15	15	5	11	4.8	--
Midland	2854	917.0	1017.2	59	35	46.8	1.4	70	7	23	6	0	12	32	61	1.01	.26	.52	4	0	T	0	10.5	SSE	*30	WSW	26	15	5	11	4.7	--
Port Arthur	16	1017.6	1019.1	63	45	53.9	-.2	72	26+	31	6	0	1	48	81	4.12	-1.35	1.39	12	2	.0	0	12.2	ESE	37	E	15	9	5	17	6.7	41
San Angelo	1903	949.9	1018.3	60	36	48.3	-.5	72	10+	20	6	0	11	36	67	2.06	.93	.92	7	1	.0	0	10.6	W	*35	S	13	11	8	12	5.5	--
San Antonio	792	993.2	1018.7	65	43	54.0	.9	76	11	29	6	0	1	43	71	1.52	-.40	.89	7	2	.0	0	9.3	NNW	34	NW	15	8	9	14	6.2	48
Victoria	110	1014.2	1018.7	67	47	56.9	.1	76	8	31	6	0	1	46	70	3.57	.50	1.62	8	2	.0	0	9.1	ESE	‡40	NW	16+	8	5	18	6.6	--
Waco	500	997.3	1018.8	62	42	52.1	1.9	76	7	25	6	0	1	41	71	4.06	1.32	1.80	8	2	.0	0	12.0	SSE	*29	NW	27+	9	6	16	6.4	--
Wichita Falls	1020	980.7	1018.8	58	37	47.5	3.7	75	3	25	6	0	10	34	65	4.26	2.79	2.22	8	3	T	0	10.1	SE	*29	NW	27	14	3	14	5.4	--
UTAH																																
Milford	5028	846.6	1023.4	41	16	28.1	.1	60	3	-1	29+	0	31	--	--	1.00	.25	.33	8	0	8.8	4	--	---	--	---	--	10	3	18	6.4	--
Salt Lake City	4220	871.3	1024.8	40	16	27.8	-3.7	51	2	8	30+	0	31	20	76	1.05	-.29	.56	5	0	10.6	6	5.2	SSE	32	SE	25	14	3	14	5.5	62
Wendover	4237	875.0	------	36	18	27.1	----	44	14+	10	5	0	31	--	--	.29	----	.17	4	0	1.4	1	----	---	--	---	--	10	6	15	5.5	--
VERMONT																																
Burlington	331	1003.4	1018.8	32	20	26.0	3.2	49	6	-3	24	0	25	--	--	2.55	.67	1.07	14	1	22.4	12	7.0	SSW	42	NW	9	3	4	24	8.3	40
VIRGINIA																																
Lynchburg	947	985.3	------	50	33	41.5	2.6	66	27	17	23	0	16	--	--	2.49	-.66	.82	8	0	.7	T	7.8	---	27	W	7	10	7	14	6.1	55
Norfolk	26	1018.8	1020.2	53	36	44.8	2.0	68	27	28	20+	0	11	35	72	2.65	-.23	1.26	5	1	T	T	10.7	NNE	41	W	7	9	9	13	6.2	59
Richmond	162	1014.2	1020.7	52	32	41.6	2.1	69	27	17	23	0	20	29	65	2.24	-.65	.97	7	0	1.2	1	7.6	SW	25	SW	7	7	9	15	6.3	55
Roanoke	1174	976.9	1020.5	49	33	41.1	2.1	64	17+	19	23	0	18	28	64	2.18	-.95	.89	10	--	T	0	8.6	SE	--	---		7	8	16	6.7	--
WASHINGTON																																
Olympia	190	1013.2	1020.3	46	32	38.7	-.7	55	19	21	31	0	19	38	94	7.50	-1.16	3.47	20	1	.7	1	7.2	SW	*28	SW	11	0	2	29	9.2	--
Seattle (U)	14	------	------	47	40	43.5	.4	56	18	34	31+	0	0	--	--	6.20	.86	2.16	19	--	T	0	---	---	60	SW	11	--	--	--	---	13
Seattle	14	1019.3	1020.0	--	--	--	----	--	--	--	--	--	--	36	79	----	----	----	--	--	---	--	5.7	S	--	---	--	--	--	--	---	--
Seattle-Tacoma	386	1006.1	1020.1	45	35	40.3	.5	56	11	28	31+	0	8	36	86	6.83	1.15	2.53	19	1	T	0	7.4	ESE	*29	SW	11	0	4	27	9.1	--
Spokane	2357	951.9	1022.8	34	23	28.8	-.3	51	15	11	31	0	30	26	88	1.21	-1.00	.44	12	0	6.5	2	7.4	NE	42	SW	15	2	2	27	8.9	19
Stampede Pass (R)	3958	880.5	1022.3	30	23	26.8	.6	44	15	17	31+	0	31	--	--	13.66	-1.00	6.14	20	0	53.3	28	----	---	--	---	--	1	2	28	9.2	--
Tatoosh (R)	101	1015.9	1019.3	48	41	44.9	.8	55	19	36	31	0	0	39	80	9.35	-2.69	2.85	22	2	.0	0	17.3	E	58	SW	11	2	7	22	8.2	30
Walla Walla (U)	949	986.1	1019.6	40	30	35.3	-1.0	65	15	20	6	0	24	--	--	.88	-.93	.25	9	0	5.5	5	3.9 ⊛	S	32	SE	11	2	3	26	8.6	31
Yakima	1061	983.4	1023.7	40	24	32.2	1.6	62	15	14	7	0	28	27	82	.35	-.75	.24	6	0	1.9	1	4.3	WNW	*46	SW	15	3	4	24	8.5	--
WEST INDIES																																
San Juan, P.R. (U)	47	------	------	84	73	78.5	2.0	89	4+	70	20	0	0	--	--	4.45	-.38	1.06	16	1	.0	0	----	---	--	---	--	--	--	--	---	--
San Juan, P.R.	15	1011.7	1014.7	86	70	77.8	2.0	89	4+	66	28+	0	0	71	83	3.50	-2.49	.90	17	1	.0	0	6.1	ENE	21	NE	26	5	18	8	5.6	62
Swan Island	31	1011.6	------	83	75	78.6	.2	85	28	70	6	0	0	--	--	13.33	8.73	3.36	15	3	.0	0	----	---	--	---	--	--	--	--	6.0	--
WEST VIRGINIA																																
Charleston	950	983.6	1020.0	48	32	40.0	1.9	71	27	21	23	0	17	31	72	2.02	-.96	.52	15	1	3.4	2	6.2	WSW	21	WSW	7	2	6	21	8.1	--
Huntington (U)	565	------	------	49	33	40.7	1.6	73	27	23	23+	0	16	--	--	2.06	-1.11	.63	14	--	.4	T	----	---	--	---	--	--	--	--	---	--
Parkersburg (U)	615	------	------	46	31	38.3	2.2	69	27	16	22	0	20	--	--	2.39	-.51	.78	11	0	3.2	2	5.3	---	21	W	12	3	6	22	8.3	25
WISCONSIN																																
Green Bay	689	994.9	1018.5	34	23	28.5	8.4	44	16	7	31	0	27	26	89	2.85	1.59	1.55	10	0	13.4	8	11.8	N	35	NE	28	7	6	18	7.1	37
La Crosse	652	992.9	1018.5	37	25	30.6	10.1	58	16	12	7	0	28	25	79	1.45	.23	.59	7	0	5.1	5	8.6	S	*28	E	27	6	5	20	7.5	--
Madison	857	982.1	1018.6	38	24	31.1	8.1	57	16	9	22	0	27	26	83	2.45	1.05	1.30	8	0	12.4	9	8.8	SW	26	SW	15	6	7	18	7.1	38
Milwaukee	672	992.9	1018.8	38	27	32.5	6.8	55	16	15	22	0	27	27	81	2.85	1.37	1.11	9	0	14.3	12	11.8	NW	30	SE	23	5	5	21	7.6	41
WYOMING																																
Casper	5319	837.1	1018.7	42	19	30.4	4.9	54	3+	2	4	0	30	16	56	.25	-.40	.15	4	0	4.8	2	14.0	SW	*48	WSW	25	9	7	15	6.1	--
Cheyenne	6131	810.4	1018.2	46	20	33.1	4.4	64	3	7	5	0	31	15	52	.03	-.49	.03	1	0	.4	T	15.1	WNW	43	NW	28	9	11	11	5.2	64
Lander	5563	837.5	1023.4	37	15	25.9	5.5	52	3	1	28	0	31	14	68	.68	.19	.38	4	0	11.0	8	4.2 ⊛	W	27	NW	3	8	15	8	5.5	83
Sheridan	3942	885.2	1020.4	39	19	29.2	5.2	60	2	9	30	0	31	21	73	.31	-.36	.22	5	0	4.2	4	7.1	WNW	44	NW	26	5	9	17	6.9	60

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
a Maximum hourly average.
\+ And also on an earlier date or dates.
ø Station pressures apply to elevations shown in the "Elevations - Station Pressure" table of the annual issue of this publication.
\# Number of days maximum 70° or above for Alaskan Stations.
⊕ Sun below horizon.
⊛ Wind direction to 8 compass points only.
¢ City Office Data
† Airport Data
‡ Peak Gust

HEATING DEGREE DAYS

(Base 65°F.)

DECEMBER 1959

State and station	Current season: This month	Current season: Period July through this month	Normals July through this month
ALABAMA			
Birmingham	525	1052	1130
Mobile	396	722	623
Montgomery	480	875	864
ARIZONA			
Flagstaff	1034	2707	2967
Phoenix (U)	304	410	555
Phoenix	342	487	645
Prescott	778	1582	1720
Tucson	416	650	649
Winslow	901	1809	1903
Yuma	231	281	364
ARKANSAS			
Ft. Smith	608	1336	1273
Little Rock	552	1211	1179
Texarkana	472	1042	913
CALIFORNIA			
Bakersfield	483	723	819
Bishop	751	1485	1675
Blue Canyon	632	1475	2006
Burbank	234	304	580
Eureka (U)	535	2001	2033
Fresno	571	923	1011
Los Angeles (U)	145	170	451
Los Angeles	173	217	697
Mt. Shasta (R)	863	2074	2326
Oakland	448	866	1238
Red Bluff	522	802	942
Sacramento (U)	512	808	980
Sacramento	559	931	1072
Sandberg(R)	647	1289	1403
San Diego	150	184	496
San Francisco (U)	307	882	1247
San Francisco	421	843	1360
San Jose (U)	397	667	861
Santa Maria	342	797	1113
COLORADO			
Alamosa	1265	3378	3621
Colorado Springs	938	2620	2391
Denver	876	2406	2364
Grand Junction	1007	2332	2293
Pueblo	917	2313	2279
CONNECTICUT			
Bridgeport	889	1828	2059
Hartford	1041	2294	2280
New Haven	929	1956	2163
DELAWARE			
Wilmington	831	1736	1841
DIST. OF COLUMBIA			
Washington (U)	709	1517	1604
Washington	704	1472	1630
FLORIDA			
Apalachicola (U)	327	512	475
Daytona Beach	196	180	288
Fort Myers	91	131	126
Jacksonville	317	482	473
Key West	7	22	18
Miami	31	56	60
Miami Beach	13	24	37
Orlando	154	223	222
Pensacola (U)	349	598	529
Tallahassee	367	590	606
Tampa	144	203	223
West Palm Beach	52	80	69
GEORGIA			
Athens	601	1184	1109
Atlanta	575	1100	1125
Augusta	527	946	835
Columbus	506	920	951
Macon	485	881	824
Rome	629	1283	1256
Savannah	463	754	675
IDAHO			
Boise	1142	2752	2340
Lewiston	929	2462	2247
Pocatello	1201	2889	2727
ILLINOIS			
Cairo (U)	684	1342	1465
Chicago	898	2305	2352
Moline	932	2501	2434
Peoria	930	2372	2323
Springfield	865	2131	2193
INDIANA			
Evansville	780	1815	1715
Ft. Wayne	925	2321	2382
Indianapolis	895	2198	2141
South Bend	931	2402	2442
IOWA			
Burlington	932	2411	2334
Des Moines	957	2601	2472
Dubuque	1043	2905	2801
Sioux City	1000	2746	2733
KANSAS			
Concordia (U)	842	2144	2048
Dodge City	849	2057	1951
KANSAS (Cont'd.)			
Goodland	947	2525	2461
Topeka	840	2116	2027
Wichita	747	1836	1763
KENTUCKY			
Lexington	813	1762	1884
Louisville	771	1665	1733
LOUISIANA			
Baton Rouge	349	651	615
Lake Charles	341	658	593
New Orleans (U)	274	518	429
New Orleans	295	552	484
Shreveport	443	966	848
MAINE			
Caribou	1434	3569	3918
Greenville (U)	1353	3400	
Portland	1090	2618	2847
MARYLAND			
Baltimore (U)	704	1462	1537
Baltimore	799	1712	1818
Frederick	876	1938	1841
MASSACHUSETTS			
Blue Hill Obs. (R)	997	2272	
Boston	885	1900	2015
Nantucket	823	1824	2078
Pittsfield	1139	2674	2933
MICHIGAN			
Alpena	1146	3097	2962
Detroit	933	2278	2333
Detroit(Willow Run)	950	2339	2383
Escanaba (U)	1102	3112	3213
Grand Rapids	987	2543	2640
Lansing	994	2608	
Marquette (U)	1093	3208	3167
Muskegon	983	2563	2593
S. Ste. Marie	1236	3416	3575
MINNESOTA			
Duluth	1278	3866	3842
Internat. Falls	1436	4214	4223
Minneapolis	1073	3049	3015
Rochester	1094	3158	3144
St. Cloud	1201	3452	3483
MISSISSIPPI			
Jackson	498	981	882
Meridian	523	1005	956
Vicksburg (U)	459	923	775
MISSOURI			
Columbia	826	2013	1973
Kansas City	756	1865	1875
St. Joseph	860	2178	2048
St. Louis (U)	760	1755	1703
St. Louis	792	1857	1805
Springfield	773	1880	1841
MONTANA			
Billings	950	2793	2767
Glasgow	1198	3556	3458
Great Falls	890	2969	2959
Havre (U)	1025	3215	3298
Helena	1112	3444	3349
Kalispell	1260	3864	3334
Miles City	1059	3145	3068
Missoula	1185	3458	3270
NEBRASKA			
Grand Island	958	2565	2459
Lincoln (U)	894	2327	2250
Norfolk	1027	2790	2744
North Platte	1000	2833	2581
Omaha	978	2534	2373
Scottsbluff	991	2836	2638
Valentine	1017	3065	2730
NEVADA			
Elko	1288	3079	2905
Ely	1205	3098	2930
Las Vegas	534	924	969
Reno	1096	2551	2426
Tonopah	930	2015	2241
Winnemucca	1225	2888	2612
NEW HAMPSHIRE			
Concord	1100	2574	2907
Mt. Washington Obs.	1636	5273	
NEW JERSEY			
Atlantic City (U)	748	1553	1597
Newark	832	1682	1912
Trenton (U)	837	1737	1852
NEW MEXICO			
Albuquerque	823	1721	1757
Clayton	864	2125	1991
Roswell	693	1781	1415
NEW YORK			
Albany	1080	2443	2583
Binghamton	1065	2517	2851
Buffalo	1004	2189	2470
New York (U)	805	1684	1771
NEW YORK (Cont'd.)			
New York	791	1609	1732
Rochester	1052	2394	2516
Schenectady	1020	2282	2616
Syracuse	1045	2343	2369
NORTH CAROLINA			
Asheville (U)	747	1563	1633
Cape Hatteras (R)	456	748	788
Charlotte	633	1210	1274
Greensboro	726	1508	1513
Raleigh	667	1352	1304
Wilmington	512	914	869
Winston-Salem	702	1430	1458
NORTH DAKOTA			
Bismarck	1197	3492	3524
Devils Lake (U)	1318	3981	3903
Fargo	1205	3522	3604
Grand Forks	1310	3830	
Pembina	1338	3886	
Williston (U)	1153	3530	3566
OHIO			
Akron	970	2288	2298
Cincinnati (U)	808	1734	1711
Cincinnati	841	1896	1999
Cleveland	894	2089	2181
Columbus	878	2034	2139
Dayton	901	2114	2128
Sandusky (U)	893	2108	2116
Toledo	983	2450	2376
Youngstown	970	2340	2274
OKLAHOMA			
Oklahoma City	644	1514	1417
Tulsa	618	1416	1382
OREGON			
Astoria	703	2182	1961
Burns (U)	1181	2917	2829
Eugene	740	1889	1939
Meacham	1044	3231	3105
Medford	934	2005	1849
Pendleton	966	2306	2095
Portland (U)	680	1616	1627
Portland	781	1966	1817
Roseburg	738	1859	
Salem	782	1928	1815
Sexton Summit (R)	839	2462	2373
PENNSYLVANIA			
Allentown	950	2025	2205
Harrisburg	895	1917	1971
Philadelphia (U)	760	1546	1624
Philadelphia	823	1681	1791
Pittsburgh (U)	807	1808	1890
Pittsburgh	927	2151	2268
Reading (U)	856	1782	1871
Scranton	1012	2292	2272
Williamsport	992	2190	2250
RHODE ISLAND			
Block Island	825	1776	1963
Providence	942	2047	2221
SOUTH CAROLINA			
Charleston (U)	424	687	658
Charleston	465	782	778
Columbia	550	999	978
Florence	522	933	1015
Greenville	631	1236	1200
Spartanburg	642	1239	1211
SOUTH DAKOTA			
Huron	1096	3144	3029
Pierre	1065	3064	
Rapid City	949	2955	2858
Sioux Falls	1100	3112	3062
TENNESSEE			
Bristol	777	1598	1688
Chattanooga	651	1336	1380
Knoxville	686	1390	1454
Memphis	602	1260	1248
Nashville	674	1431	1372
TEXAS			
Abilene	520	1164	1048
Amarillo	758	1786	1730
Austin	348	779	646
Brownsville	107	279	218
Corpus Christi	190	448	365
Dallas	423	956	870
Del Rio (U)	337	723	
El Paso	573	1045	1086
Ft. Worth	450	988	890
Galveston (U)	248	511	402
Galveston	273	556	418
Houston (U)	267	570	465
Houston	306	622	509
Laredo	178	388	306
Lubbock	695	1558	1444
Midland	556	1209	
Port Arthur	340	673	587
San Angelo	512	1102	854
San Antonio	336	737	600
Victoria	253	562	408
Waco	396	897	754
Wichita Falls	537	1236	1181
UTAH			
Milford	1136	2580	2551
Salt Lake City	1142	2550	2279
VERMONT			
Burlington	1200	2812	2925
VIRGINIA			
Lynchburg	722	1586	1625
Norfolk	621	1187	1257
Richmond	717	1500	1532
Roanoke	734	1602	1632
WASHINGTON			
Olympia	809	2356	2254
Seattle (U)	660	1761	1776
Seattle-Tacoma	758	2145	2163
Spokane	1113	3141	2750
Stampede Pass (R)	1176	4104	3831
Tatoosh Island (R)	616	2444	2480
Walla Walla (U)	915	2149	1966
Yakima	1011	2627	2476
WEST VIRGINIA			
Charleston	769	1687	1720
Huntington (U)	748	1604	1597
Parkersburg (U)	820	1815	1824
WISCONSIN			
Green Bay	1128	3160	3125
La Crosse	1057	2944	2931
Madison	1046	2884	2846
Milwaukee	999	2717	2663
WYOMING			
Casper	1066	3093	3021
Cheyenne	978	2941	2912
Lander	1206	3294	3339
Sheridan	1101	3224	3113
ALASKA			
Anchorage	1450	4765	4807
Annette	796	2997	3022
Barrow	2747	9146	8392
Barter Island	2665	9192	
Bethel	2255	6058	5559
Cold Bay	1209	4250	
Cordova	1049	4101	4190
Fairbanks	2315	6565	6374
Juneau	926	3836	3966
King Salmon	1829	5112	
Kotzebue	2478	7143	6630
McGrath	2393	6683	6378
Nome	2236	6459	5967
St. Paul	1203	4577	4556
Yakutat	991	3862	4071

Data from airport unless otherwise specified.
U indicates Urban, R indicates Rural, sites.

STORM SUMMARY

DECEMBER 1959

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				Ø ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	† DAMAGE	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS	DEATHS	INJURIES	† DAMAGE PROPERTY	† DAMAGE CROPS
Alaska										0	3	6	0																
Arizona																										0	0	5	0
California										2	0	5	4	0	1	3	0												
Connecticut										0	0	4	0					0	0	4	0								
Iowa																		0	0	5	0								
Kansas	1	1	0	0	0																	0	0	4	0				
Louisiana										0	0	4	0																
Maine										0	0	4	0					0	0	5	0	0	0	3	0	0	0	6	0
Massachusetts	D1	1	0	0	3					0	0	5	0					0	0	6	0	0	0	4	0	0	0	6	0
Michigan																						0	0	4					
Minnesota										0	0	5	0																
Missouri	1	1	0	0	3																								
Montana																		4	0	0	0								
Nebraska										0	0	3	6					0	2	4	0	0	4	4	0				
Nevada																										0	7		
New Hampshire																		0	0	5	0	0	0	3	0	0	0	5	0
New Jersey																		1	0	0	0					4	0	0	0
New Mexico																		0	0	°4	C								
New York										0	0	4	0					14	57	5	0	3	76	6	0	2	3	5	0
Oklahoma										0	1	4	0																
Oregon						0	0	1	0	0	0	4	2	0	0	4	2					7	20	4	0				
Pennsylvania														0	0	4	0	0	0	4	0								
Rhode Island										0	1	4	0					0	0	4	0	0	0	3	0	0	0	5	0
South Dakota																						1	0	5	0				
Texas																						0	0	5	0				
Utah																		1	5	0	0								
Vermont										0	0	4	0					0	0	4	0	0	0	3	0				
Washington										0	0	3	0													0	0	6	0
Wisconsin																		4	0	5	0					1	0	5	0

D Dust Devil.
° Includes crop damage.
C Crop damage.
‡ Includes heavy sleet storm.
\# Freezing drizzle and freezing rain, commonly known as glaze.
Ø For breakdown of "All Others", and for detailed listing of other storms, see the U. S. Weather Bureau monthly publication STORM DATA.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

DECEMBER 1959

Major flooding occurred on the Green, Snohomish, Snoqualmie, and Stillaguamish Rivers in Washington for the second consecutive month. The crest on the Stillaguamish River at Arlington, Wash., was 0.3 foot higher in this flood than in November when it equalled the previous record set in February 1951. Flooding reported elsewhere was mostly light.

ST. LAWRENCE DRAINAGE

The flooding on the Canaseraga Creek at Groveland, N. Y., on the 12th and 13th was due to an ice jam that developed below the gage. The route west from Groveland, N. Y., was closed due to high water and remained closed the rest of the month. No damages resulted from the high water.

ATLANTIC SLOPE DRAINAGE

The flooding on the Pemigewasset River in New Hampshire on the 28th and 29th was due to rainfall in excess of 2 inches on the 28th. Runoff was heavy as the soil was saturated from heavy rain and snowmelt of a few days previous, which sent the river to within 0.3 foot of flood stage at Woodstock, N. H., on the 25th. U. S. Highway No. 3, about 9 miles south of Woodstock, N. H., was inundated for a short time. Damage, if any, was negligible.

Minor flooding occurred on the Neuse and Cape Fear Rivers in North Carolina from heavy rain averaging between 1.5 to 2.5 inches from the 17th to the 19th. No damages were reported.

Heavy rains on the 18th and 19th caused light to moderate flooding on streams in South Carolina and light flooding on the Rocky River at Norwood, N. C. Rainfall during this period ranged from 1 to 4 inches. Moderate flooding occurred along the entire Edisto River. Considerable inconvenience and some labor expense were caused by flooding of swampland pastures along the Congaree River below Columbia, S. C., and along the Edisto where low approach roads and a few camp sites were inundated.

The Savannah River at Clyo, Ga., exceeded flood stage but no damages were reported.

EAST GULF OF MEXICO DRAINAGE

Locally heavy rains over the Pearl and Bogue Chitto River basins on the 16th, 17th, and 18th caused flooding on the Pearl River and near flood stage on the Bogue Chitto at Franklinton, La. Flooding was confined to timbered areas along the Pearl and there may have been come damages to logging operations and to grazing lands.

MISSISSIPPI SYSTEM

Upper Mississippi Basin.--The Mississippi River at St. Paul, Minn., and La Crosse, Wis., continued near the long-term mean but was 1.1 feet below the long-term mean at Minneapolis, Minn. The Wisconsin River at Portage, Wis., averaged near the long-term mean. Above Portage, the December flows on the Wisconsin River was the greatest since early December 1934.

Heavy rains occurred over southern Minnesota and central Wisconsin on the 28th. Amounts ranged from 1-1/2 inches in Minnesota to 1 inch in Wisconsin, except near 4 inches in the Sturgeon Bay - Marinette area in extreme eastern Wisconsin. Rises of from 2 to 6 feet resulted on the Black, Kickapoo, and Chippewa Rivers, with streams reaching one-half to two-thirds bankfull. Some local flooding occurred on the East Twin and Fox Rivers in eastern Wisconsin, resulting in basement flooding at Neenah and Mishicot.

Streams in the Upper Mississippi Basin were frozen until the 28th, when heavy rains caused the ice on streams in southern Minnesota and southern Wisconsin to break up.

A comparison of the snow depths in the Upper Mississippi Basin on December 31 with that of other years is given in the following table:

COMPARATIVE SNOW DEPTHS (INCHES)

Station	1959	1958	1957	1956	1955	1954
(Minnesota)						
Bemidji	1	10	T	6	17	1
International Falls	5	15	2	6	14	4
Duluth	14	9	6	11	26	4
Alexandria	2	0	2	2	10	1
New Ulm	0	0	T	T	5	1
Minneapolis	T	0	T	0	11	2
Rochester	0	0	1	T	7	1
(Wisconsin)						
Park Falls	11	6	7	11	23	11
Wausaw	1	T	3	5	6	--
Portage	1	T	T	T	T	--

The Big Muddy River in southern Illinois was in flood during the latter half of December. It crested 9.3 feet above flood stage at Murphysboro, Ill., on the 23d. The Meramec River in eastern Missouri rose above flood stage twice during the month. These floods were due to general rains of 1 to 2 inches on the 17th and 18th and heavy rains on the 27th and 28th. Flood damages were light.

Missouri Basin.--Minor flooding occurred on the Missouri River above Fort Peck Reservoir (Montana) from the 4th to the 6th due to ice jams. This area is normally inundated during the spring breakup, but flooding during December is very unusual and was caused by an extremely cold November followed by warmer weather in December.

The flooding on the Grand River in Missouri from the 27th to January 1 was due to heavy rain (1 to 2 inches) on the 26th and 27th. There was some snow mixed with this rain. Very little damage resulted.

The minor flooding on the Niangua River at Decaturville, Mo., on the 19th and 20th was due to general rains of 1 to 2 inches on the 17th and 18th.

Ohio Basin.--The moderate rain on the 11th to the 12th resulted in one-half to three-quarters bankfull stages in the headwater areas of the Allegheny and Monongahela Basins in Pennsylvania and West Virginia. No flood stages were reached on the main rivers or major tributaries. In the headwaters of French Creek in the vicinity of Union City, Pa., some secondary roads were closed due to fast rising creeks. The Ohio River at Pittsburgh, Pa., crested at 20.9 feet on the 14th, 4.1 feet below flood stage. Normal pool conditions were exceeded for a period of 89 hours.

Bankfull stages were reached on the White River at Petersburg, Ind., and the Wabash River at Wabash, Ind., on the 12th, due to rainfall averaging 1.5 inches on the 11th and 12th. The heaviest

rainfall was concentrated over the Eel Basin. Jamestown, Ind., reported 2.75 inches rainfall for the 2-day period.

Moderate rains on the 11th and 12th produced minor overflow on the Skillet Fork at Wayne City, Ill., and on the Little Wabash at Wilcox and Carmi, Ill. Little or no damage resulted.

Minor flooding occurred on some streams in the Tennessee River Basin between the 19th and 23d, due to heavy rain on the 18th. The rainfall averaged near 4 inches during the 24-hour period. Heavy discharges at Guntersville Dam, Ala., caused the main Tennessee to rise 2 feet above flood stage at Whitesburg, Ala., on the 21st. No significant damages resulted.

The flooding on the Ouachita River at Arkadelphia and Camden, Ark., between the 17th and 26th was due to rainfall averaging between 3 and 4.5 inches on the 15th and 16th. There was some delay in oil drilling operations in the Smackover Creek area below Camden, Ark., otherwise flood damage was negligible.

The flooding on the Little River in Arkansas between the 17th and 23d and the Sulphur River in Texas between the 15th and 28th was due to rainfall that averaged 3 to 4 inches on the 15th and 16th. Runoff was heavy as this storm was preceded by rainfall of 1.5 inches between the 9th and 11th. No damages were reported.

Lower Mississippi Basin.--The flooding on the St. Francis River at Fisk, Mo., and St. Francis, Ark., between the 19th and 29th was due to heavy rain on the 17th and 18th. Runoff was heavy as it was preceded by 1.75-inch rains on the 11th and 12th. Flooding was confined to low areas along the river inside levees and to adjoining swampy areas used as pastures in dry weather. Flood damages were very small.

WEST GULF OF MEXICO DRAINAGE

The flood on the Sabine River which began on the 16th at Quitman, Tex., and which was still above flood stage at Gladewater and Tatum, Tex., at the end of the month was due to 3- to 4-inch rains on the 15th and 16th. There was some loss of production due to inundation of oil and gas wells.

The heavy rains on the 15th and 16th resulted in flooding of lowlands along Cedar, Chambers, and Richland Creeks and along the East Fork and main stem of the Trinity in Texas. Light flooding also occurred on the Little River. The rainfall ranged from 2 to 3 inches over the western portion to 4 to 6 inches over the eastern portion.

GULF OF CALIFORNIA DRAINAGE

Colorado Basin.--Heavy rains in Maricopa County in Arizona on the 24th and 25th resulted in considerable runoff into desert washes, with some runoff in flatter regions. Local flooding occurred in desert dry washes of Paradise Valley drainage on the 25th and 26th, with some water flowing in sections of Salt River in the vicinity of Phoenix, Ariz. No serious flooding occurred. Considerable damage resulted to road crossings of dry washes.

PACIFIC SLOPE DRAINAGE

Grays Harbor.--Minor flooding occurred on the Chehalis River at Centralis, Wash., for the second consecutive month. The December crest was about 2 feet below the November crest. The Skookumchuck, Satsop, and Wynooche Rivers remained within their banks during December. This flood was due to heavy precipitation on the 14th and 15th.

Puget Sound Drainage.--Major flooding occurred on the Green, Snohomish, Snoqualmie, and Stillaguamish Rivers in Washington. The flooding on the Green River was not as severe as in November when record flooding occurred. The crest at Auburn was 4 feet lower than in November. The freshly repaired dikes below Kent, Wash., were quickly reinforced and held, but the Black River Dam near Renton Junction remained broached and flood waters once more were free to back into the lower valley through the old slough just east of the Longacres race track. The Snohomish crested at 30.1 feet at Snohomish, Wash., 0.9 foot less than in November. Dikes in the Snohomish and Pilchuck Valleys had not been repaired since the November flood and water again surrounded many homes. The evacuations made in November had to be repeated in December. The Snoqualmie crested at Carnation, Wash., at the same level (59 feet) as it did the previous month. The newly constructed bypass around the 1,400-foot November break in U. S. Highway 10, east of North Bend, Wash., was seriously threatened by the Snoqualmie, but it escaped damage. The November washout was enlarged to 1,600 feet. The Pacific Telephone Cable at this point was again washed out, but fortunately their new microwave system across the Cascades had been placed in operation the day before. The Mount Si bridge over the Snoqualmie which was cracked during the November flood lost an entire section in the December flood. A temporary bridge about a mile upstream was also washed away. A 25-foot section of the south approach to the Duvall bridge across the Snoqualmie was washed out. Rescue boats were turned back by the swift current of the Snoqualmie near Falls City, Wash., and an Air Force helicopter rescued 2 families from the isolated area. The crest of 19.35 feet on the Stillaguamish at Arlington, Wash., was 0.3 foot higher in this flood than in November when it equalled the previous record set on February 10, 1951. In the lower Stillaguamish near Stanwood, Wash., temporary repairs to a dike broken 3 weeks earlier were washed out despite the efforts of the Army Engineers to hold it. The Skykomish exceeded the high water mark of December 1933 at Sultan, Wash. The Stevens Pass Highway, U. S. 2, was closed on the 15th when the Skykomish spilled over the highway (4 feet deep near Grotto and 3 feet deep 3 miles east of Gold Bar, Wash.). Back water from the Sultan River, a tributary of the Skykomish, coursed through the town of Sultan, a foot deep in the main street and 5 inches over the floors of downtown stores. The Wallace River, another tributary of the Skykomish, backed up into the town of Startup, Wash., and 23 families were evacuated.

The December flood was due to excessive precipitation on the 15th and 16th. In addition, there was considerable runoff from snowmelt. At Stampede Pass, Wash., the snow depth was reduced from 28 inches to 5 inches on the 15th. A tabulation of 24- and 48-hour precipitation is given in the following table:

STORM PRECIPITATION - DECEMBER 14 AND 15, 1959

River and Station (Washington)	Period 24 Hours	48 Hours
Skagit River		
Ross Dam	----	4.17
Diablo Dam	3.80	5.17
New Halem	3.86	4.55
Concrete	2.26	5.51
Sedro Woolley 1E	1.69	3.19
Stillaguamish River		
Darrington	3.59	----
Skykomish-Snohomish		
Stevens Pass	5.51	7.21
Scenic	4.32	7.79
Grotto	6.66	9.84
Startup	2.65	3.18
Snoqualmie-Cedar		
Snoqualmie Pass	----	7.53
Cedar Lake	4.03	6.07
Snoqualmie Falls	3.81	4.52
Green River		
Stampede Pass	5.90	7.56
Palmer 3SE	3.65	5.35
Puyallup-Nisqually		
Buckley	1.59	2.59
Carbonado	2.11	3.53
Electron Headworks	3.45	3.79
Rainier-Paradise R.S.	3.98	7.96
Rainier-Longmire	2.50	4.14

It will be noted that the wettest spot was Grotto on the Skykomish and that almost as much rain fell at Grotto and Scenic in 48 hours as fell in 72 hours in the November flood. This bears out reports that the Skykomish not only exceeded the November 1959 flood, but also the December 1933 flood.

FLOOD STAGE DATA

(All dates in December unless otherwise specified)

DECEMBER 1959

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
ST. LAWRENCE DRAINAGE	Ft.			Ft.	
Lake Ontario					
Canaseraga Creek: Groveland, N.Y.	11	12	13	12.55	13
ATLANTIC SLOPE DRAINAGE					
Pemigewasset: Woodstock, N. H.	9	28	29	10.7	28
Plymouth, N. H.	11	29	29	12.25	29
Neuse: Neuse, N. C.	14	21	22	#14.8	22
Smithfield, N. C.	13	20	23	#15.0	21
Goldsboro, N. C.	14	21	27	#15.2	23
Cape Fear: Lock No. 2, Elizabethtown, N.C.	20	20	23	#24.0	21
Rocky: Norwood, N. C.	16	19	19	17.4	19
Pee Dee: Peedee, S. C.	19	22	25	19.7	24
Black: Kingstree, S. C.	12	21	25	12.7	22
Saluda: Pelzer, S. C.	6	20	20	6.0	20
Broad: Blair, S. C.	14	18	19	14.4	19
North Fork: Orangeburg, S. C.	8	19	23	9.4	20
Edisto: Givhans, S. C.	10	20	Jan. 2	12.4	26
Savannah: Clyo, Ga.	11	20	29	12.0	23-24
EAST GULF OF MEXICO DRAINAGE					
Old Town Creek: Tupelo, Miss.	21			23.3	19
				22.3	28
East Fork Tombigbee: Fulton, Miss.	16			17.3	20
				16.5	30
Tombigbee: Amory, Miss.	20			23.7	20
				20.8	29
Pearl: Jackson, Miss.	18	18	22	22.0	20
Monticello, Miss.	19	19	20	19.3	19
Bogalusa, La.	15	18	26	17.2	22
Pearl River, La.	12	23	26	12.9	24
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Big Muddy: Murphysboro, Ill.	16	16	31	E25.3	23
Meramec: Steelville, Mo.	12	28	28	E13.0	28
Sullivan, Mo.	11	19	19	E11.0	19
		28	29	11.5	29
Pacific, Mo.	11	19	20	12.3	20
		29	30	13.4	30
Missouri Basin					
Grand: Chillicothe, Mo.	24	27	29	25.1	27
Sumner, Mo.	26	29	Jan. 1	29.7	30
Niangua: Decaturville, Mo.	84	19	20	84.2	19
Ohio Basin					
Skillet Fork: Wayne City, Ill.	15	12	15	18.1	13
		18	21	18.8	19
Little Wabash: Wilcox, Ill.	16	12	21		
Carmi, Ill.	17	14	30	24.7	23
Wabash: Wabash, Ind.	12	12	12	12.0	12
Elk: Fayetteville, Tenn.	569	19	21	662.0	20
Fayetteville, abv, Tenn.	18	19	21	19.5	20
Emory: Oakdale, Tenn.	23	19	19	23.4	19
Tennessee: Whitesburg, Ala.	560	20	23	561.9	21

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Arkansas Basin					
Deep Fork: Dewar, Okla.	18	18	20	19.3	18
		27	29	19.5	28
Red Basin					
Ouachita: Arkadelphia, Ark.	17	17	19	20.9	17
Camden, Ark.	26	19	26	32.2	22
Little: Horatio, Ark.	27	17	20	29.3	18
Whitecliffs, Ark.	25	18	23	26.5	20
Sulphur: Hagansport, Tex.	38	15	22	43.7	17
Naples, Tex.	22	18	28	30.2	20
Lower Mississippi Basin					
St. Francis: Fisk, Mo.	20	19	25	23.2	22
St. Francis, Ark.	18	25	29	18.5	28
WEST GULF OF MEXICO DRAINAGE					
Sabine: Quitman, Tex.	16	16	20	20.1	14
Mineola, Tex.	14	15	26	19.0	19
Gladewater, Tex.	26	21	31	34.7	24
Tatum, Tex.	23	29	31		
East Fork: Rockwall, Tex.	10	15	16	11.1	16
Trinity: Rosser, Tex.	26	16	17	29.6	16
Trinidad, Tex.	28	18	22	31.6	20
Long Lake, Tex.	40	24	25	#40.3	25
Liberty, Tex.	24	17	23	#25.6	19
		26	1/	24.9	30
Little: Cameron, Tex.	30	16	17	#32.9	17
PACIFIC SLOPE DRAINAGE					
Grays Harbor					
Skookumchuck: Centralia, Wash.	68	Nov. 21	Nov. 21	67.7	Nov. 21
		Nov. 23	Nov. 23	66.7	Nov. 23
Satsop: Satsop, Wash.	34	Nov. 23	Nov. 23	#34.0	Nov. 23
Wynooche: Montesano, Wash.	81	Nov. 20	Nov. 20	82.3	Nov. 20
		Nov. 23	Nov. 23	81.7	Nov. 23
Chehalis: Grand Mount, Wash.	14	Nov. 22	Nov. 22	14.0	Nov. 22
		Nov. 23	Nov. 24	#14.7	Nov. 23
Centralia, Wash.	63	Nov. 21	Nov. 21	#63.4	Nov. 21
		Nov. 23	Nov. 24	65.2	Nov. 23
		16	16	63.4	16
PUGET SOUND DRAINAGE					
Green: Auburn, Wash.	63	Nov. 21	Nov. 21	63.9	Nov. 21
		Nov. 22	Nov. 24	69.7	Nov. 23
		15	16	65.8	15
Snoqualmie: Carnation, Wash.	51	Nov. 20	Nov. 26	57.3	Nov. 21
				59.0	Nov. 23
		15	17	59.0	15
Snohomish: Snohomish, Wash.	23	Nov. 20	Nov. 26	29.1	Nov. 21
				31.0	Nov. 23
		15	18	#30.1	16
Stillaguamish: Arlington, Wash.	16	Nov. 20	Nov. 20	19.1	Nov. 20
		15	15	19.35	15
Skagit: Concrete, Wash.	26	Nov. 20	Nov. 20	28.3	Nov. 20
		Nov. 23	Nov. 25	32.2	Nov. 23
				28.5	15
Mt. Vernon, Wash.	21	Nov. 21	Nov. 26	21.7	Nov. 21
				24.1	Nov. 23
		16	16	#21.8	16

* Tentative
1/ Continued at end of month
\# Highest stage observed
E Estimated

RAWINSONDE DATA

Average monthly values

DECEMBER 1959

ALBANY, N. Y. (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	86	3.0	84	284	2.9
1,000	31	144			274	2.5
950	31	552	- 2.5	72	280	6.4
900	31	981	- 3.1	70	285	12.0
850	31	1,433	- 4.2	65	283	15.5
800	31	1,910	- 5.8	59	279	18.8
750	31	2,413	- 7.6	52	279	23.7
700	31	2,949	- 9.4	50	275	27.0
650	31	3,518	-12.0	47	274	33.8
600	31	4,128	-15.2	43	273	37.9
550	31	4,778	-19.1	41	270	39.8
500	31	5,485	-23.7	39	269	42.6
450	31	6,242	-29.1	39	266	45.5
400	31	7,078	-34.9		267	51.5
350	31	7,998	-41.2		265	55.6
300	31	9,031	-47.9		269	66.3
250	31	10,218	-53.4		267	68.0
200	31	11,647	-55.5		267	63.0
175	31	12,498	-55.6		265	57.7
150	31	13,480	-56.0		265	55.6
125	31	14,638	-56.6		268	46.4
100	31	16,050	-58.3		267	41.8
80	31	17,452	-58.4		269	35.9
60	30	19,263	-57.7		271	26.0
50	30	20,413	-57.7		275	21.4
40	30	21,821	-57.4		281	20.2
30	29	23,641	-56.7		287	20.8
25	27	24,800	-56.3		291	19.4
20	26	26,230	-55.4		287	22.2
15	25	28,064	-53.9		288	27.6
10	21	30,678	-51.9		293	38.9
7	15	33,002	-50.9			
5	7	35,329	-47.5			

ALBUQUERQUE N. MEX. (839 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,619	0.1	69	7	3.3
1,000	31	190				
950	31	608				
900	31	1,049				
850	31	1,514				
800	31	2,004	1.4	54	320	5.1
750	31	2,522	- .6	52	303	6.0
700	31	3,073	- 2.4	50	298	6.8
650	31	3,656	- 5.3	47	296	9.7
600	31	4,283	- 8.8	43	290	13.2
550	31	4,945	-12.8	39	275	14.0
500	31	5,674	-17.9	35	274	18.3
450	31	6,448	-23.7	34	289	18.5
400	31	7,305	-30.3		295	21.2
350	31	8,240	-37.6		293	26.2
300	31	9,286	-45.1		291	33.8
250	31	10,482	-52.6		288	31.9
200	31	11,904	-58.3			
175	30	12,747	-59.6			
150	28	13,712	-61.2			
125	25	14,837	-62.2			
100	21	16,224	-63.8			
80	16	17,583	-63.7			
60	16	19,356	-62.3			
50	14	20,494	-60.4			
40	12	21,902	-58.3			
30	10	23,714	-56.7			
25	10	24,873	-55.5			
20	7	26,312	-52.8			

AMARILLO, TEX. (892 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,095	1.3	69	290	3.5
1,000	31	165				
950	31	583				
900	31	1,025				
850	31	1,489	5.4	50	300	8.2
800	31	1,984	4.7	45	306	7.8
750	31	2,509	1.9	44	297	8.0
700	31	3,063	- .8	40	290	9.5
650	31	3,645	- 3.8	40	279	13.2
600	31	4,278	- 8.0	40	280	15.3
550	30	4,941	-12.3		275	19.2
500	30	5,673	-17.5	37	277	21.2
450	30	6,445	-23.4		277	22.7
400	30	7,305	-29.7		279	28.0
350	30	8,243	-37.1		280	34.2
300	30	9,291	-44.8		279	39.6
250	29	10,497	-51.9		276	46.0
200	29	11,923	-57.4		272	53.6
175	29	12,763	-59.4		272	52.8
150	28	13,726	-61.1		274	52.5
125	26	14,852	-62.4		275	50.1
100	25	16,225	-63.9		278	36.9
80	23	17,595	-64.1		282	30.5
60	23	19,363	-62.5		295	15.2
50	23	20,492	-61.2		300	10.7
40	21	21,883	-59.2		307	7.6
30	18	23,707	-56.7		359	5.6
25	16	24,869	-55.8		7	5.8
20	13	26,294	-54.5		39	6.0
15	7	28,155	-53.2			

ANCHORAGE, ALASKA (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	30	- 7.2	79	343	2.9
1,000	31	-49				
950	31	353	- 6.0	75	14	4.5
900	31	775	- 6.0	72	71	4.1
850	31	1,222	- 8.0	71	110	6.2
800	31	1,691	-10.8	70	128	13.2
750	31	2,182	-14.1	68	137	18.1
700	31	2,704	-17.1	65	145	19.6
650	31	3,251	-20.9	63	156	18.7
600	31	3,843	-25.0	63	161	17.5
550	31	4,462	-29.5	60	172	17.7
500	31	5,143	-34.4	58	184	17.5
450	31	5,867	-39.4		187	18.7
400	31	6,670	-44.4		201	21.6
350	31	7,556	-49.0		212	22.5
300	31	8,561	-51.6		211	23.5
250	31	9,747	-49.7		225	23.7
200	31	11,215	-47.6		232	24.3
175	31	12,098	-47.4		237	24.9
150	31	13,119	-46.7		237	25.1
125	31	14,330	-45.9		240	25.3
100	31	15,817	-45.4		241	25.5
80	31	17,308	-44.9		249	24.9
60	31	19,233	-44.4		253	26.2
50	31	20,457	-43.4		259	26.8
40	30	21,955	-42.8		266	27.2
30	30	23,897	-42.6		274	28.0
25	30	25,128	-42.4		278	30.3
20	28	26,632	-42.4		285	33.0
15	26	28,585	-42.0		284	28.0
10	19	31,342	-42.5		290	41.6
7	7	33,738	-42.2			

ANNETTE, ALASKA (1003 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	37	3.9	85	144	9.1
1,000	31	61			185	4.3
950	31	473	1.7	82	221	10.3
900	31	911	- 1.2	82	229	13.2
850	31	1,365	- 3.9	78	238	13.2
800	31	1,841	- 6.7	72	245	12.8
750	31	2,339	- 9.8	69	240	16.5
700	31	2,872	-13.1	66	241	17.5
650	31	3,429	-16.6	60	248	17.3
600	31	4,031	-20.4	56		
550	31	4,665	-24.7	54		
500	31	5,358	-29.4	51		
450	31	6,097	-34.7	50		
400	31	6,916	-40.6			
350	31	7,816	-45.9			
300	31	8,831	-50.6			
250	31	10,012	-52.7			
200	29	11,438	-50.7			
175	26	12,313	-50.1			
150	25	13,322	-49.7			
125	23	14,515	-49.7			
100	22	15,975	-49.5			
80	21	17,427	-50.1			
60	21	19,311	-48.7			
50	19	20,519	-47.7			
40	18	21,988	-47.3			
30	15	23,905	-46.6			
25	15	25,114	-46.6			
20	12	26,608	-46.3			
15	5	28,593	-45.9			

ATHENS, GA. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	246	4.3	83	308	1.4
1,000	30	173				
950	30	592	6.8	65	221	2.5
900	30	1,037	5.5	66	234	6.2
850	30	1,504	4.5	56	249	8.5
800	30	1,996	3.0	51	253	12.0
750	30	2,518	1.2	47	260	14.4
700	30	3,071	- 1.5	41	265	17.3
650	30	3,655	- 4.2	32	265	20.8
600	30	4,286	- 8.1	34	264	25.1
550	30	4,952	-12.1		265	29.5
500	30	5,681	-16.9		264	33.0
450	30	6,458	-21.8		264	38.1
400	30	7,322	-27.8		266	44.9
350	30	8,268	-34.5	35	270	53.0
300	30	9,329	-42.2		268	62.2
250	30	10,540	-50.6		267	67.6
200	30	11,968	-57.9		270	77.1
175	30	12,806	-60.3		270	76.4
150	29	13,764	-62.9		268	71.7
125	25	14,876	-63.6		270	56.7
100	24	16,242	-65.0		270	45.7
80	22	17,605	-65.3		270	37.1
60	18	19,352	-63.2		275	25.5
50	14	20,478	-60.8		270	22.9
40	13	21,864	-59.6		273	17.3
30	12	23,678	-56.7		270	17.3
25	11	24,829	-54.7		273	22.2
20	11	26,264	-52.8		271	24.7
15	10	28,117	-50.9			
10	8	30,775	-48.1			

BARROW, ALASKA (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	8	-30.2	62	331	1.7
1,000	31	93	-27.7	57	337	3.1
950	31	466	-26.1	58	347	5.4
900	31	858	-24.2	59	360	5.2
850	31	1,276	-23.0	60	17	5.8
800	31	1,721	-23.3	61	36	6.4
750	31	2,193	-24.5	57	29	6.0
700	31	2,694	-26.2	54	28	3.9
650	31	3,225	-28.7	53	340	2.1
600	31	3,798	-31.7	49	284	2.5
550	31	4,403	-35.3	43	254	4.9
500	31	5,069	-39.3		233	7.4
450	31	5,784	-43.8		230	9.7
400	31	6,569	-48.7		230	10.9
350	31	7,439	-52.6		238	11.7
300	30	8,432	-54.5		233	13.4
250	30	9,605	-52.2		235	14.6
200	27	11,056	-50.1		236	18.3
175	27	11,931	-49.4		240	19.0
150	26	12,937	-49.0		241	22.0
125	26	14,136	-48.7		245	25.5
100	26	15,605	-48.3		243	29.9
80	26	17,076	-48.1		246	34.4
60	22	18,971	-48.2		251	41.2
50	20	20,201	-47.4		255	47.6
40	19	21,701	-46.9		257	52.5
30	15	23,656	-45.2		260	59.1
25	14	24,902	-45.1		256	63.9
20	13	26,377	-45.9			
15	10	28,281	-46.8			
10	8	30,987	-47.6			

BARTER IS., ALASKA (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	15	-28.1	66	263	8.0
1,000	29	86			280	5.8
950	29	456	-26.0	67	283	6.2
900	29	851	-22.1	67	284	4.7
850	29	1,273	-20.1	67	254	3.9
800	29	1,723	-19.9	67	241	3.9
750	29	2,197	-20.8	69	231	5.1
700	29	2,709	-22.3	67	221	8.0
650	29	3,246	-25.2	64	224	10.9
600	29	3,828	-28.7	61	226	12.2
550	29	4,439	-32.5	57	218	13.8
500	29	5,112	-36.9	53	226	17.1
450	29	5,828	-41.7		225	19.4
400	29	6,624	-46.4		230	22.5
350	29	7,501	-51.1		231	23.1
300	28	8,489	-54.5		228	26.4
250	28	9,661	-52.6		241	25.5
200	28	11,114	-49.5		243	26.4
175	27	11,998	-48.7		245	27.0
150	27	13,012	-48.6		246	27.0
125	27	14,214	-47.8		253	30.9
100	26	15,687	-47.6		259	31.1
80	26	17,161	-47.7		261	35.6
60	24	19,063	-47.7		265	38.3
50	22	20,298	-47.0		270	42.0
40	20	21,765	-46.9		272	50.9
30	16	23,707	-46.1			
25	12	24,966	-44.4			
20	7	26,705	-41.6			
15	6	28,674	-39.9			
10	5	31,445	-40.3			

BETHEL ALASKA (997 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	-22.3	59	6	8.9
1,000	31	18			344	9.7
950	31	404	-16.9	68	8	12.4
900	31	807	-15.6	67	2	11.3
850	31	1,239	-15.3	64	358	11.7
800	31	1,697	-16.2	57	347	8.4
750	31	2,180	-18.3	53	334	8.5
700	31	2,694	-21.1	50	327	7.8
650	31	3,236	-24.1	46	319	7.0
600	31	3,818	-27.6	44	308	6.8
550	31	4,440	-31.5	42	261	8.2
500	31	5,109	-36.0		262	8.0
450	31	5,835	-40.7		258	10.7
400	31	6,630	-45.2		249	10.3
350	31	7,513	-49.7		257	14.2
300	31	8,516	-51.6		255	20.6
250	31	9,704	-49.0		253	21.0
200	31	11,174	-47.5		252	20.8
175	30	12,047	-47.0		246	23.5
150	30	13,070	-46.1		244	22.9
125	30	14,284	-45.5		244	24.1
100	29	15,777	-44.7		239	23.9
80	28	17,273	-43.8		245	30.9
60	27	19,210	-42.4			
50	25	20,443	-42.0			
40	22	21,947	-41.3			
30	21	23,909	-40.7			
25	20	25,151	-40.6			
20	20	26,673	-40.3			
15	15	28,669	-39.2			

BISMARCK, N. DAK. (957 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	505	- 4.7	87	313	2.5
1,000	31	156				
950	31	562			308	2.7
900	31	990	- 2.4	67	300	9.3
850	31	1,444	- 2.1	56	303	12.0
800	31	1,926	- 3.1	48	299	15.5
750	31	2,432	- 5.0	46	299	17.3
700	31	2,976	- 7.3	43	293	21.8
650	31	3,547	-10.7	43	287	21.8
600	31	4,162	-14.4	42	288	25.3
550	31	4,813	-18.3	42	289	29.1
500	31	5,523	-23.1	39	288	33.4
450	31	6,281	-28.8	40	283	35.6
400	31	7,121	-35.2	41	281	41.8
350	31	8,038	-42.1		278	45.9
300	30	9,074	-49.4		278	47.4
250	29	10,248	-55.8		282	49.2
200	26	11,670	-57.3		281	43.7
175	26	12,516	-56.3		282	40.2
150	26	13,497	-55.6		282	35.6
125	25	14,665	-56.1		288	29.1
100	24	16,086	-56.9		295	20.4
80	24	17,502	-56.2		310	15.0
60	24	19,332	-55.8		332	12.6
50	24	20,494	-55.3		351	11.9
40	23	21,922	-54.8		358	13.0
30	18	23,771	-54.3		27	16.1
25	16	24,929	-54.3		23	20.8
20	13	26,353	-54.1		31	24.5
15	10	28,242	-53.7			

BOISE, IDAHO (923 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	868	- 3.5	79	166	2.3
1,000	31	228				
950	31	637				
900	31	1,066	- .2	64	125	2.1
850	31	1,525	.0	55	165	.8
800	31	2,010	- 1.0	48	276	4.7
750	31	2,522	- 2.5	45	285	9.1
700	31	3,069	- 5.0	44	280	11.9
650	31	3,646	- 7.9	44	282	15.0
600	31	4,268	-11.6	41	282	17.3
550	31	4,924	-15.7		283	20.8
500	31	5,643	-20.6	44	285	22.7
450	31	6,411	-26.2	41	283	22.0
400	31	7,258	-32.5	39	278	21.6
350	31	8,185	-39.8		279	23.7
300	31	9,221	-47.5		274	25.5
250	31	10,406	-54.8		279	31.7
200	30	11,821	-59.4		293	31.9
175	29	12,651	-59.5		289	27.0
150	28	13,620	-58.8		280	22.7
125	26	14,763	-58.4		287	18.8
100	26	16,165	-58.9		297	14.8
80	24	17,558	-58.4		301	12.2
60	20	19,368	-57.3			
50	20	20,523	-56.5			
40	15	21,937	-55.1			
30	12	23,778	-54.7			
25	12	24,947	-53.5			
20	9	26,383	-52.7			

BROWNSVILLE, TEX. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	13.1	88	102	0.6
1,000	31	153	16.5	74	139	6.2
950	31	586	14.5	67	155	10.7
900	31	1,044	12.2	62	177	6.8
850	31	1,522	10.9	55	224	5.2
800	31	2,027	9.5	44	246	7.6
750	31	2,558	7.9	36	255	8.0
700	31	3,127	5.4	30	270	12.2
650	31	3,725	2.1		277	15.2
600	31	4,370	- 2.0		270	17.7
550	31	5,048	- 6.1		271	22.0
500	31	5,797	-10.8		273	26.2
450	31	6,593	-16.1		270	32.6
400	31	7,477	-22.1		269	34.8
350	31	8,445	-29.0		275	42.2
300	31	9,530	-37.1			
250	31	10,765	-46.8			
200	31	12,207	-57.9			
175	31	13,039	-63.6			
150	31	13,974	-68.0			
125	30	15,062	-69.9			
100	29	16,386	-71.4			
80	29	17,703	-71.1			
60	27	19,421	-68.2			
50	27	20,524	-64.9			
40	25	21,899	-60.7			
30	23	23,707	-55.9			
25	22	24,873	-53.6			
20	16	26,325	-51.2			
15	10	28,209	-47.4			

BUFFALO, N. Y. (995 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	182	- 0.9	77	206	1.4
1,000	31	143			93	3.9
950	31	554	- 1.6	73	247	7.2
900	31	983	- 2.9	73	266	12.4
850	31	1,435	- 4.2	70	268	16.5
800	31	1,912	- 5.9	65	271	19.8
750	31	2,418	- 7.5	58	276	21.6
700	31	2,952	- 9.7	58	274	25.5
650	31	3,520	-12.4	57	273	29.0
600	31	4,130	-15.7	52	276	32.6
550	31	4,779	-19.5	47	276	36.9
500	31	5,485	-24.0	46	279	39.6
450	31	6,244	-29.1	45	276	36.7
400	31	7,078	-35.1	44	276	38.3
350	31	7,997	-41.7		275	42.6
300	31	9,026	-48.7		274	50.9
250	31	10,210	-53.6		275	46.6
200	30	11,638	-55.2		269	44.5
175	29	12,488	-54.9		270	40.8
150	28	13,477	-55.3		274	37.3
125	26	14,633	-56.4		274	33.0
100	23	16,046	-57.4		271	26.2
80	21	17,461	-57.9		273	22.3
60	19	19,265	-57.7		281	18.8
50	18	20,426	-57.9		286	14.4
40	18	21,834	-57.5		295	13.0
30	16	23,649	-56.8		300	8.2
25	16	24,808	-55.6		302	9.3
20	15	26,221	-55.8		288	12.4
15	12	28,115	-54.0		287	11.9
10	11	30,698	-53.4			
7	6	33,027	-52.5			
5	5	35,215	-50.3			

BURRWOOD, LA. (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	3	13.3	86	44	3.9
1,000	28	157	11.2	76	77	5.6
950	28	590	12.4	74	127	5.1
900	28	1,043	10.7	60	194	5.2
850	28	1,519	9.6	48	238	8.0
800	28	2,021	7.8	46	249	11.1
750	28	2,553	5.7	40	248	13.2
700	28	3,114	3.4		257	13.2
650	28	3,708	.7		263	14.6
600	28	4,351	- 3.2		264	18.8
550	28	5,031	- 7.4		261	24.3
500	28	5,770	-12.4		261	29.3
450	28	6,560	-17.5		261	35.4
400	28	7,441	-23.6		264	42.2
350	28	8,403	-30.8		268	51.1
300	28	9,480	-39.0		268	59.5
250	28	10,706	-48.3		270	63.3
200	28	12,142	-58.1		277	62.6
175	28	12,975	-62.5			
150	27	13,919	-66.4			
125	26	15,017	-68.2			
100	21	16,354	-69.0			
80	17	17,689	-69.1			
60	13	19,417	-66.5			
50	12	20,522	-63.7			
40	12	21,901	-59.6			
30	10	23,723	-55.6			
25	10	24,890	-53.7			
20	9	26,322	-50.9			
15	6	28,186	-47.7			
10	5	30,889	-41.4			

CAPE HATTERAS, N. C. (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	8.4	83	341	5.4
1,000	31	155	10.1	69	338	6.8
950	31	576	8.1	65	302	5.6
900	31	1,026	6.3	59	258	8.4
850	31	1,493	4.6	45	261	12.4
800	31	1,986	3.0	39	260	16.5
750	31	2,504	.9	38	268	22.0
700	31	3,059	- 1.1	32	266	26.8
650	31	3,642	- 4.4		262	28.6
600	31	4,274	- 8.0		260	33.2
550	31	4,937	-12.2		260	37.9
500	31	5,667	-16.8		258	43.3
450	31	6,442	-22.0		258	46.6
400	31	7,308	-28.2		259	53.2
350	31	8,253	-34.7		258	57.9
300	31	9,313	-42.3		261	64.1
250	31	10,523	-50.8		259	67.2
200	31	11,952	-57.6		262	74.8
175	31	12,790	-60.1		265	73.3
150	30	13,752	-60.8		266	64.1
125	27	14,876	-62.0		265	54.2
100	26	16,252	-63.5		260	46.4
80	25	17,624	-63.8		259	35.6
60	25	19,400	-61.3		261	22.0
50	25	20,536	-59.8		263	16.7
40	25	21,938	-57.7		260	15.9
30	24	23,762	-55.1		267	19.0
25	22	24,930	-53.7		269	21.8
20	21	26,368	-52.1		266	29.3
15	20	28,233	-50.4		264	38.3
10	12	30,862	-48.0		256	68.8
7	10	33,209	-45.2			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

DECEMBER 1959

CARIBOU, ME. (993 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	191	-8.8	80	273	2.9
1,000	31	137				
950	31	535	-8.0	72	305	5.2
900	31	955	-8.1	71	299	8.0
850	31	1,399	-8.5	66	288	8.5
800	31	1,868	-9.8	60	289	10.9
750	31	2,365	-11.7	54	285	14.4
700	31	2,891	-13.9	50	276	16.7
650	31	3,449	-16.8	50	271	17.9
600	31	4,049	-20.0	51	266	20.4
550	31	4,686	-23.9	48	263	24.9
500	31	5,380	-28.3	46	265	27.4
450	31	6,124	-33.0		262	34.2
400	31	6,949	-38.1		264	41.8
350	31	7,858	-43.5		263	45.7
300	31	8,884	-48.5		260	48.6
250	30	10,073	-52.2		258	45.5
200	30	11,515	-53.5		259	46.2
175	30	12,373	-54.0		257	50.5
150	29	13,359	-53.6		263	42.6
125	29	14,529	-54.7		262	37.1
100	28	15,952	-55.7		265	34.4
80	28	17,372	-56.2		265	33.2
60	27	19,195	-56.7		272	31.1
50	27	20,350	-57.2		278	24.7
40	27	21,763	-57.1		278	28.0
30	27	23,584	-57.3		284	22.9
25	27	24,736	-57.4		285	26.0
20	26	26,158	-56.7		293	29.0
15	24	27,980	-56.4		294	30.9
10	19	31,584	-54.9		274	50.3
7	16	32,838	-54.1		277	65.1
5	11	34,976	-53.6			

CHARLESTON, S. C. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	13	5.7	83	306	2.7
1,000	31	173	9.2	71	344	4.3
950	31	598	9.2	62	333	3.9
900	31	1,046	7.7	57	280	4.1
850	31	1,516	6.3	46	261	8.9
800	31	2,012	4.8	37	258	12.4
750	31	2,534	2.8	34	259	15.2
700	31	3,092	.4	35	255	18.7
650	31	3,680	-2.9	37	257	22.9
600	31	4,313	-6.5	37	259	28.2
550	31	4,983	-10.8		263	30.5
500	31	5,713	-15.7		264	34.4
450	31	6,494	-21.0	31	264	40.8
400	31	7,361	-26.8		264	45.9
350	31	8,312	-33.4		265	55.6
300	31	9,378	-40.9		266	62.0
250	29	10,586	-49.4		266	68.2
200	28	12,019	-57.2		269	70.7
175	28	12,858	-59.8		271	66.3
150	28	13,816	-62.3		272	60.4
125	27	14,935	-63.6		269	54.2
100	25	16,303	-64.9		271	43.7
80	23	17,659	-64.3		268	34.6
60	23	19,426	-62.2		264	19.4
50	23	20,560	-59.6		261	17.5
40	23	21,964	-57.2		270	10.7
30	22	23,798	-54.2		272	13.0
25	22	24,972	-52.3		265	11.7
20	22	26,423	-50.4		264	22.7
15	20	28,302	-48.3		272	17.9
10	16	30,991	-45.5		272	36.3
7	13	33,405	-43.1			
5	6	35,688	-41.8			

COLD BAY, ALASKA (995 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	27	-3.4	79	320	6.2
1,000	31	-16				
950	31	385	-5.2	75	326	8.9
900	31	812	-7.9	71	322	9.9
850	31	1,255	-11.0	67	312	10.1
800	31	1,719	-13.7	62	304	13.0
750	31	2,205	-16.0	55	294	16.7
700	31	2,725	-18.8	50	288	11.5
650	31	3,268	-21.5	48	267	13.0
600	31	3,862	-24.6	44	245	13.4
550	31	4,485	-28.2	44	251	17.1
500	31	5,170	-32.8	45		
450	31	5,902	-37.7			
400	31	6,711	-42.8			
350	31	7,603	-47.8			
300	31	8,611	-51.8			
250	30	9,798	-50.5			
200	29	11,248	-48.1			
175	27	12,131	-47.9			
150	26	13,150	-47.1			
125	26	14,359	-46.9			
100	24	15,848	-45.9			
80	23	17,339	-44.3			
60	23	19,272	-43.5			
50	23	20,503	-42.2			
40	23	22,017	-41.2			
30	23	23,975	-40.8			
25	20	25,227	-40.8			
20	14	26,730	-40.9			
15	7	28,675	-40.2			

COLUMBIA, MO. (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	238	1.2	85	223	1.4
1,000	31	158				
950	31	572	2.8	71	254	6.2
900	31	1,010	2.6	58	270	10.3
850	31	1,471	.9	58	284	13.0
800	31	1,957	-.3	50	283	15.0
750	31	2,467	-2.3	49	286	16.7
700	31	3,018	-4.8	45	286	18.3
650	31	3,591	-7.6	41	290	20.2
600	31	4,217	-11.1	40	287	25.5
550	31	4,871	-15.1	40	282	27.4
500	31	5,594	-19.9	40	279	31.3
450	31	6,355	-25.5	38	280	35.4
400	31	7,212	-31.8	40	280	37.7
350	31	8,142	-38.7		280	41.4
300	31	9,184	-46.0		278	45.7
250	31	10,377	-53.0		276	48.4
200	30	11,795	-57.6		273	50.7
175	30	12,637	-58.0		271	53.6
150	30	13,607	-58.8		273	48.2
125	28	14,738	-58.7		273	41.8
100	27	16,135	-59.6		276	35.4
80	27	17,525	-60.5		276	28.8
60	23	19,319	-59.5		285	21.8
50	22	20,462	-58.7		295	18.5
40	20	21,854	-57.8		304	16.3
30	19	23,675	-57.3		312	15.9
25	16	24,838	-56.6		314	15.3
20	12	26,275	-55.4		311	20.4
15	7	28,122	-53.5			
10	6	30,715	-51.5			

DAYTON, OHIO (983 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	297	0.6	80	243	1.9
1,000	31	158				
950	31	571	1.8	80	251	9.1
900	31	1,007	.8	69	258	14.2
850	31	1,466	-.5	61	263	15.3
800	31	1,950	-2.2	63	268	17.1
750	31	2,459	-4.2	68	273	18.3
700	31	3,004	-6.6	54	275	21.6
650	31	3,575	-9.4	53	271	24.7
600	31	4,195	-12.8	50	267	28.4
550	31	4,848	-17.0	47	268	32.3
500	31	5,563	-21.9	45	268	35.0
450	31	6,325	-27.1	43	269	39.1
400	31	7,171	-33.0	39	267	43.3
350	31	8,098	-39.3		268	48.2
300	31	9,138	-46.2		270	53.4
250	31	10,331	-52.9		269	62.0
200	31	11,754	-57.2		270	65.9
175	31	12,597	-57.9		270	60.2
150	31	13,569	-58.2		269	55.0
125	31	14,716	-58.7		269	46.8
100	29	16,121	-59.9		275	38.7
80	29	17,513	-60.2		278	28.0
60	27	19,308	-59.6		284	23.9
50	24	20,447	-59.3		290	17.9
40	24	21,847	-58.6		299	14.2
30	21	23,655	-57.2		303	19.8
25	19	24,801	-56.2		312	16.7
20	19	26,222	-55.3		308	18.8
15	15	28,027	-55.0		289	29.0
10	10	30,679	-51.7			

DENVER, COLO. (838 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,611	-4.1	70	193	3.3
1,000	31	194				
950	31	606				
900	31	1,043				
850	31	1,498				
800	31	1,984	1.8	44	255	3.3
750	31	2,502	.5	38	304	6.2
700	31	3,055	-2.6	39	311	12.4
650	31	3,638	-6.3	39	317	15.2
600	31	4,260	-10.1	39	312	16.5
550	31	4,925	-14.4	37	314	17.3
500	31	5,642	-19.6	36	313	17.5
450	31	6,410	-25.7		304	17.5
400	31	7,258	-32.4	39	302	18.8
350	31	8,186	-39.8		301	22.0
300	31	9,221	-47.9		295	26.8
250	31	10,404	-55.2		293	34.8
200	31	11,812	-59.6		288	39.2
175	31	12,646	-59.7		285	38.1
150	31	13,612	-59.3		288	35.8
125	31	14,752	-60.2		288	31.1
100	31	16,142	-60.6		289	25.1
80	31	17,531	-60.5		293	19.2
60	30	19,326	-59.2		313	10.9
50	29	20,472	-58.0		334	9.3
40	26	21,881	-56.5		26	9.5
30	24	23,716	-54.9		46	11.7
25	22	24,879	-54.1		54	12.2
20	20	26,311	-52.7		41	13.0
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DODGE CITY, KANS. (926 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	792	-0.2	77	278	3.1
1,000	30	173				
950	30	586				
900	30	1,024	4.0	57	337	1.9
850	30	1,489	4.6	47	266	2.5
800	30	1,981	3.4	44	292	4.9
750	30	2,499	.9	43	298	9.7
700	30	3,054	-2.1	38	304	11.7
650	30	3,636	-5.2	35	296	15.0
600	30	4,265	-9.1	36	303	16.3
550	30	4,925	-13.6		304	11.1
500	30	5,651	-18.7		282	15.9
450	30	6,417	-24.6		270	18.5
400	30	7,273	-31.3		273	22.3
350	30	8,205	-38.6		277	26.6
300	30	9,247	-46.3		269	41.8
250	28	10,445	-53.3			
200	26	11,865	-58.0			
175	25	12,701	-59.1			
150	25	13,666	-60.0			
125	22	14,801	-60.8			
100	17	16,185	-61.7			
80	15	17,569	-61.2			
60	12	19,351	-60.0			
50	12	20,494	-58.7			
40	10	21,903	-57.0			
30	8	23,737	-55.5			
25	7	24,904	-55.1			
20	5	26,346	-51.7			

EL PASO, TEX. (883 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	1,197	3.7	57	13	2.9
1,000	29	169				
950	29	592				
900	29	1,039				
850	29	1,508	6.9	46	356	.6
800	29	2,005	4.9	48	266	3.1
750	29	2,526	2.7	48	259	5.4
700	29	3,085	.0	43	258	8.5
650	29	3,672	-3.4	38	263	10.1
600	29	4,304	-7.3		272	13.6
550	29	4,968	-11.7	33	279	15.7
500	29	5,701	-16.6	36	286	18.8
450	28	6,478	-21.9		278	19.8
400	28	7,343	-28.2		292	22.5
350	28	8,289	-34.9		289	27.0
300	28	9,348	-42.2		277	36.5
250	28	10,562	-49.9		272	43.3
200	28	11,999	-57.0			
175	27	12,837	-60.0			
150	25	13,791	-62.0			
125	20	14,908	-63.7			
100	13	16,271	-65.2			
80	7	17,622	-65.1			
60	6	19,375	-63.4			
50	6	20,498	-62.1			
40	5	21,899	-58.8			

ELY, NEV. (810 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,908	-9.2	65	182	7.2
1,000	31	250				
950	31	655				
900	31	1,084				
850	31	1,535				
800	31	2,012	-2.6	57	187	4.5
750	31	2,523	-.3	45	353	1.4
700	31	3,074	-2.2	40	305	4.7
650	31	3,654	-4.6	35	322	9.5
600	31	4,285	-8.6	33	314	9.5
550	30	4,954	-13.0		291	11.9
500	30	5,679	-18.0		281	12.8
450	30	6,455	-23.4		281	15.2
400	30	7,310	-30.2		266	17.5
350	30	8,246	-37.6		281	23.5
300	30	9,292	-45.5		297	20.4
250	29	10,483	-53.8		296	20.2
200	29	11,894	-59.5		294	21.4
175	29	12,728	-60.2			
150	29	13,689	-60.4			
125	29	14,826	-60.5			
100	29	16,213	-61.4			
80	29	17,598	-60.8			
60	26	19,393	-59.8			
50	24	20,531	-58.8			
40	23	21,933	-57.3			
30	18	23,751	-55.7			
25	14	24,913	-54.3			
20	12	26,353	-52.5			
15	7	28,219	-50.9			

FAIRBANKS, ALASKA (985 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	135	-22.8	69	305	0.8
1,000	31	25				
950	31	410	-17.1	63	53	2.3
900	31	812	-15.0	66	115	4.7
850	31	1,246	-13.6	66	164	7.0
800	31	1,707	-14.1	64	185	8.2
750	31	2,193	-16.0	62	200	11.1
700	31	2,712	-19.2	59	212	13.6
650	31	3,258	-22.5	59	218	15.3
600	31	3,843	-26.5	51	210	16.1
550	31	4,461	-30.8	52	206	17.5
500	31	5,136	-35.9	48	200	18.8
450	31	5,856	-41.1		203	21.4
400	31	6,653	-46.6		207	19.0
350	31	7,530	-51.2		207	19.8
300	31	8,524	-54.1		211	19.2
250	31	9,699	-51.3		218	21.6
200	31	11,159	-48.6		229	26.4
175	31	12,039	-48.0		235	25.6
150	31	13,056	-47.7		233	26.4
125	30	14,262	-47.1		245	28.8
100	29	15,739	-46.4		243	29.3
80	27	17,236	-46.2		251	25.1
60	27	19,152	-45.2		252	32.6
50	27	20,352	-44.6		260	37.3
40	26	21,854	-44.1		255	32.4
30	24	23,762	-44.3			
25	22	24,984	-44.2			
20	22	26,482	-43.9			
15	18	28,490	-42.6			

FLINT, MICH. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	234	-2.0	87	255	1.7
1,000	31	148				
950	31	557	-1.4	79	274	6.0
900	31	988	-2.2	70	282	10.1
850	31	1,441	-3.3	66	281	13.6
800	31	1,919	-4.8	62	281	16.7
750	31	2,424	-6.4	58	280	19.8
700	31	2,963	-8.7	54	280	23.9
650	31	3,527	-11.4	48	280	27.2
600	31	4,144	-14.7	47	279	29.9
550	31	4,792	-18.9	42	282	34.2
500	31	5,501	-23.4	41	278	37.5
450	31	6,256	-28.9	41	277	40.6
400	31	7,096	-35.1		277	41.6
350	31	8,014	-41.7		278	48.0
300	31	9,045	-48.3		275	55.8
250	31	10,229	-53.8		277	56.9
200	31	11,652	-56.3		272	56.9
175	31	12,500	-56.1		274	52.7
150	31	13,481	-55.8		277	46.4
125	31	14,639	-56.7		276	39.2
100	28	16,045	-57.4		275	34.6
80	26	17,448	-58.0		280	30.5
60	24	19,275	-57.4		288	21.2
50	23	20,426	-57.7		290	21.4
40	20	21,833	-57.6		292	19.4
30	18	23,676	-56.4		332	13.4
25	18	24,835	-55.8		340	17.5
20	14	26,260	-55.3		331	15.3
15	12	28,143	-53.9		341	13.2
10	7	30,761	-51.6			

FORT WORTH, TEX. (998 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	180	7.2	75		0.0
1,000	31	159			2	1.4
950	31	585	9.0	59	239	6.0
900	31	1,030	7.7	57	251	8.0
850	31	1,501	6.5	53	258	8.9
800	31	1,997	4.0	52	263	8.7
750	31	2,517	2.0	47	265	10.1
700	31	3,075	-.3	43	263	14.8
650	31	3,661	-3.2	38	264	18.8
600	31	4,294	-6.9	36	265	22.5
550	31	4,960	-11.2	36	263	25.3
500	31	5,693	-16.5		267	26.2
450	31	6,470	-22.0		266	31.5
400	31	7,334	-28.0		267	36.9
350	31	8,280	-35.0		270	45.5
300	31	9,339	-42.1		269	53.6
250	31	10,551	-50.1		271	59.3
200	31	11,984	-57.7		273	67.6
175	31	12,821	-60.1		270	67.4
150	31	13,779	-61.8		270	63.1
125	31	14,904	-63.4		274	52.1
100	31	16,267	-65.3		272	42.4
80	31	17,625	-65.2		275	32.3
60	29	19,381	-63.7		283	18.5
50	27	20,506	-62.0		289	10.7
40	24	21,890	-60.1		304	5.6
30	23	23,699	-57.7		341	6.4
25	22	24,854	-56.2		341	4.5
20	19	26,279	-54.4		334	5.4
15	14	28,146	-51.7		329	3.3
10	8	30,778	-50.1			

GLASGOW, MONT. (934 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	696	-5.1	85	185	0.8
1,000	31	158				
950	31	564				
900	31	994	.4	65	279	8.4
850	31	1,453	.2	49	288	12.8
800	31	1,937	-1.7	46	292	17.3
750	31	2,443	-4.5	47	293	17.3
700	31	2,989	-7.4	45	293	19.8
650	31	3,558	-10.5	45	293	21.0
600	31	4,175	-14.3	42	300	24.5
550	31	4,823	-18.6	43	297	26.6
500	31	5,534	-23.2	44	290	25.5
450	31	6,289	-28.5	43	302	27.2
400	31	7,131	-34.8	38	292	27.8
350	31	8,049	-41.8		305	28.8
300	31	9,077	-49.4		284	29.3
250	31	10,254	-56.1			
200	31	11,662	-58.4			
175	30	12,507	-57.3			
150	30	13,486	-55.8			
125	30	14,646	-56.3			
100	30	16,063	-56.1			
80	30	17,483	-55.7			
60	30	19,318	-55.0			
50	29	20,494	-54.1			
40	27	21,926	-53.7			
30	24	23,776	-53.6			
25	23	24,945	-53.4			
20	23	26,383	-53.0			
15	15	28,237	-53.2			

GRAND JUNCTION, COLO. (855 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,474	-2.6	73	117	4.5
1,000	30	210				
950	30	625				
900	30	1,063				
850	30	1,521			119	5.4
800	30	2,006	-.4	56	123	6.0
750	30	2,520	-1.5	57	133	5.1
700	30	3,069	-3.4	47	257	2.7
650	30	3,651	-5.8	43	273	7.4
600	30	4,276	-9.2	41	288	9.1
550	30	4,935	-13.6	41	287	9.5
500	30	5,661	-18.8	37	289	11.9
450	30	6,431	-24.8		288	14.8
400	30	7,284	-31.5	38	292	17.1
350	30	8,215	-38.5		292	20.2
300	30	9,257	-46.4		289	23.3
250	30	10,448	-53.8		285	29.7
200	29	11,858	-58.9		290	39.1
175	29	12,695	-59.8		290	38.5
150	28	13,658	-59.5		282	39.2
125	25	14,802	-60.0		286	36.1
100	19	16,178	-59.4		284	27.8
80	17	17,564	-60.2		284	24.1
60	12	19,351	-59.7			
50	10	20,486	-58.6			
40	10	21,894	-56.7			
30	8	23,713	-55.7			
25	8	24,876	-55.4			
20	7	26,295	-54.3			

GREAT FALLS, MONT. (888 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,123	0.9	55	223	10.3
1,000	31	149				
950	31	566				
900	31	1,011				
850	31	1,472	2.2	43	247	22.2
800	31	1,959	-.7	45	275	17.5
750	31	2,467	-3.6	48	282	19.6
700	31	3,014	-6.2	46	295	21.0
650	31	3,588	-9.2	45	294	22.9
600	31	4,206	-13.0	45	291	25.5
550	31	4,860	-17.2	46	291	26.8
500	31	5,573	-22.3	48	290	28.4
450	31	6,333	-27.8	47	285	32.1
400	31	7,176	-34.3	44	286	31.7
350	31	8,097	-41.4		288	34.6
300	31	9,126	-49.0		294	38.9
250	31	10,304	-55.7		296	40.4
200	31	11,713	-58.8		301	41.4
175	31	12,551	-58.7		298	36.7
150	31	13,521	-57.5		295	33.8
125	30	14,676	-56.9		298	29.1
100	30	16,088	-57.0		301	24.7
80	30	17,500	-57.1		305	22.2
60	30	19,328	-55.5		318	15.2
50	30	20,491	-54.9		335	14.4
40	29	21,916	-54.5		355	14.8
30	28	23,757	-53.8		2	18.1
25	23	24,925	-53.6		1	22.0
20	20	26,367	-52.5		6	28.8
15	15	28,222	-52.4		19	29.3

See reference note at end of table

RAWINSONDE DATA

Average monthly values

DECEMBER 1959

GREEN BAY, WIS. (992 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	210	-2.8	91	326	3.3
1,000	31	144				
950	31	550	-2.4	78	319	7.0
900	31	980	-3.4	67	308	8.2
850	31	1,432	-4.3	59	292	9.7
800	31	1,909	-5.9	53	289	13.2
750	31	2,408	-7.9	51	292	16.7
700	31	2,947	-10.3	46	289	20.0
650	31	3,511	-12.8	39	289	21.6
600	31	4,123	-16.0	39	287	26.0
550	31	4,769	-20.1	41	285	25.8
500	31	5,474	-24.6	39	277	28.0
450	31	6,230	-29.8	38	279	26.0
400	31	7,064	-35.5	39	274	27.8
350	31	7,981	-42.0		268	34.0
300	30	9,008	-48.9		268	33.8
250	30	10,190	-54.5		281	35.4
200	30	11,609	-56.5		280	30.5
175	30	12,459	-55.7		282	31.9
150	30	13,442	-55.4			
125	29	14,600	-56.3			
100	28	16,018	-57.1			
80	28	17,430	-56.8			
60	28	19,251	-57.0			
50	25	20,399	-56.9			
40	24	21,815	-56.5			
30	22	23,632	-56.5			
25	21	24,776	-56.5			
20	17	26,229	-54.8			
15	11	28,069	-54.2			
10						
7						
5						

GREENSBORO, N. C. (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	273	0.8	82	316	2.7
1,000	31	179				
950	31	598	5.3	55	295	5.2
900	31	1,038	4.4	51	290	7.2
850	31	1,503	3.0	49	279	9.9
800	31	1,993	1.4	48	277	12.2
750	31	2,510	-.5	45	270	16.5
700	31	3,061	-3.0	45	273	20.0
650	31	3,643	-5.7	42	273	22.3
600	31	4,269	-9.5	39	266	23.9
550	31	4,932	-13.7	36	267	28.8
500	31	5,654	-18.5	38	270	32.6
450	31	6,428	-23.9	37	267	35.0
400	31	7,283	-29.9		270	35.9
350	31	8,222	-36.4		276	37.7
300	31	9,274	-44.0		273	44.1
250	31	10,477	-51.4			
200	31	11,903	-57.7			
175	29	12,739	-59.0			
150	27	13,699	-59.8			
125	26	14,829	-61.3			
100	25	16,210	-62.8			
80	24	17,588	-62.7			
60	23	19,372	-60.1			
50	23	20,514	-59.0			
40	23	21,920	-57.2			
30	23	23,750	-55.0			
25	23	24,920	-53.2			
20	22	26,361	-51.9			
15	18	28,242	-50.3			
10	9	30,949	-45.7			
7						
5						

HILO, HAWAII (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	19.5	87	246	2.5
1,000	31	148	21.0	77	322	1.2
950	31	594	18.0	83	65	7.6
900	31	1,053	14.6	84	69	11.1
850	31	1,534	11.7	84	66	10.9
800	31	2,040	9.0	80	69	9.7
750	31	2,577	7.7	55	72	11.9
700	31	3,141	5.5	40	74	10.9
650	31	3,740	3.0		72	9.1
600	31	4,388	-1.0		62	5.6
550	31	5,072	-5.2		42	5.4
500	31	5,820	-9.7		313	6.4
450	31	6,620	-15.1		296	11.5
400	31	7,505	-21.5		282	17.5
350	31	8,476	-28.6		272	26.4
300	31	9,564	-36.0		271	38.1
250	31	10,806	-45.1		267	43.5
200	31	12,263	-55.3		269	43.7
175	31	13,105	-60.4		279	42.0
150	31	14,054	-65.7		281	40.4
125	30	15,147	-71.1		285	26.4
100	30	16,450	-75.6		287	19.8
80	28	17,740	-75.7		278	9.9
60	27	19,436	-66.8		14	1.6
50	27	20,549	-62.8		189	2.1
40	26	21,936	-59.6		250	5.4
30	25	23,754	-55.7		302	7.6
25	20	24,914	-54.3		291	5.2
20	15	26,358	-50.7			
15						
10						
7						
5						

INTERNAT. FALLS, MINN. (974 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	360	-8.9	82	165	1.4
1,000	31	150				
950	31	552	-6.8	76	178	3.5
900	31	973	-4.8	64	244	7.0
850	31	1,422	-5.0	53	271	7.6
800	31	1,897	-6.8	47	280	8.7
750	31	2,396	-8.5	46	289	12.2
700	31	2,932	-11.3	44	295	15.9
650	31	3,492	-14.4	46	293	18.3
600	31	4,100	-17.8	46	297	23.3
550	31	4,740	-22.0	48	297	27.8
500	31	5,441	-26.8	46	297	32.4
450	31	6,184	-31.6	41	296	37.5
400	31	7,018	-37.1		297	44.9
350	31	7,930	-43.1		298	52.7
300	31	8,954	-49.4		299	58.9
250	31	10,135	-54.3		299	58.3
200	31	11,561	-54.4		299	46.4
175	30	12,411	-54.0		298	40.8
150	30	13,400	-54.3		299	35.8
125	29	14,576	-55.0		299	31.9
100	26	16,012	-55.1		300	28.2
80	25	17,439	-55.4		309	24.1
60	19	19,306	-54.0		328	18.1
50	17	20,489	-53.7		340	15.9
40	15	21,954	-53.4		354	15.9
30	9	23,813	-53.5			
25	8	24,967	-54.3			
20	5	26,423	-54.9			
15						
10						
7						
5						

JACKSON, MISS. (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	101	5.8	86	138	1.0
1,000	31	166	7.1	76	131	2.1
950	31	590	8.1	65	206	3.9
900	31	1,035	7.1	58	251	5.8
850	31	1,505	6.4	51	264	9.5
800	31	2,001	4.5	48	264	12.6
750	31	2,522	2.3	45	264	15.2
700	31	3,080	.1	40	266	17.5
650	31	3,668	-3.0	38	266	21.8
600	31	4,300	-6.7	38	266	26.4
550	31	4,972	-10.9	36	268	30.1
500	31	5,700	-15.8	36	266	32.3
450	31	6,479	-21.1	38	266	36.9
400	31	7,347	-27.1	40	265	42.9
350	31	8,296	-33.6	38	266	47.4
300	31	9,361	-41.5		267	53.2
250	31	10,576	-49.6		271	59.1
200	31	12,010	-57.7		273	72.5
175	30	12,845	-60.7		274	71.1
150	29	13,796	-63.0		274	69.2
125	29	14,916	-64.4		276	54.6
100	25	16,270	-66.1		282	44.9
80	22	17,623	-65.5		276	32.4
60	19	19,379	-63.4		282	21.0
50	19	20,504	-61.6		292	13.0
40	18	21,896	-58.9		313	4.3
30	16	23,717	-55.7			
25	16	24,882	-54.2			
20	14	26,321	-52.5			
15	14	28,188	-50.6			
10	13	30,840	-47.0			
7	12	33,210	-45.4			
5	7	35,453	-43.5			

JACKSONVILLE, FLA. (1020 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	8.3	92	356	3.5
1,000	31	170	11.3	74	23	5.4
950	31	597	11.0	68	66	2.1
900	31	1,050	9.5	62	201	4.9
850	31	1,523	7.6	54	238	7.2
800	31	2,021	6.3	38	262	9.5
750	31	2,545	4.3	34	265	14.2
700	31	3,109	2.4		258	18.7
650	31	3,699	-.6		262	23.5
600	31	4,341	-4.4		265	27.8
550	31	5,014	-8.9		266	31.7
500	31	5,752	-13.8		264	35.9
450	31	6,534	-19.2		264	41.2
400	31	7,412	-25.5		266	47.6
350	31	8,367	-32.5		267	52.7
300	31	9,436	-40.5		267	62.4
250	31	10,655	-49.8		269	69.6
200	31	12,086	-58.5		271	72.3
175	31	12,919	-62.1		272	73.4
150	31	13,864	-65.2		272	69.4
125	28	14,978	-66.8		271	59.1
100	26	16,316	-68.4		270	46.2
80	24	17,653	-67.9		269	36.9
60	23	19,391	-65.0		274	26.0
50	20	20,510	-62.6		277	17.5
40	20	21,898	-59.3		299	9.7
30	20	23,719	-54.8		270	9.5
25	17	24,896	-52.9		263	10.9
20	15	26,341	-50.8		265	8.5
15	13	28,211	-48.6			
10	7	30,901	-45.1			

KING SALMON, ALASKA (995 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	15	-14.3	73	10	8.4
1,000	30	-24			9	5.8
950	30	371	-12.4	66	2	11.1
900	30	780	-12.4	68	356	9.9
850	30	1,217	-12.6	65	347	5.8
800	30	1,679	-13.6	63	333	6.4
750	30	2,167	-15.7	60	328	5.2
700	30	2,686	-18.5	56	303	5.2
650	30	3,236	-21.9	52	290	6.6
600	30	3,821	-25.7	51	273	5.8
550	30	4,443	-29.7	50	263	5.4
500	30	5,121	-34.3	47	252	8.2
450	30	5,850	-38.9		240	10.1
400	30	6,652	-43.6		242	13.0
350	30	7,542	-47.5		248	15.3
300	30	8,554	-50.1		248	18.8
250	30	9,747	-49.0		244	22.2
200	30	11,218	-47.4		241	24.1
175	30	12,102	-47.0		240	24.7
150	30	13,124	-46.5		239	23.7
125	30	14,336	-46.0		241	23.9
100	26	15,821	-44.8		236	22.5
80	24	17,317	-44.2		234	21.8
60	21	19,242	-43.5		234	20.0
50	18	20,476	-42.5		242	20.6
40	17	21,985	-41.5		247	19.8
30	11	23,950	-41.7			
25	7	25,220	-40.5			
20	7	26,742	-40.1			
15						
10						

KOTZEBUE, ALASKA (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	-25.5	75	349	5.8
1,000	31	63			348	8.7
950	31	438	-19.9	58	15	8.2
900	31	843	-19.5	56	1	7.6
850	31	1,267	-19.7	54	8	9.1
800	31	1,717	-20.1	49	10	8.9
750	30	2,192	-21.7	48	353	7.4
700	30	2,702	-24.2	46	348	5.1
650	30	3,234	-27.2	42	329	5.2
600	30	3,813	-30.6	38	305	4.5
550	30	4,419	-34.4		276	5.4
500	30	5,087	-38.7		261	6.8
450	30	5,800	-43.5		251	8.0
400	30	6,591	-47.6		244	10.1
350	30	7,466	-51.6		241	11.5
300	30	8,461	-53.5		239	13.0
250	30	9,638	-51.2		238	14.6
200	29	11,092	-49.2		241	18.5
175	29	11,969	-48.4		241	19.0
150	26	12,988	-47.8		240	20.4
125	23	14,198	-47.1		239	23.7
100	22	15,675	-46.3		238	26.6
80	22	17,161	-45.7		242	28.8
60	21	19,080	-45.3		247	34.6
50	20	20,314	-44.5		245	35.9
40	19	21,817	-43.5		250	40.0
30	19	23,754	-43.5		249	46.6
25	19	24,981	-43.2		254	49.2
20	17	26,486	-43.3		230	50.9
15	7	28,533	-42.7			
10						

LAKE CHARLES, LA. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	8.8	89	61	2.5
1,000	31	162	10.7	76	86	4.5
950	31	590	10.6	62	71	1.0
900	31	1,041	9.5	51	299	5.2
850	31	1,515	7.8	48	281	8.2
800	31	2,014	5.9	44	281	10.5
750	31	2,543	4.0	43	274	13.0
700	31	3,100	2.0	33	277	14.2
650	31	3,694	-.9		270	15.9
600	31	4,331	-4.9		272	18.8
550	31	5,002	-9.2		271	23.3
500	31	5,742	-14.2		272	27.6
450	31	6,530	-19.7		275	31.9
400	31	7,400	-25.5		274	40.6
350	31	8,357	-32.1		278	44.1
300	31	9,428	-39.9		278	56.0
250	31	10,652	-48.7			
200	30	12,093	-58.2			
175	30	12,926	-62.0			
150	30	13,873	-64.7			
125	26	14,982	-66.5			
100	20	16,327	-67.3			
80	15	17,670	-67.4			
60	11	19,418	-64.1			
50	11	20,539	-62.0			
40	10	21,929	-58.8			
30	10	23,750	-54.8			
25	8	24,933	-53.1			
20	7	26,386	-50.6			
15						
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LANDER, WYO. (829 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,696	-6.5	72	256	2.5
1,000	31	210				
950	31	615				
900	31	1,047				
850	31	1,502				
800	31	1,981	-.9	50	250	.8
750	31	2,497	-1.0	39	286	3.7
700	31	3,045	-3.2	34	309	8.9
650	31	3,622	-6.6	34	302	12.8
600	31	4,249	-10.7	35	306	18.5
550	31	4,907	-15.1	34	302	21.6
500	31	5,627	-20.2	34	301	23.1
450	31	6,392	-26.0	35	292	24.9
400	31	7,242	-32.8	38	293	25.8
350	31	8,167	-40.2		294	27.6
300	31	9,201	-48.1		291	30.5
250	30	10,385	-55.6		294	36.5
200	28	11,783	-59.6		290	40.0
175	26	12,619	-59.7		293	39.2
150	24	13,579	-58.6		297	29.7
125	20	14,712	-57.2		295	28.0
100	19	16,119	-58.1		297	23.7
80	17	17,531	-58.6		296	15.9
60	17	19,344	-57.6		318	11.3
50	14	20,516	-56.4		355	6.8
40	13	21,938	-55.4		22	9.9
30	11	23,758	-55.4		38	14.4
25	11	24,923	-54.5		44	19.8
20	10	26,356	-54.5			
15	7	28,217	-53.9			
10	6	30,812	-52.5			

LAS VEGAS, NEV. (942 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	660	5.4	51	257	4.3
1,000	31	165				
950	31	586				
900	31	1,035	8.9	37	345	6.4
850	31	1,506	6.7	37	356	8.9
800	31	2,001	4.4	36	3	8.0
750	31	2,523	2.5	35	2	5.8
700	31	3,080	-.2	34	348	5.8
650	31	3,662	-3.6	35	327	7.0
600	31	4,297	-7.4	36	312	9.9
550	31	4,960	-11.8		312	13.0
500	31	5,693	-16.6		302	15.5
450	31	6,467	-22.3		298	19.2
400	31	7,330	-29.2		296	21.2
350	31	8,270	-36.4		297	24.1
300	31	9,322	-44.3		286	29.7
250	31	10,523	-51.8		285	37.3
200	30	11,946	-58.3		282	43.5
175	30	12,782	-60.1		280	40.6
150	30	13,743	-60.9		277	36.7
125	30	14,875	-61.5		273	30.9
100	27	16,252	-62.9		281	25.5
80	24	17,626	-62.4		297	17.3
60	23	19,406	-61.4		308	8.2
50	22	20,530	-60.0		345	7.0
40	22	21,924	-59.2		12	7.2
30	19	23,731	-57.2		44	10.7
25	17	24,881	-56.3		56	12.2
20	17	26,302	-54.6		54	14.8
15	14	28,156	-52.8		54	18.3
10	11	30,790	-51.7		45	22.2
7	5	33,126	-50.0			
5						

LITTLE ROCK, ARK. (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	79	5.3	84	310	1.2
1,000	31	158	6.1	76	350	1.0
950	31	582	6.6	68	238	2.9
900	31	1,023	5.2	61	265	5.6
850	31	1,489	4.3	53	277	8.0
800	31	1,982	2.8	47	271	11.9
750	31	2,503	.6	45	270	14.6
700	31	3,054	-1.8	43	282	17.3
650	31	3,641	-4.7	40	284	19.0
600	31	4,267	-8.3	37	283	22.0
550	31	4,933	-12.7	35	276	22.9
500	31	5,659	-17.7		277	26.0
450	31	6,432	-23.3		269	32.8
400	31	7,292	-29.4		277	38.1
350	31	8,232	-36.2		275	39.2
300	31	9,285	-43.7		279	49.2
250	31	10,490	-51.3			
200	30	11,912	-57.6			
175	29	12,751	-59.5			
150	29	13,712	-61.4			
125	28	14,843	-61.9			
100	28	16,219	-63.7			
80	28	17,588	-63.6			
60	26	19,358	-61.0			
50	25	20,497	-59.3			
40	22	21,906	-58.0			
30	21	23,732	-55.9			
25	19	24,907	-54.4			
20	14	26,336	-53.1			
15	12	28,191	-51.9			
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McGRATH, ALASKA (989 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	103	-24.3	78	334	2.5
1,000	31	22				
950	31	403	-19.8	70	14	6.0
900	31	804	-18.0	74	48	8.5
850	31	1,233	-15.7	70	57	7.0
800	31	1,691	-15.5	62	72	4.1
750	31	2,170	-16.7	57	138	3.9
700	31	2,692	-19.8	57	156	5.6
650	31	3,230	-23.4	58	177	7.2
600	31	3,819	-27.2	58	181	7.0
550	31	4,431	-31.6	55	182	8.7
500	31	5,107	-36.2	52	189	10.7
450	31	5,822	-41.1		201	14.8
400	31	6,622	-46.3		207	15.3
350	31	7,501	-50.4		211	16.5
300	31	8,500	-52.8		221	19.0
250	31	9,682	-50.1		227	18.1
200	31	11,149	-47.6		234	20.6
175	31	12,032	-47.5		230	21.6
150	31	13,053	-46.7		235	22.9
125	31	14,262	-46.3		237	22.9
100	31	15,749	-45.3		244	23.3
80	31	17,241	-44.9		244	26.2
60	31	19,173	-43.3		252	27.6
50	30	20,403	-42.9		258	26.8
40	28	21,932	-42.4		251	26.6
30	25	23,895	-42.2		247	24.9
25	22	25,152	-41.6		255	26.8
20	19	26,685	-40.1		240	25.8
15	13	28,659	-40.8			
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MEDFORD, OREG. (975 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	401	-1.5	89		0.0
1,000	31	194				
950	31	610	1.5	82	269	.6
900	31	1,045	4.6	63	164	3.3
850	31	1,511	4.6	48	203	4.9
800	31	2,003	2.3	47	235	8.4
750	31	2,520	-.2	43	252	12.8
700	31	3,071	-3.1	42	257	16.3
650	31	3,654	-6.5	40	262	19.8
600	31	4,276	-10.5	40	267	21.0
550	31	4,936	-15.0	39	268	22.3
500	31	5,655	-19.9	36	271	23.1
450	31	6,424	-25.4	38	275	27.6
400	31	7,273	-31.4	39	275	30.1
350	31	8,206	-38.2		270	33.4
300	31	9,250	-46.0		266	34.8
250	31	10,442	-53.9		274	36.1
200	30	11,852	-59.6		275	43.3
175	30	12,687	-59.9		276	39.1
150	30	13,653	-59.7		278	33.4
125	29	14,802	-59.5		274	30.5
100	28	16,194	-59.7		279	23.1
80	26	17,592	-59.4		290	14.0
60	25	19,404	-58.0		313	8.4
50	23	20,558	-56.8		356	6.8
40	23	21,976	-55.4		18	8.0
30	19	23,815	-54.3		51	15.5
25	19	24,986	-53.4		49	18.7
20	17	26,427	-51.8		51	20.4
15	14	28,307	-51.1		54	28.4
10	12	30,966	-49.6			
7						
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MIAMI, FLA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	4	16.5	82	19	2.3
1,000	31	152	17.6	76	34	5.2
950	31	589	15.7	72	63	6.6
900	31	1,049	13.2	69	80	4.9
850	31	1,529	11.4	59	113	1.4
800	31	2,036	10.2	45	255	5.1
750	31	2,571	8.5	38	261	9.9
700	31	3,140	6.2		258	11.7
650	31	3,741	3.2		265	15.9
600	30	4,390	-.6		265	19.8
550	30	5,071	-5.3		263	23.7
500	30	5,823	-10.0		267	25.1
450	30	6,623	-15.4		266	29.7
400	30	7,509	-21.5		265	37.1
350	30	8,480	-28.5		262	42.9
300	30	9,566	-37.1		266	47.0
250	30	10,803	-46.6		267	54.2
200	30	12,250	-57.1		270	57.7
175	30	13,084	-62.7		271	58.3
150	30	14,025	-66.9		268	56.5
125	30	15,119	-68.9		270	52.5
100	30	16,446	-71.1		267	41.6
80	30	17,764	-71.3		268	33.4
60	29	19,478	-68.0		274	16.9
50	29	20,585	-64.1		274	11.9
40	28	21,963	-59.6		266	7.4
30	26	23,782	-53.8		256	9.5
25	26	24,962	-50.8		256	13.8
20	25	26,423	-48.6		259	17.9
15	25	28,327	-45.7		255	19.2
10	21	31,040	-41.6		257	32.1
7	12	33,453	-40.5		256	61.8
5	7	35,751	-37.4			

See reference note at end of table

RAWINSONDE DATA

Average monthly values

MIDLAND, TEX. (917 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	871	4.2	73	242	1.9
1,000	31	164				
950	31	584				
900	31	1,026	7.0	63	233	3.5
850	31	1,497	7.6	51	242	7.4
800	31	1,995	5.7	45	276	8.4
750	31	2,518	3.3	38	272	10.5
700	31	3,078	.7	35	270	13.8
650	31	3,665	- 2.4	34	266	17.5
600	31	4,300	- 6.5		270	20.2
550	31	4,968	-10.9		282	24.1
500	31	5,701	-15.9		276	29.1
450	31	6,475	-21.7		278	30.7
400	31	7,340	-27.9	39	277	33.8
350	31	8,286	-34.9	38	278	41.4
300	31	9,345	-42.4			
250	31	10,557	-49.9			
200	30	11,999	-57.3			
175	30	12,838	-60.0			
150	22	13,780	-61.7			
125	18	14,909	-64.4			
100	14	16,273	-65.9			
80	9	17,636	-65.7			
60	7	19,392	-64.5			
50	7	20,512	-62.2			
40	7	21,899	-60.1			
30	7	23,705	-57.5			
25	5	24,841	-56.0			
20						
15						
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MONTGOMERY, ALA. (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	5.6	82	31	2.3
1,000	31	170	7.0	73	89	3.1
950	31	595	8.0	66	179	3.7
900	31	1,040	7.1	65	233	6.0
850	31	1,510	6.6	43	254	9.7
800	31	2,006	4.9	39	256	14.2
750	31	2,532	2.9	39	263	15.5
700	31	3,088	.4	34	268	18.7
650	31	3,675	- 2.6	32	266	23.5
600	31	4,311	- 6.1	31	266	28.6
550	31	4,981	-10.4		265	32.6
500	31	5,713	-15.4		266	38.3
450	31	6,495	-20.6	35	262	44.3
400	31	7,366	-26.6	37	260	49.0
350	31	8,316	-33.5		259	59.3
300	31	9,381	-41.5		262	65.1
250	31	10,594	-49.9		261	71.5
200	31	12,026	-57.8		265	79.3
175	31	12,862	-61.0		265	78.5
150	28	13,808	-63.0		264	74.4
125	28	14,926	-64.7		265	58.3
100	24	16,284	-66.2		265	46.4
80	22	17,640	-65.4		266	34.2
60	21	19,400	-62.9		270	20.2
50	18	20,522	-61.1		275	14.6
40	17	21,915	-58.7		269	13.4
30	17	23,736	-55.7		274	7.0
25	16	24,899	-54.4		278	6.8
20	15	26,341	-51.7		270	8.0
15	14	28,223	-49.2		269	7.8
10	10	30,918	-44.4			
7	6	33,276	-43.7			
5						

NANTUCKET, MASS. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	14	2.7	81	335	4.1
1,000	31	140			344	5.4
950	31	554	1.6	66	300	4.7
900	31	990	.1	58	272	8.5
850	31	1,447	- 1.4	52	275	14.0
800	31	1,929	- 2.6	47	275	20.2
750	31	2,438	- 4.5	43	272	25.6
700	31	2,981	- 6.8	42	274	29.0
650	31	3,558	- 9.5	41	271	32.4
600	31	4,172	-12.9	41	271	35.9
550	31	4,827	-16.9	40	267	35.0
500	31	5,541	-21.3	38	262	42.9
450	31	6,304	-26.5	38	262	47.4
400	31	7,152	-32.7		258	53.8
350	31	8,079	-39.6		256	57.5
300	31	9,117	-46.9		255	54.4
250	31	10,307	-53.7		251	56.3
200	30	11,733	-57.0		254	54.0
175	29	12,574	-57.1		257	54.8
150	28	13,547	-57.3		263	47.4
125	27	14,691	-58.8		261	39.6
100	27	16,090	-60.0		261	35.9
80	27	17,481	-60.2		269	31.3
60	26	19,279	-58.8		274	23.1
50	25	20,419	-59.0		274	20.0
40	25	21,821	-58.0		286	17.1
30	25	23,636	-57.4		291	20.0
25	23	24,794	-56.8		291	20.6
20	21	26,217	-55.2		293	25.6
15	19	28,034	-54.0		285	26.6
10	14	30,701	-50.1			
7	9	33,054	-47.3			
5						

NASHVILLE, TENN. (999 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	177	3.4	89	240	1.7
1,000	31	169			141	1.7
950	31	585	4.6	72	233	8.7
900	31	1,028	3.5	65	260	8.5
850	31	1,492	2.3	52	270	10.7
800	31	1,981	.9	50	277	12.4
750	31	2,498	- 1.3	49	277	15.0
700	31	3,046	- 3.7	46	273	18.5
650	31	3,627	- 6.7	42	268	24.1
600	31	4,250	-10.3	38	263	24.7
550	31	4,911	-14.3	36	262	29.9
500	31	5,633	-18.8	35	267	31.5
450	31	6,407	-24.1		274	32.6
400	31	7,261	-30.1		275	36.9
350	31	8,199	-36.9			
300	31	9,249	-44.5			
250	31	10,448	-52.3			
200	29	11,868	-57.7			
175	29	12,707	-59.3			
150	26	13,678	-60.4			
125	21	14,814	-61.7			
100	19	16,191	-62.9			
80	16	17,561	-62.4			
60	14	19,359	-60.7			
50	13	20,497	-59.7			
40	12	21,905	-57.6			
30	12	23,731	-55.7			
25	12	24,897	-54.4			
20	9	26,360	-52.3			
15						
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7						
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N. Y. INT. AP, IDLEWILD (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	5	1.7	73	311	5.2
1,000	31	151	1.6	64	315	6.2
950	31	564	1.0	61	290	6.0
900	31	998	- .3	56	276	10.7
850	31	1,455	- 1.3	50	273	15.5
800	31	1,937	- 2.8	48	275	21.4
750	31	2,444	- 4.7	48	272	23.9
700	31	2,987	- 7.3	46	274	27.2
650	31	3,561	-10.1	44	272	32.4
600	31	4,174	-13.6	42	270	37.1
550	31	4,828	-17.3	39	269	40.2
500	31	5,538	-22.0	40	265	44.1
450	31	6,300	-27.1	37	264	48.8
400	31	7,144	-33.2	37	264	55.0
350	31	8,070	-39.8		262	59.8
300	31	9,108	-46.9		262	68.6
250	31	10,298	-53.5		264	76.4
200	31	11,722	-56.6		265	67.4
175	31	12,567	-57.3		266	61.2
150	30	13,541	-57.2		264	53.4
125	30	14,690	-59.1		262	45.7
100	29	16,088	-60.0		263	41.6
80	28	17,480	-59.8		262	32.3
60	27	19,278	-59.7		264	23.9
50	27	20,422	-59.0		266	20.2
40	27	21,825	-58.1		266	19.8
30	27	23,643	-56.9		268	20.0
25	26	24,793	-56.1		265	21.2
20	26	26,217	-54.8		266	21.2
15	24	28,056	-53.8		265	22.0
10	19	30,695	-50.6		271	32.8
7	16	33,066	-47.9			
5	5	35,483	-43.4			

NOME, ALASKA (1006 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	7	-21.7	62	22	5.1
1,000	31	54			360	5.2
950	31	438	-17.6	61	25	6.4
900	31	842	-18.1	59	19	7.4
850	31	1,270	-18.0	53	15	9.1
800	31	1,722	-19.4	48	10	9.5
750	31	2,198	-21.3	46	348	9.3
700	31	2,707	-23.8	46	344	10.3
650	31	3,240	-26.8	42	332	9.3
600	31	3,819	-30.2	40	336	8.5
550	31	4,428	-34.1		322	8.2
500	31	5,096	-38.3		298	8.4
450	31	5,810	-42.8		301	8.9
400	31	6,602	-47.6		274	9.5
350	31	7,477	-51.4		270	9.9
300	31	8,474	-53.1		266	10.3
250	31	9,654	-51.1		253	14.2
200	31	11,117	-48.2		249	15.9
175	31	11,998	-47.8		250	19.4
150	31	13,018	-47.0		246	20.8
125	30	14,225	-46.6		240	24.7
100	30	15,711	-45.3		243	26.0
80	30	17,203	-44.8		253	28.8
60	30	19,135	-43.6		256	35.8
50	30	20,364	-42.7		251	38.3
40	30	21,872	-42.2		254	42.2
30	28	23,846	-41.8		247	40.2
25	28	25,082	-41.6		249	40.0
20	27	26,593	-41.6		255	46.8
15	20	28,537	-40.6		252	46.2
10						
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NORFOLK, VA. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	9	4.7	78	339	3.1
1,000	31	162	6.3	68	341	4.5
950	31	582	5.3	59	298	7.4
900	31	1,024	4.4	46	288	9.5
850	31	1,489	3.0	43	276	11.9
800	31	1,978	1.0	45	267	17.1
750	31	2,497	- 1.4	48	266	22.0
700	31	3,042	- 4.0	43	264	25.5
650	31	3,622	- 6.6	36	270	31.3
600	31	4,246	-10.0		270	37.5
550	31	4,907	-14.2	38	266	40.8
500	31	5,629	-18.8	38	263	46.4
450	31	6,401	-24.1		264	52.3
400	31	7,256	-30.4		264	57.3
350	31	8,193	-36.9		264	65.1
300	31	9,243	-44.3		264	71.3
250	31	10,446	-51.8		266	77.1
200	31	11,872	-57.7		269	76.9
175	31	12,712	-59.4		269	74.6
150	31	13,675	-60.1		271	67.8
125	30	14,807	-61.7		267	56.2
100	30	16,187	-62.3		265	49.7
80	28	17,560	-62.8		264	40.4
60	28	19,343	-60.7		267	27.8
50	27	20,481	-59.6		268	23.5
40	26	21,881	-58.1		275	17.7
30	24	23,702	-55.5		280	21.4
25	24	24,868	-54.5		275	24.5
20	23	26,298	-53.3		275	32.3
15	21	28,155	-51.3		272	39.6
10	18	30,775	-48.9		266	70.5
7	15	33,130	-46.2		271	83.5
5	8	35 320	-45.3			

NORTH PLATTE, NEBR. (918 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	848	- 4.3	78	318	4.9
1,000	31	169				
950	31	574				
900	31	1,004	- .5	66	317	9.7
850	31	1,464	1.3	53	314	12.6
800	31	1,952	.1	51	311	16.1
750	31	2,462	- 1.6	50	313	17.3
700	31	3,014	- 4.3	42	307	16.5
650	31	3,590	- 7.0	39	311	18.7
600	31	4,217	-10.4	38	303	22.2
550	31	4,874	-14.9	38	306	25.3
500	31	5,597	-19.9	39	306	24.9
450	31	6,357	-25.7		301	25.8
400	31	7,212	-32.5	38	302	27.0
350	31	8,140	-39.6		303	32.4
300	31	9,176	-47.5		301	32.8
250	31	10,362	-54.6		297	38.9
200	31	11,776	-58.9		292	41.4
175	31	12,611	-59.6		288	35.9
150	31	13,575	-59.5		280	35.6
125	29	14,718	-59.7		289	32.4
100	29	16,111	-59.9		292	22.5
80	29	17,505	-59.9		291	17.7
60	29	19,305	-59.0		320	8.4
50	28	20,455	-57.8		5	6.8
40	25	21,872	-57.1		48	9.7
30	25	23,696	-56.5		54	17.5
25	25	24,854	-56.0		60	20.2
20	22	26,281	-54.8		60	22.0
15	19	28,124	-53.6		62	22.7
10	13	30,729	-52.9			
7	[illegible]	32,902	-54.2			
5						

OAKLAND, CALIF. (1019 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	6.5	76	50	1.6
1,000	31	158	10.7	53	26	2.9
950	31	588	11.0	41	14	5.6
900	31	1,037	10.4	32	6	5.1
850	31	1,511	8.7		330	3.7
800	31	2,011	6.3		321	5.6
750	31	2,535	3.7		326	6.4
700	31	3,094	.3	27	328	8.0
650	31	3,680	- 3.6		319	9.7
600	31	4,313	- 7.7		306	13.0
550	31	4,977	-12.2		298	14.8
500	31	5,707	-17.4		298	17.5
450	31	6,483	-23.1		292	20.4
400	31	7,242	-29.5		293	22.9
350	31	8,281	-36.7		292	24.7
300	31	9,333	-44.5		290	29.9
250	30	10,531	-52.8		284	35.6
200	29	11,956	-60.0		282	35.6
175	29	12,786	-61.4		286	34.4
150	25	13,739	-61.1		287	33.8
125	21	14,868	-61.1		281	29.0
100	18	16,244	-61.6		283	23.9
80	15	17,623	-61.8		299	16.7
60	13	19,408	-59.4		342	8.9
50	13	20,553	-58.2		23	7.2
40	13	21,959	-57.4		51	10.5
30	10	23,784	-55.3			
25	8	24,949	-53.6			
20	8	26,386	-52.5			
15	8	28,248	-51.6			
10						
7						
5						

OKLAHOMA CITY, OKLA. (912 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	392	3.5	78	333	1.0
1,000	31	158				
950	31	576	6.5	61	267	1.4
900	31	1,022	6.8	53	259	6.6
850	31	1,490	5.8	50	270	8.7
800	31	1,984	2.8	52	276	10.5
750	30	2,503	1.2	47	278	11.9
700	30	3,057	- 1.9	47	288	12.8
650	30	3,641	- 4.9	45	281	14.4
600	30	4,269	- 8.6	41	274	19.2
550	30	4,933	-12.8	35	273	23.5
500	30	5,659	-17.8	37	269	27.2
450	30	6,432	-23.6	39	266	31.1
400	30	7,289	-30.1	40	264	35.6
350	30	8,227	-37.0		257	42.6
300	30	9,275	-44.8		267	52.5
250	30	10,475	-52.0		262	62.0
200	29	11,900	-58.0		273	58.5
175	28	12,742	-59.3		270	54.0
150	25	13,693	-60.1		279	53.2
125	23	14,830	-61.6		272	44.1
100	18	16,209	-62.9			
80	13	17,592	-63.5			
60	11	19,369	-62.2			
50	10	20,491	-61.0			
40	8	21,875	-59.2			
30	6	23,690	-57.0			
25	5	24,863	-56.1			
20						
15						
10						
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5						

OMAHA, NEBR. (969 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	403	- 1.4	83	308	1.7
1,000	31	149				
950	31	564	.7	73	295	2.1
900	31	995	.8	62	299	8.4
850	31	1,454	.2	59	298	11.5
800	31	1,940	- .8	54	298	14.0
750	31	2,451	- 2.6	51	292	14.0
700	31	2,999	- 5.1	49	296	17.5
650	31	3,574	- 8.1	48	301	19.2
600	31	4,196	-11.5	46	293	20.8
550	31	4,852	-15.7	42	290	23.1
500	31	5,571	-20.8	42	292	25.5
450	31	6,336	-26.3	40	294	27.4
400	31	7,183	-32.5		296	29.3
350	31	8,111	-39.4		293	32.1
300	31	9,150	-46.8		290	33.6
250	31	10,341	-53.4		288	39.2
200	31	11,760	-58.2		285	42.2
175	31	12,599	-58.7		283	39.6
150	30	13,565	-58.2		283	39.1
125	29	14,713	-58.5		286	34.2
100	27	16,118	-59.4		284	27.8
80	25	17,515	-59.5		287	20.8
60	20	19,319	-58.4		298	16.5
50	18	20,478	-58.1		308	11.1
40	18	21,885	-57.2		331	12.2
30	16	23,705	-57.1		341	11.1
25	15	24,862	-56.8		340	15.0
20	15	26,277	-56.3		345	17.7
15	11	28,132	-54.5		5	17.9
10	9	30,691	-54.4			
7						
5						

PEORIA, ILL. (995 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	201	- .1	85	257	1.2
1,000	31	158				
950	31	571	.9	71	296	5.2
900	31	1,005	.2	63	270	8.9
850	31	1,462	- .7	58	279	11.1
800	31	1,946	- 1.9	55	276	14.2
750	31	2,457	- 3.8	47	274	17.9
700	31	3,001	- 6.5	47	280	20.2
650	31	3,576	- 9.2	40	279	21.6
600	30	4,191	-12.8	42	283	24.3
550	30	4,844	-16.8	42	286	28.2
500	30	5,560	-21.2	40	286	31.7
450	30	6,322	-26.3	37	287	34.8
400	30	7,172	-32.5	37	286	38.1
350	30	8,100	-39.6		282	42.0
300	30	9,138	-46.8		280	40.6
250	30	10,329	-53.4		272	46.4
200	29	11,749	-56.7		273	52.1
175	29	12,595	-57.1		271	45.5
150	28	13,567	-57.5		272	44.7
125	27	14,714	-57.4		271	39.8
100	25	16,120	-58.3		275	34.0
80	24	17,523	-58.8		273	26.4
60	22	19,336	-57.8		298	11.9
50	21	20,492	-57.4		308	8.7
40	19	21,907	-57.3		353	5.8
30	17	23,734	-56.5		30	6.6
25	17	24,895	-54.9		55	10.5
20	14	26,329	-54.8		50	12.4
15	12	28,173	-54.1			
10						
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PITTSBURGH, PA. (997 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	353	0.0	81	260	2.7
1,000	31	164				
950	31	581	.6	74	256	8.0
900	31	1,009	- .4	71	265	16.1
850	31	1,465	- 2.0	68	266	19.6
800	31	1,946	- 3.6	64	272	22.0
750	31	2,457	- 5.3	63	274	24.3
700	31	2,995	- 7.7	61	274	27.0
650	31	3,566	-10.4	56	274	30.7
600	31	4,182	-13.7	52	276	32.6
550	31	4,836	-17.6	54	278	34.8
500	31	5,547	-22.4	54	277	39.1
450	31	6,308	-27.4	52	275	40.6
400	31	7,151	-33.5	48	271	43.3
350	31	8,074	-40.6		273	44.1
300	31	9,107	-47.6		272	52.5
250	30	10,304	-53.4		273	58.9
200	29	11,725	-56.7		268	58.3
175	29	12,570	-57.3		268	54.4
150	29	13,544	-57.6		266	47.2
125	27	14,687	-58.8		262	42.4
100	24	16,074	-59.7		265	36.3
80	21	17,464	-59.6		265	29.0
60	18	19,264	-58.7		276	25.5
50	17	20,400	-59.5		282	18.1
40	17	21,800	-58.7		284	14.6
30	17	23,615	-56.8		301	12.2
25	16	24,763	-56.0		326	9.9
20	15	26,193	-55.7			
15	15	28,027	-55.1			
10	12	30,659	-53.0			
7	8	32,937	-52.2			
5	5	34,942	-52.2			

POINT ARGUELLO, CALIF. (1004 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	113	7.9	67	71	3.5
1,000	31	144			95	3.3
950	31	578	13.3	42	25	3.9
900	31	1,028	11.8	34	77	3.1
850	31	1,505	9.7		73	1.9
800	31	2,005	7.3		353	3.5
750	31	2,534	4.5	25	342	6.4
700	31	3,092	1.5	27	328	8.7
650	31	3,679	- 2.1		320	8.0
600	31	4,316	- 5.7		312	11.7
550	31	4,985	-10.2	30	303	13.8
500	31	5,720	-15.6	32	298	15.7
450	31	6,500	-21.5	33	300	16.5
400	31	7,363	-28.1	33	295	20.0
350	31	8,307	-35.4		294	20.4
300	31	9,363	-43.5		281	26.0
250	31	10,568	-51.9		280	31.9
200	31	11,729	-59.2		276	40.0
175	31	12,822	-61.0		273	39.2
150	31	13,778	-62.2		275	36.9
125	31	14,903	-62.8		275	29.5
100	31	16,274	-64.0		274	23.3
80	27	17,643	-63.6		278	15.3
60	23	19,416	-61.9		308	7.4
50	23	20,546	-60.9		2	4.1
40	23	21,938	-59.4		64	6.6
30	23	23,745	-57.5		71	12.4
25	22	24,902	-56.1		67	15.5
20	22	26,327	-54.3		62	16.1
15	22	28,176	-52.9		63	15.0
10	19	30,794	-50.8		39	18.3
7	17	33,122	-49.2		32	19.8
5	11	35,356	-48.0		35	21.2

PORTLAND, ME. (1016 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	20	- 3.9	86	312	4.5
1,000	31	141			308	5.2
950	31	549	- 2.5	63	305	7.4
900	31	977	- 3.8	61	300	8.4
850	31	1,427	- 5.3	60	282	11.3
800	31	1,902	- 6.3	54	281	15.2
750	31	2,404	- 7.7	50	276	20.0
700	31	2,941	-10.2	45	273	25.8
650	31	3,505	-12.7	41	275	31.1
600	31	4,115	-16.3	40	271	35.6
550	31	4,762	-20.0	38	270	42.6
500	31	5,467	-24.3	37	271	48.4
450	31	6,219	-29.3	36	271	52.7
400	31	7,059	-35.1		269	57.7
350	31	7,977	-41.2		266	63.3
300	31	9,011	-47.5		269	67.6
250	31	10,202	-52.6		268	68.6
200	30	11,633	-54.0		266	61.4
175	28	12,482	-54.4		268	56.7
150	28	13,469	-54.7		263	52.1
125	25	14,617	-55.6		264	46.4
100	24	16,035	-57.0		265	38.1
80	23	17,449	-57.6		267	31.9
60	23	19,268	-57.2		276	24.1
50	22	20,420	-57.2		274	22.9
40	21	21,828	-57.3		284	22.3
30	19	23,652	-56.6		282	21.8
25	18	24,809	-55.7		286	23.1
20	17	26,233	-54.7		304	26.0
15	12	28,119	-53.5			
10	5	30,770	-52.3			
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

RAPID CITY, S. DAK. (905 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	966	- 2.0	63	331	5.6
1,000	31	162				
950	31	574				
900	31	1,007			329	8.0
850	31	1,468	1.9	43	315	14.4
800	31	1,956	- .2	43	317	19.6
750	31	2,466	- 2.6	41	321	21.2
700	31	3,015	- 5.1	39	311	19.0
650	31	3,589	- 8.3	37	302	21.8
600	31	4,211	-12.1	38	297	23.9
550	31	4,866	-16.1	36	299	25.1
500	31	5,583	-21.0	34	302	29.1
450	31	6,348	-26.7	34	300	31.7
400	31	7,193	-33.0		297	35.6
350	31	8,118	-40.3		298	35.2
300	31	9,152	-48.0		294	40.0
250	31	10,333	-55.5		285	43.7
200	31	11,741	-59.1		289	42.6
175	31	12,578	-58.6		285	37.3
150	30	13,545	-57.6		284	34.2
125	28	14,688	-58.0		283	33.0
100	28	16,093	-58.5		285	26.8
80	28	17,497	-57.9		292	24.1
60	27	19,317	-57.2		299	16.9
50	25	20,473	-56.6		322	14.0
40	23	21,894	-55.8		340	10.3
30	21	23,755	-54.8		36	12.0
25	20	24,916	-54.6		45	17.1
20	17	26,347	-53.8		38	19.8
15	16	28,193	-53.1		48	22.7
10	10	30,779	-53.3			
7						

ST. CLOUD, MINN. (979 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	316	- 5.2	89	295	1.0
1,000	31	148				
950	31	559	- 2.6	79	282	3.7
900	31	983	- 1.8	63	287	4.1
850	31	1,437	- 3.1	57	286	9.3
800	31	1,916	- 4.6	52	293	9.9
750	31	2,426	- 6.2	48	284	10.9
700	31	2,961	- 8.9	47	297	11.3
650	31	3,530	-11.8	44	299	13.0
600	31	4,142	-15.1	43	312	17.1
550	31	4,791	-18.8	39	300	20.4
500	31	5,500	-23.5	35	293	23.5
450	31	6,259	-28.9		307	22.7
400	31	7,096	-34.9		305	22.3
350	31	8,015	-41.7		298	20.6
300	31	9,043	-49.1		285	27.6
250	31	10,221	-55.6			
200	30	11,634	-56.8			
175	30	12,481	-56.3			
150	30	13,462	-56.0			
125	30	14,620	-56.6		284	18.5
100	30	16,037	-57.2			
80	30	17,448	-57.0			
60	27	19,271	-56.5			
50	25	20,449	-56.2			
40	24	21,860	-56.1			
30	21	23,698	-55.5			
25	20	24,875	-54.8			
20	15	26,327	-53.7			
15	11	28,150	-54.6			
10						
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ST. PAUL IS., ALASKA (999 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	- 3.0	81	61	5.8
1,000	31	4			31	.6
950	31	405	- 6.0	72	20	5.4
900	31	828	- 9.1	71	358	5.6
850	31	1,268	-12.2	70	339	5.4
800	31	1,729	-14.8	64	319	7.8
750	31	2,212	-17.6	56	297	7.8
700	31	2,729	-20.4	51	305	9.5
650	31	3,269	-23.7	49	300	9.3
600	31	3,855	-27.6	47	288	10.9
550	31	4,470	-31.6	46	274	11.7
500	31	5,146	-35.7		256	13.8
450	31	5,865	-40.2		258	19.0
400	31	6,668	-45.3		265	19.8
350	31	7,551	-50.1		261	25.3
300	31	8,550	-53.4		246	28.6
250	30	9,723	-52.7		249	30.3
200	30	11,179	-49.4		242	26.8
175	30	12,056	-48.6		244	23.9
150	30	13,072	-47.5		247	25.5
125	30	14,280	-46.7		244	23.9
100	30	15,764	-45.7		236	24.5
80	30	17,256	-44.1		239	22.7
60	29	19,192	-43.0		240	26.0
50	29	20,424	-42.3		240	22.7
40	29	21,938	-41.1		242	21.6
30	29	23,897	-40.7		240	19.2
25	29	25,139	-40.9		245	21.0
20	28	26,660	-41.2		234	14.2
15	21	28,646	-40.8		253	11.9
10	9	31,626	-43.0			
7						

SALEM, OREG. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	61	3.1	92	177	3.3
1,000	31	177	4.0	86	185	3.9
950	31	596	4.7	75	205	6.0
900	31	1,037	4.4	66	223	9.5
850	31	1,501	2.5	60	233	11.9
800	31	1,988	.0	58	243	14.4
750	31	2,502	- 2.4	48	241	17.3
700	31	3,048	- 5.5	43	243	18.3
650	31	3,621	- 8.8	42	248	20.8
600	31	4,242	-12.4	39	253	24.1
550	31	4,897	-16.4	43	254	26.4
500	31	5,613	-20.9	44	256	27.0
450	31	6,377	-26.4	42	262	29.1
400	31	7,223	-32.7	43	263	32.4
350	30	8,154	-39.3		269	33.8
300	30	9,193	-46.6		270	38.7
250	30	10,381	-54.3		265	43.5
200	30	11,793	-59.0		269	46.0
175	30	12,631	-58.7		273	42.0
150	30	13,601	-57.7		270	33.8
125	30	14,752	-57.5		272	29.9
100	30	16,160	-57.8		275	25.1
80	30	17,571	-57.3		276	18.1
60	28	19,401	-55.4		284	6.4
50	28	20,567	-54.7		318	3.9
40	27	21,998	-53.8		26	5.4
30	24	23,843	-53.4		41	9.5
25	22	25,011	-52.9		48	12.6
20	20	26,464	-51.7		47	14.0
15	17	28,332	-50.6		64	22.0
10	10	30,966	-50.2			
7	6	33,279	-50.1			

SALT LAKE CITY, UTAH (876 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,288	- 5.4	82	170	2.3
1,000	31	242				
950	31	645				
900	31	1,076				
850	31	1,529	- .2	61	154	.6
800	31	2,015	- .6	50	198	2.7
750	31	2,531	- 1.7	46	232	4.5
700	31	3,077	- 3.9	43	289	6.4
650	31	3,655	- 6.9	41	295	8.4
600	31	4,280	-10.3	38	291	10.9
550	31	4,940	-14.5	38	297	13.4
500	31	5,662	-19.4	38	288	16.3
450	31	6,430	-25.2	38	285	16.7
400	31	7,282	-31.6		290	18.1
350	31	8,214	-38.7		292	22.3
300	31	9,255	-46.3		282	27.4
250	31	10,446	-53.9		286	28.2
200	31	11,859	-59.0		289	35.0
175	31	12,695	-59.7		285	33.8
150	31	13,659	-59.6		287	32.3
125	30	14,800	-59.3		284	28.0
100	30	16,195	-60.1		291	25.1
80	29	17,589	-59.6		294	17.7
60	29	19,391	-58.7		321	9.3
50	29	20,539	-57.7		21	6.6
40	28	21,950	-56.6		49	10.1
30	26	23,777	-55.2		54	14.4
25	26	24,941	-54.8		56	17.7
20	25	26,368	-54.0		37	17.5
15	22	28,202	-53.3		31	22.5
10	11	30,816	-51.5			
7						

SAN ANTONIO, TEX. (990 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	243	8.6	82	344	3.1
1,000	31	159				
950	31	587	11.1	63	357	1.4
900	31	1,037	10.3	58	241	4.5
850	31	1,512	8.8	52	238	7.2
800	31	2,012	6.4	52	237	7.2
750	31	2,539	5.0	41	249	9.1
700	31	3,101	2.6	38	256	13.8
650	31	3,693	- .5	37	256	19.6
600	31	4,334	- 4.5		266	20.8
550	31	5,008	- 8.7		263	23.7
500	31	5,747	-13.4		271	28.8
450	30	6,532	-18.8		268	33.0
400	30	7,407	-25.3		274	34.8
350	30	8,363	-32.2		279	42.7
300	29	9,429	-40.1		284	45.5
250	29	10,652	-48.3		282	56.3
200	28	12,097	-57.1			
175	24	12,945	-61.7			
150	21	13,894	-64.3			
125	19	15,000	-66.1			
100	15	16,336	-67.1			
80	12	17,688	-67.3			
60	10	19,428	-65.0			
50	10	20,543	-63.2			
40	9	21,928	-59.1			
30	8	23,745	-55.8			
25	7	24,906	-53.8			
20	5	26,349	-51.7			
15						
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SAN DIEGO, CALIF. (1001 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	124	9.4	75	27	2.1
1,000	31	135			35	2.9
950	31	563	13.9	45	1	.6
900	31	1,022	12.0	38		.0
850	31	1,499	9.6	36	249	.6
800	31	2,000	6.9	35	99	.6
750	31	2,527	4.4		305	1.4
700	31	3,089	1.8	33	303	4.5
650	31	3,680	- 1.7		301	8.4
600	31	4,317	- 5.6		302	12.2
550	31	4,987	-10.2		302	15.0
500	31	5,724	-15.1		294	20.4
450	31	6,506	-21.1		288	21.4
400	31	7,374	-27.7		275	23.5
350	31	8,320	-35.0		276	30.1
300	31	9,378	-42.8		268	35.0
250	31	10,586	-51.3		270	40.6
200	31	12,009	-58.8		265	51.1
175	30	12,845	-61.3		269	48.4
150	29	13,798	-62.0		271	44.7
125	28	14,922	-63.5		267	37.9
100	24	16,276	-65.0		272	30.9
80	19	17,633	-63.7		277	19.2
60	16	19,403	-63.6		300	8.4
50	16	20,527	-61.7		304	5.4
40	14	21,913	-60.5		5	6.2
30	11	23,720	-57.7		76	10.1
25	11	24,875	-55.7		77	14.4
20	10	26,294	-55.1			
15	7	28,144	-53.5			
10	5	30,779	-51.2			
7						

SAN JUAN, P. R. (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	22.8	88	124	2.3
1,000	31	126	23.8	79	101	6.0
950	31	578	21.4	81	93	12.6
900	31	1,042	18.4	78	93	13.2
850	31	1,530	15.4	77	90	12.2
800	31	2,043	13.0	63	83	9.5
750	31	2,585	10.8	52	82	7.8
700	31	3,157	7.9	43	79	6.8
650	31	3,764	4.6	38	74	5.2
600	31	4,412	1.1	32	68	4.3
550	31	5,105	- 2.5		43	3.7
500	31	5,858	- 6.8		344	4.1
450	31	6,668	-12.4		325	7.4
400	31	7,561	-18.9		312	11.1
350	31	8,540	-26.5		302	15.3
300	31	9,633	-35.2		296	21.2
250	31	10,877	-45.1		288	27.0
200	31	12,329	-56.7		282	35.0
175	31	13,164	-62.4		276	38.3
150	30	14,105	-68.5		274	38.7
125	29	15,186	-72.7		273	33.8
100	29	16,484	-76.2		283	24.9
80	28	17,772	-75.9		296	15.7
60	27	19,452	-70.4		289	7.6
50	26	20,548	-64.9		287	8.5
40	26	21,930	-59.2		297	7.6
30	25	23,755	-53.9		309	3.5
25	23	24,931	-52.0		54	4.7
20	12	26,395	-48.0			
15						
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SANTA MONICA, CALIF. (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	38	12.3	59	15	6.2
1,000	30	140	14.5	50	26	6.2
950	30	573	13.4	42	64	4.3
900	30	1,027	11.7	34	79	2.9
850	30	1,502	9.2	33	34	2.1
800	30	2,002	6.6	31	56	1.9
750	30	2,527	4.0		3	3.3
700	30	3,088	1.1		315	5.4
650	30	3,676	- 2.4		310	8.2
600	30	4,311	- 5.9		311	11.7
550	30	4,980	-10.6		304	14.4
500	30	5,715	-15.6		302	18.1
450	30	6,491	-21.9		295	22.3
400	30	7,358	-28.5		289	25.1
350	30	8,301	-35.8		287	28.4
300	30	9,354	-43.8		282	31.1
250	30	10,557	-51.9		281	41.2
200	29	11,975	-59.4		288	42.6
175	28	12,806	-61.3		281	45.1
150	28	13,760	-62.5		284	42.6
125	27	14,882	-63.2		283	30.3
100	26	16,248	-64.8		287	23.3
80	25	17,608	-64.1		292	15.0
60	25	19,376	-62.2		316	7.6
50	24	20,504	-61.3		2	5.2
40	23	21,893	-60.0		44	8.4
30	21	23,703	-57.2		65	11.3
25	20	24,857	-55.8		59	10.9
20	18	26,276	-54.6		55	14.0
15	16	28,130	-52.3		61	14.8
10	11	30,770	-50.8			
7	5	33,093	-49.0			

SAULT STE. MARIE, MICH. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	221	- 5.0	78	31	1.9
1,000	31	149				
950	31	554	- 5.1	93	49	1.9
900	31	977	- 5.4	73	333	3.5
850	31	1,425	- 7.0	71	315	7.2
800	31	1,897	- 8.9	66	308	11.5
750	31	2,395	-11.0	68	313	13.8
700	31	2,923	-13.6	53	310	15.9
650	31	3,482	-16.3	48	303	19.8
600	31	4,083	-19.8	45	300	22.7
550	31	4,723	-23.6	47	296	28.0
500	31	5,416	-27.6	43	290	33.0
450	31	6,163	-32.5		286	39.2
400	31	6,990	-37.7	48	283	44.3
350	31	7,898	-44.1		282	47.6
300	31	8,918	-50.4		281	46.0
250	31	10,095	-54.4		286	42.7
200	31	11,523	-54.4		285	41.8
175	31	12,378	-54.7		286	38.3
150	31	13,363	-54.8		288	36.5
125	30	14,528	-55.4		289	29.9
100	28	15,960	-56.3		289	21.6
80	25	17,373	-56.6		297	19.8
60	22	19,197	-56.7		309	15.9
50	22	20,353	-56.4		315	14.2
40	20	21,800	-56.4		329	13.4
30	18	23,633	-56.4		349	15.5
25	18	24,789	-56.2		351	19.6
20	18	26,210	-55.1		357	19.8
15	10	28,181	-52.0		24	22.0
10						
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SEATTLE, WASH. (1005 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	125	3.7	90	116	2.3
1,000	31	164			112	3.3
950	31	581	4.7	71	188	7.6
900	31	1,022	2.7	67	215	11.5
850	31	1,482	.4	65	223	14.2
800	31	1,967	- 1.7	62	236	16.5
750	31	2,477	- 4.5	61	244	17.5
700	31	3,018	- 7.3	54	246	20.0
650	31	3,589	-10.4	50	242	24.3
600	31	4,205	-14.0	50	247	25.6
550	31	4,855	-18.0	48	250	29.3
500	31	5,567	-22.5	46	253	33.4
450	31	6,324	-27.9	43	255	36.5
400	31	7,169	-34.0	45	255	38.1
350	31	8,091	-40.6		257	42.9
300	31	9,125	-47.7		262	46.2
250	30	10,313	-54.6		266	49.9
200	27	11,709	-57.6		270	44.1
175	27	12,552	-57.2		268	40.4
150	25	13,524	-55.6		265	37.1
125	24	14,675	-55.6		268	30.9
100	22	16,087	-55.2		267	25.8
80	17	17,510	-53.8		284	14.4
60	16	19,362	-53.5		280	6.6
50	13	20,537	-52.6		335	4.7
40	12	21,981	-51.8		32	7.8
30	9	23,835	-50.6			
25	7	24,992	-50.9			
20	5	26,400	-50.7			
15						
10						
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SHEMYA, ALASKA (997 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	37	- 0.8	76	233	5.6
1,000	28	8			23	1.4
950	28	414	- 3.5	76	248	9.5
900	28	841	- 6.9	78	241	12.2
850	28	1,285	-10.3	78	240	10.5
800	28	1,749	-13.6	69	250	11.5
750	28	2,234	-17.2	66	249	11.5
700	28	2,750	-21.0	55	243	13.2
650	28	3,290	-24.5	50	237	14.2
600	28	3,873	-28.1	47	237	16.3
550	28	4,486	-32.1		238	20.0
500	28	5,160	-36.4		241	24.1
450	28	5,881	-41.2		239	26.6
400	28	6,677	-46.2		238	32.4
350	28	7,556	-50.5		246	39.6
300	28	8,556	-52.5		248	44.9
250	27	9,729	-50.9		248	39.2
200	27	11,190	-49.2		251	40.6
175	27	12,066	-49.0		246	35.4
150	27	13,079	-48.5		251	36.3
125	26	14,281	-47.3		248	36.9
100	26	15,760	-46.7		248	35.6
80	25	17,245	-45.6		239	27.4
60	23	19,166	-44.1		228	26.6
50	22	20,390	-42.7		219	24.9
40	22	21,900	-41.8		201	21.2
30	21	23,858	-40.9		186	21.4
25	21	25,102	-40.0		175	24.1
20	21	26,628	-39.7		168	26.2
15	19	28,630	-38.9		153	29.5
10	16	31,401	-40.2		159	30.1
7	10	33,906	-40.4			

SHREVEPORT, LA. (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	76	6.7	84		0.0
1,000	31	159	7.8	74	126	1.4
950	31	583	8.9	58	222	4.3
900	31	1,030	7.6	54	246	6.8
850	31	1,500	5.9	52	264	8.9
800	31	1,995	3.6	52	270	13.0
750	31	2,514	1.7	47	271	14.4
700	31	3,071	- .5	39	268	17.3
650	31	3,655	- 3.5	36	269	20.2
600	31	4,290	- 7.0	32	266	22.5
550	31	4,958	-11.7	32	269	25.3
500	31	5,688	-16.7	33	264	29.3
450	31	6,463	-21.8	37	266	34.4
400	31	7,328	-28.0	37	263	39.4
350	31	8,274	-34.6	38	264	44.9
300	31	9,335	-42.0		264	53.4
250	31	10,548	-50.1		267	63.9
200	30	11,975	-58.0		272	69.9
175	29	12,812	-61.1		271	70.1
150	29	13,765	-62.6		270	64.1
125	29	14,883	-64.8		270	56.0
100	29	16,241	-66.0		272	44.3
80	28	17,595	-65.9		274	33.0
60	28	19,346	-64.4		278	21.6
50	27	20,463	-62.3		286	15.5
40	25	21,849	-60.3		295	11.1
30	25	23,654	-57.3		294	9.1
25	24	24,806	-56.1		276	10.3
20	21	26,238	-54.1		280	13.4
15	17	28,087	-52.6		279	17.9
10	9	30,747	-49.0			
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SPOKANE, WASH. (936 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	722	- 2.4	91	105	2.1
1,000	30	195				
950	30	606				
900	30	1,036	- .8	80	151	4.9
850	30	1,493	- .9	65	214	7.0
800	30	1,975	- 2.5	60	241	11.9
750	30	2,485	- 4.4	57	251	16.3
700	30	3,027	- 6.9	49	259	18.1
650	30	3,597	-10.0	49	265	20.0
600	30	4,215	-13.7	47	270	23.3
550	30	4,867	-17.3	46	275	24.5
500	30	5,580	-22.0	47	275	26.2
450	30	6,338	-27.5	48	274	28.2
400	30	7,185	-33.6	46	269	30.9
350	30	8,109	-40.5		272	33.0
300	30	9,144	-47.6		277	38.7
250	30	10,330	-54.2		277	41.2
200	30	11,746	-58.0		279	43.5
175	30	12,588	-57.4		278	40.2
150	30	13,567	-55.6		278	35.0
125	30	14,729	-55.8		280	26.0
100	30	16,147	-56.4		283	23.7
80	29	17,568	-55.4		284	19.0
60	28	19,410	-54.1		308	12.4
50	27	20,584	-53.6		327	9.7
40	26	22,027	-52.5		353	10.1
30	22	23,905	-51.9		40	14.0
25	18	25,101	-51.1		57	19.8
20	13	26,564	-50.2		65	24.5
15	12	28,462	-49.9		70	35.2
10	9	31,186	-47.3			
7	5	33,579	-46.0			

SWAN ISLAND, W. I. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	10	24.8	82	33	9.5
1,000	31	122	23.8	80	35	11.9
950	31	567	20.4	82	49	12.0
900	31	1,035	17.2	80	52	10.3
850	31	1,522	14.4	74	54	8.2
800	31	2,031	11.7	67	60	7.2
750	31	2,571	9.8	60	65	6.6
700	31	3,141	7.2	50	74	5.8
650	31	3,741	4.1	41	81	4.3
600	31	4,395	1.0	35	71	3.1
550	31	5,081	- 3.1		84	1.0
500	31	5,838	- 7.7		224	1.2
450	31	6,642	-13.1		234	2.3
400	31	7,536	-19.5		245	5.4
350	31	8,514	-27.0		270	8.7
300	31	9,605	-35.8		270	15.0
250	31	10,845	-45.9		257	17.1
200	30	12,294	-57.3		255	24.5
175	30	13,128	-63.2		259	27.6
150	29	14,064	-68.3		256	28.2
125	28	15,149	-72.2		257	29.5
100	25	16,451	-74.4		258	22.7
80	25	17,744	-75.3		279	15.7
60	24	19,420	-71.7		289	8.9
50	24	20,515	-65.3		285	8.9
40	23	21,894	-59.4		272	10.3
30	22	23,717	-54.8		266	9.7
25	22	24,889	-52.2		285	5.6
20	18	26,340	-49.1		313	2.7
15	14	28,226	-45.2			
10						
7						

See reference note at end of table

RAWINSONDE DATA

Average monthly values

TAMPA, FLA. (1019 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind: Direction	Wind: Speed
SURFACE	31	8	12.1	87	41	4.1
1,000	31	163			56	6.2
950	31	599	14.0	73	83	6.4
900	31	1,052	11.3	71	121	1.0
850	30	1,528	9.7	54	245	5.1
800	30	2,030	8.4	43	252	7.0
750	30	2,566	6.5		258	8.9
700	30	3,127	4.5		260	12.8
650	30	3,728	1.6		254	15.0
600	30	4,368	-2.5		261	20.0
550	30	5,050	-6.9		264	23.1
500	30	5,791	-12.1		261	26.2
450	30	6,586	-17.7		261	30.5
400	30	7,462	-23.9		264	38.5
350	29	8,420	-31.3		262	46.2
300	28	9,497	-39.3		265	49.4
250	28	10,723	-48.4		278	57.1
200	28	12,158	-58.7		274	57.5
175	28	12,989	-63.1		278	52.3
150	28	13,929	-66.9		277	56.9
125	19	15,028	-68.6			
100	17	16,357	-69.4			
80	12	17,684	-69.9			
60	12	19,408	-66.7			
50	12	20,520	-63.2			
40	12	21,902	-59.6			
30	12	23,720	-55.0			
25	12	24,894	-51.9			
20	11	26,338	-50.5			
15	10	28,233	-47.1			
10						
7						

TATOOSH IS., WASH. (1014 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind: Direction	Wind: Speed
SURFACE	30	31	6.8	83	127	10.1
1,000	30	146	6.5	76	123	9.3
950	30	562	4.7	69	192	11.5
900	30	1,006	2.2	66	210	12.2
850	30	1,466	-.5	67	221	16.5
800	30	1,950	-2.5	64	228	19.2
750	30	2,455	-5.1	62	233	22.5
700	30	3,000	-8.3	62	239	22.2
650	30	3,564	-11.8	61	238	26.4
600	30	4,182	-15.0	56	246	30.1
550	30	4,827	-18.7	54	246	35.9
500	30	5,542	-22.9	52	244	38.1
450	30	6,294	-28.1	52	240	46.0
400	30	7,143	-34.1	51	248	45.5
350	30	8,065	-40.6		246	48.2
300	29	9,096	-47.7		253	52.5
250	29	10,281	-54.1		245	52.5
200	27	11,695	-57.1		249	47.0
175	27	12,542	-56.0		250	39.6
150	27	13,523	-55.5		254	34.4
125	26	14,682	-55.1		252	28.8
100	26	16,108	-55.0		263	21.4
80	26	17,534	-55.0		271	15.3
60	22	19,388	-53.2		289	7.8
50	22	20,565	-52.2		349	8.0
40	20	22,009	-51.9		17	8.4
30	18	23,890	-50.5		40	14.2
25	15	25,095	-49.9		54	15.0
20	13	26,578	-49.0		58	17.5
15	11	28,458	-48.6		50	25.8
10	8	31,164	-48.0			
7						

TOPEKA, KANS. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind: Direction	Wind: Speed
SURFACE	31	269	0.4	82	255	1.6
1,000	31	159				
950	31	574	3.3	65	263	2.3
900	31	1,012	2.8	55	279	6.8
850	31	1,474	2.0	49	287	10.7
800	31	1,962	.3	50	286	13.2
750	31	2,476	-1.8	48	286	16.5
700	31	3,024	-4.1	46	286	18.8
650	31	3,601	-7.2	39	292	20.6
600	31	4,226	-10.8		292	23.7
550	31	4,885	-14.9		287	26.0
500	31	5,606	-19.6	33	288	29.0
450	31	6,368	-25.0		285	31.1
400	31	7,225	-31.6		286	33.8
350	31	8,157	-38.4		287	35.6
300	31	9,199	-46.0		283	38.7
250	31	10,394	-53.0		281	42.7
200	30	11,816	-57.5		280	44.3
175	27	12,655	-58.2		282	48.6
150	26	13,618	-58.3		284	46.8
125	23	14,751	-58.5		287	41.4
100	22	16,153	-60.1		290	35.9
80	20	17,541	-59.9		288	25.6
60	15	19,355	-58.1		296	16.1
50	15	20,504	-57.8		313	10.7
40	13	21,924	-56.8		325	9.1
30	8	23,747	-55.3			
25	5	24,970	-53.5			
20						
15						
10						
7						

TUCSON, ARIZ. (926 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind: Direction	Wind: Speed
SURFACE	31	781	6.9	70	147	5.1
1,000	31	148				
950	31	569				
900	31	1,022	10.6	51	142	6.2
850	31	1,497	8.9	46	161	3.7
800	31	1,997	6.7	41	212	1.9
750	31	2,520	4.2	37	243	2.7
700	31	3,084	1.2	36	265	5.2
650	31	3,671	-2.0	35	280	9.5
600	31	4,309	-5.9	35	282	14.2
550	31	4,977	-10.4		277	17.3
500	31	5,713	-15.3		277	19.8
450	31	6,494	-21.0		280	24.7
400	31	7,362	-27.2		276	31.7
350	31	8,310	-34.2		269	37.7
300	31	9,373	-41.5		269	45.5
250	31	10,587	-49.9		270	51.1
200	31	12,021	-56.7		269	60.4
175	29	12,860	-59.5		269	60.2
150	28	13,816	-62.0		270	54.6
125	26	14,942	-63.9		272	43.9
100	21	16,297	-64.7		274	31.1
80	15	17,659	-63.7		280	21.8
60	14	19,432	-63.3		276	9.3
50	13	20,555	-61.9		335	4.1
40	13	21,943	-59.7		50	5.1
30	13	23,754	-56.9		62	11.5
25	13	24,913	-55.5		66	12.0
20	10	26,343	-54.0		84	17.3
15	9	28,192	-52.2			
10						
7						

WASHINGTON, D. C. (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind: Direction	Wind: Speed
SURFACE	31	88	2.5	75	296	1.6
1,000	31	163			270	1.6
950	31	578	3.4	58	284	8.2
900	31	1,017	1.6	55	287	11.7
850	31	1,477	.1	57	281	14.8
800	31	1,962	-1.4	54	278	17.3
750	31	2,476	-3.4	54	27[illegible]	21.0
700	31	3,018	-6.0	51	269	24.3
650	31	3,596	-8.8	51	268	29.9
600	31	4,213	-12.2	50	270	33.4
550	31	4,870	-15.8	51	269	37.9
500	31	5,585	-20.8	47	269	41.8
450	31	6,351	-26.0	41	268	48.0
400	31	7,199	-32.0	38	268	50.9
350	31	8,129	-38.8		267	53.2
300	31	9,172	-45.9		265	62.0
250	31	10,366	-52.8		270	67.4
200	31	11,791	-57.3		266	65.5
175	30	12,632	-57.5		266	57.5
150	30	13,604	-58.2		269	53.0
125	30	14,748	-60.0		265	48.4
100	30	16,136	-61.2		264	38.5
80	30	17,523	-61.0		264	30.5
60	30	19,315	-60.0		262	22.5
50	30	20,456	-59.2		270	21.6
40	29	21,853	-58.4		269	21.2
30	27	23,672	-56.8		282	21.0
25	25	24,828	-55.4		286	19.8
20	23	26,244	-54.9		282	25.3
15	23	28,090	-53.3		274	30.9
10	14	30,727	-50.6		279	39.1
7	8	32,978	-48.2			

WINNEMUCCA, NEV. (874 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind: Direction	Wind: Speed
SURFACE	31	1,310	-9.1	68	129	1.4
1,000	31	249				
950	31	652				
900	31	1,079				
850	31	1,529	-.3	54	125	2.7
800	31	2,016	1.2	42	255	2.9
750	31	2,529	-.2	37	274	6.0
700	31	3,084	-2.8	36	286	7.8
650	31	3,661	-6.5	36	289	10.1
600	31	4,289	-10.1	35	283	14.0
550	31	4,949	-14.0	37	277	15.9
500	31	5,672	-19.0	38	280	16.9
450	31	6,441	-24.9		279	18.1
400	31	7,294	-31.3		265	22.2
350	31	8,226	-38.4		261	26.8
300	31	9,269	-46.1		272	31.7
250	31	10,460	-54.0		271	36.1
200	31	11,872	-59.6		272	40.2
175	31	12,705	-60.3		268	37.9
150	31	13,668	-59.9		270	31.5
125	31	14,807	-59.9		270	26.8
100	30	16,197	-60.6		273	20.4
80	30	17,587	-59.8		274	16.5
60	30	19,388	-58.9		312	6.0
50	30	20,535	-57.9		359	6.0
40	30	21,946	-56.8		34	6.6
30	30	23,775	-55.3		51	14.8
25	30	24,941	-54.5		55	18.5
20	28	26,370	-53.5		46	21.0
15	26	28,221	-52.0		49	25.1
10	20	30,860	-50.8		34	28.8
7	9	33,140	-51.3			

YAKUTAT, ALASKA (997 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind: Direction	Wind: Speed
SURFACE	31	12	0.3	89	104	6.4
1,000	31	-13			115	4.3
950	31	398	-.4	80	151	5.4
900	31	830	-3.2	82	180	7.2
850	31	1,281	-6.3	82	194	9.9
800	31	1,753	-9.4	80	194	12.6
750	31	2,249	-12.6	73	201	15.2
700	31	2,772	-16.1	69	213	15.5
650	31	3,325	-20.0	65	218	21.2
600	31	3,916	-24.0	64	226	22.2
550	31	4,541	-28.2	60	224	25.3
500	31	5,224	-32.7	57	220	28.2
450	31	5,951	-37.9	58	229	32.6
400	31	6,761	-43.4		215	35.9
350	31	7,650	-48.4			
300	31	8,657	-51.7			
250	31	9,840	-50.8			
200	31	11,299	-49.6			
175	31	12,175	-48.7			
150	31	13,191	-47.9			
125	31	14,395	-47.7			
100	31	15,870	-47.5			
80	30	17,345	-46.6			
60	29	19,255	-46.6			
50	29	20,467	-45.4			
40	28	21,962	-44.9			
30	25	23,884	-44.7			
25	24	25,099	-44.5			
20	22	26,585	-44.6			
15	14	28,507	-44.5			
10	6	31,148	-48.3			
7						

YUCCA FLAT, NEV. (884 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind: Direction	Wind: Speed
SURFACE	30	1,196	-0.6	52	319	2.9
1,000	30	195				
950	30	610				
900	30	1,050				
850	30	1,514	5.6	37	6	7.2
800	30	2,008	3.7	37	17	4.9
750	30	2,530	1.7	37	31	2.1
700	30	3,084	-.6	35	317	3.3
650	30	3,667	-4.1	36	304	6.2
600	30	4,300	-8.0		307	9.9
550	30	4,963	-12.4		302	13.2
500	30	5,693	-17.3		303	15.9
450	30	6,463	-22.8		297	19.8
400	30	7,329	-29.6		279	20.4
350	30	8,267	-36.8		272	23.3
300	30	9,317	-44.6		268	28.8
250	30	10,516	-52.4		272	36.7
200	29	11,932	-58.3		278	40.0
175	28	12,762	-59.6		275	40.2
150	28	13,727	-60.2		274	35.9
125	28	14,863	-61.1		272	31.9
100	28	16,248	-61.9		277	27.0
80	27	17,624	-62.2		285	16.5
60	26	19,411	-60.4		297	8.5
50	2[illegible]	20,551	-59.5		346	4.9
40	26	21,951	-58.3		46	7.2
30	22	23,768	-56.2		62	12.2
25	20	24,932	-54.9		71	13.4
20	16	26,356	-53.5		63	13.6
15	12	28,204	-51.2		55	15.7
10						
7						

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

DECEMBER 1959

ALBUQUERQUE, N. MEX. †

Date	Sun's zenith distance								
	A. M.					P. M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	Air mass								
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19
Dec.									
1------	1.04	1.12	1.16	1.39	1.39	1.22	1.16	1.01	0.93
2------	1.06	1.15	1.28	1.40	1.36	1.39	1.30	1.21	1.14
4------	1.03	1.10	1.24	1.39	1.41	----	1.07	----	----
5------	----	----	----	----	1.42	1.32	1.16	1.08	1.00
6------	1.08	1.18	1.27	1.42	1.44	1.41	1.24	1.09	.96
7------	1.09	1.18	1.28	1.38	1.41	1.39	----	----	----
8------	----	----	----	----	----	----	1.25	1.13	.98
10-----	----	----	----	----	----	----	1.16	----	----
11-----	----	----	----	----	----	----	1.23	1.09	1.01
12-----	1.05	1.15	1.23	1.39	----	----	----	----	----
13-----	1.02	1.10	1.21	----	----	----	1.25	1.13	1.04
16-----	----	----	----	----	1.37	1.29	1.21	1.10	1.01
17-----	1.03	1.11	1.21	1.33	1.37	1.34	1.18	1.11	1.04
18-----	----	----	1.23	1.34	1.31	1.35	1.21	----	----
19-----	----	1.12	1.22	1.35	1.32	----	----	----	----
20-----	----	----	----	1.33	1.34	1.32	.88	----	----
23-----	----	----	----	1.22	----	----	----	----	----
28-----	1.03	1.12	1.20	1.38	1.40	1.40	----	----	----
29-----	----	1.01	1.20	1.36	1.36	1.33	1.13	1.01	.92
30-----	1.08	1.17	1.27	1.39	1.38	----	----	----	----
31-----	----	1.02	1.11	----	----	----	1.12	----	.95
Averages	1.05	1.13	1.23	1.38	1.38	1.35	1.20	1.10	1.00

MADISON, WIS.

Date	Air mass								
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Dec.									
3------	M 0.91	M 1.03	S 1.17	S 1.25	----	----	----	----	----
8------	S 1.10	S 1.18	S 1.30	----	S 1.38	----	S 1.29	S 1.14	----
18-----	1.11	S 1.21	S 1.31	----	----	----	----	----	----
31-----	----	----	----	----	S 1.31	----	----	----	----
Averages	1.04	1.14	1.26	1.25	1.35	----	1.29	1.14	----

OMAHA, NEBR.

Date	Air mass								
	4.78	3.82	2.87	1.91	*	1.91	2.87	3.82	4.78
Dec.									
3------	----	----	----	----	S 1.35	----	----	----	----
8------	S 1.14	S 1.20	S 1.32	----	S 1.42	----	1.27	1.08	0.95
9------	M .98	M 1.17	M 1.23	----	M 1.34	----	----	----	----
Averages	1.06	1.19	1.28	----	1.34	----	1.27	1.08	0.95

MAUNA LOA OBS., HAWAII

Date	Sun's zenith distance								
	A. M.					P. M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
	Air mass								
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Dec.									
2-----	1.31	1.40	1.49	1.59	1.66	1.55	1.46	1.37	1.29
3-----	1.26	1.35	1.44	1.56	1.66	1.57	1.46	1.36	1.28
4-----	1.26	1.35	1.44	1.56	1.61	----	----	----	----
10----	----	----	----	----	1.57	1.48	1.36	1.27	1.19
11----	1.30	1.39	1.48	1.59	1.70	----	----	----	----
12----	1.32	1.40	----	1.59	1.68	1.62	1.51	1.42	1.34
13----	1.36	1.44	1.52	1.62	1.71	1.64	1.54	1.45	1.36
14----	1.33	1.41	1.50	1.60	1.70	1.61	1.49	1.40	1.30
15----	1.37	1.44	1.52	1.63	1.73	1.63	1.54	1.45	1.36
16----	1.35	1.43	1.52	1.63	1.68	----	----	----	----
19----	----	K 1.37	K 1.48	1.59	1.69	1.60	1.47	1.37	1.28
20----	----	----	----	----	----	----	1.43	1.34	1.26
21----	1.28	----	----	1.58	1.66	1.61	1.46	1.37	1.26
22----	1.30	1.39	1.49	1.61	1.72	1.61	1.49	1.40	1.30
26----	1.33	1.42	1.51	1.59	1.65	----	----	----	----
27----	1.29	1.38	1.46	1.58	----	----	1.46	1.38	1.29
28----	1.36	1.42	1.51	1.60	1.67	----	----	----	----
29----	1.31	1.40	1.50	1.60	----	----	----	----	----
30----	1.26	1.36	1.45	1.56	1.65	----	----	----	----
31----	1.25	1.35	1.44	1.56	1.66	1.57	1.46	1.37	1.29
Averages	1.31	1.39	1.48	1.59	1.67	1.59	1.47	1.38	1.29

TUCSON, ARIZ.

Date	Air mass								
	4.56	3.65	2.74	1.83	*	1.83	2.74	3.65	4.56
Dec.									
1-----	H 1.07	H 1.14	H 1.25	H 1.35	1.47	1.41	1.24	1.12	1.04
2-----	1.10	1.18	1.27	1.43	H 1.39	H 1.34	H 1.17	H 1.06	H .96
3-----	----	----	----	----	----	H 1.30	H 1.20	H 1.08	H .99
4-----	H 1.00	H 1.09	H 1.20	H 1.35	H 1.43	H 1.30	H 1.22	H 1.10	H .96
6-----	----	----	----	----	1.47	1.39	1.24	1.12	1.02
16----	H .96	----	----	H 1.33	H 1.39	H 1.34	H 1.19	H 1.08	H .98
17----	----	H 1.05	H 1.19	H 1.33	H 1.43	H 1.36	H 1.18	H 1.03	H .95
18----	1.02	1.12	1.23	1.37	1.41	1.35	1.21	1.10	1.01
26----	1.06	1.16	1.29	1.45	1.49	----	----	----	----
27----	1.07	1.17	1.27	1.40	1.44	1.38	1.27	1.16	1.06
Averages	1.04	1.13	1.24	1.38	1.44	1.35	1.21	1.09	1.00

* Values corresponding to true solar noon.
† Data should be considered doubtful due to moisture in instrument.
H Haze.
K Smoke.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Albuquerque, N.Mex.	Ames, Iowa	Annette, Alaska	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Bethel, Alaska	Bismarck, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island Pacific Area	Caribou, Me.	Charleston, S. C.	Cleveland, Ohio	Columbia, Mo.	Corvallis, Oreg.	Davis, Calif.	Dodge City, Kans.	El Paso, Tex.	Ely, Nev.
Dec. 3-----	151	186	90	358	78	302	68	130	186	201	185	379	---	63	260	154	259	103	234	276	233	169
Dec. 4-----	326	105	0	367	145	297	54	153	193	197	192	88	---	109	316	144	84	34	249	277	357	284
Dec. 5-----	330	60	0	351	139	143	20	130	118	179	90	352	---	94	168	41	258	83	265	292	357	280
Dec. 6-----	330	203	41	335	59	122	57	77	58	188	69	412	---	52	52	19	235	145	261	287	364	272
Dec. 7-----	325	148	17	373	57	319	29	105	92	195	99	---	---	17	331	46	265	45	257	295	336	277
Dec. 8-----	240	209	21	378	105	316	38	181	109	159	120	265	---	48	330	205	216	77	232	204	99	231
Dec. 9-----	113	180	2	307	8	224	47	184	185	118	194	152	---	93	278	200	277	32	154	279	303	186
Average-------	259	156	24	353	84	246	45	137	135	177	136	275	---	68	248	116	228	74	236	273	293	243
Dec. 10-----	128	107	53	304	23	276	14	173	199	162	210	194	---	132	261	201	86	29	212	133	267	263
Dec. 11-----	264	101	12	319	59	52	11	171	151	68	179	310	---	154	206	16	44	51	207	285	342	241
Dec. 12-----	289	57	78	195	79	98	47	167	19	59	19	362	---	41	25	6	72	30	155	286	219	202
Dec. 13-----	312	59	1	369	76	284	29	125	25	184	23	252	---	51	313	---	55	101	261	259	341	91
Dec. 14-----	71	117	30	357	---	298	30	178	205	139	212	---	---	143	320	142	147	60	224	52	203	269
Dec. 15-----	114	150	48	203	23	194	13	125	132	158	123	104	---	86	219	103	177	141	239	133	134	227
Dec. 16-----	268	153	58	286	133	146	50	142	166	170	175	192	---	72	134	171	84	112	215	36	311	274
Average-------	207	106	40	290	66	193	28	154	128	134	134	236	---	97	211	106	95	75	216	169	259	224
Dec. 17-----	315	182	26	163	100	30	55	169	96	100	83	361	(664)	152	78	57	7	105	134	268	328	175
Dec. 18-----	308	189	25	292	---	156	54	47	65	146	74	375	644	175	27	42	256	127	230	302	347	133
Dec. 19-----	276	65	12	265	---	289	58	61	24	152	30	276	645	209	172	137	218	56	225	183	285	219
Dec. 20-----	289	44	27	176	118	286	15	58	205	160	206	361	638	138	306	115	149	50	73	300	331	209
Dec. 21-----	102	(108)	4	354	109	275	46	53	181	191	182	329	645	169	86	57	29	31	207	177	225	152
Dec. 22-----	209	13	12	308	110	200	10	148	93	152	76	350	620	153	(266)	110	76	87	127	43	310	202
Dec. 23-----	227	64	49	158	47	129	27	62	198	151	199	339	553	171	137	111	14	65	25	283	296	239
Average-------	247	(95)	22	245	97	195	38	85	123	150	121	341	(630)	167	(153)	90	107	74	146	222	303	190
Dec. 24-----	163	64	51	331	36	144	21	91	186	14	184	261	616	161	115	88	44	45	51	61	141	75
Dec. 25-----	130	19	23	173	133	183	24	34	147	135	157	300	---	208	282	61	118	109	255	48	306	111
Dec. 26-----	175	24	0	238	121	223	50	44	69	189	84	160	---	77	244	24	70	141	230	146	307	285
Dec. 27-----	116	(13)	56	282	38	133	29	62	145	184	148	290	607	191	168	75	71	74	162	254	352	308
Dec. 28-----	320	(17)	8	209	139	195	22	40	19	178	20	365	591	117	121	64	28	160	270	234	315	194
Dec. 29-----	320	49	25	359	70	64	10	69	34	165	42	361	---	44	310	20	19	91	220	311	194	290
Dec. 30-----	317	201	91	324	38	30	9	98	107	97	125	65	549	96	281	141	96	63	82	---	105	276
Dec. 31-----	279	227	98	214	160	283	6	106	138	144	120	120	---	111	308	116	273	64	230	55	338	232
Average-------	228	(77)	44	266	92	157	21	68	106	138	110	240	591	126	229	74	90	93	188	158	257	221

1959	Flaming Gorge, Utah	Fort Worth, Tex.	Fresno, Calif.	Gainesville, Fla.	Glasgow, Mont.	Grand Junction, Colo.	Great Falls, Mont.	Greensboro, N. C.	Griffin, Ga.	Hartford, Conn.	Hatteras, N. C.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.	Lake Charles, La.	Lander, Wyo.
Dec. 3-----	---	351	204	308	86	249	86	277	34	141	62	244	355	74	361	247
Dec. 4-----	---	162	199	390	133	276	144	288	347	236	291	175	334	188	133	199
Dec. 5-----	---	352	205	356	79	285	127	163	214	86	184	25	370	108	80	239
Dec. 6-----	---	362	222	112	106	274	67	46	133	42	155	95	364	47	367	237
Dec. 7-----	---	357	202	398	118	272	148	303	390	37	342	244	245	3	355	241
Dec. 8-----	270	341	193	396	---	243	134	271	373	154	349	186	194	66	349	257
Dec. 9-----	257	160	149	368	166	216	115	271	193	206	331	247	267	186	201	160
Average-------	---	298	196	333	115	259	117	231	241	129	245	174	304	96	264	226
Dec. 10-----	117	45	201	330	160	50	---	219	349	246	305	71	331	221	139	201
Dec. 11-----	248	138	182	333	126	154	66	217	73	68	107	13	335	37	20	193
Dec. 12-----	252	361	147	74	148	170	136	54	126	13	53	16	336	7	356	238
Dec. 13-----	219	242	215	379	154	199	104	257	345	42	325	103	276	---	351	161
Dec. 14-----	239	112	225	368	103	315	33	289	360	248	335	102	345	215	244	242
Dec. 15-----	205	26	231	245	89	244	66	239	250	148	252	149	334	86	80	195
Dec. 16-----	275	56	221	259	---	259	135	223	186	211	314	153	333	169	69	260
Average-------	222	140	203	284	130	199	90	214	241	139	242	87	327	122	180	213
Dec. 17-----	201	85	166	243	163	220	49	182	40	159	146	18	304	48	336	173
Dec. 18-----	135	338	158	104	---	143	113	24	226	37	62	168	267	20	211	167
Dec. 19-----	252	354	199	96	170	233	122	270	342	70	47	228	266	75	358	237
Dec. 20-----	278	223	78	203	135	257	140	249	354	237	327	77	73	110	289	239
Dec. 21-----	114	282	165	225	118	49	129	221	347	188	69	280	300	70	350	154
Dec. 22-----	213	106	108	--	(60)	114	(123)	274	291	192	---	170	167	145	168	229
Dec. 23-----	---	57	113	197	(102)	163	97	178	166	245	263	126	170	189	117	163
Average-------	199	207	141	178	(125)	169	(111)	200	252	161	152	153	221	94	261	194
Dec. 24-----	138	79	88	10	---	97	89	68	236	218	257	49	57	168	160	206
Dec. 25-----	149	119	225	30	89	91	101	171	176	71	308	92	328	92	178	178
Dec. 26-----	127	90	231	29	45	83	50	231	274	70	289	22	342	49	85	113
Dec. 27-----	264	281	193	35	24	250	141	243	204	92	305	152	327	15	130	251
Dec. 28-----	205	357	208	15	79	249	86	69	209	23	122	23	329	7	344	224
Dec. 29-----	266	345	228	38	92	264	123	144	144	67	277	28	310	2	321	261
Dec. 30-----	203	288	217	35	---	269	52	---	124	52	282	71	343	92	190	248
Dec. 31-----	160	25	245	30	---	116	70	291	349	152	217	154	359	33	74	110
Average-------	189	198	204	28	66	178	89	174	214	93	257	74	300	57	185	199

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1959	Laramie, Wyo.	Las Vegas, Nev.	Lexington, Ky.	Little Rock, Ark.	Los Angeles, Calif.	Los Angeles, Calif. (urban)	Manhattan, Kans.	Matanuska, Alaska	Mauna Loa, Hawaii	Medford, Oreg.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	North Omaha, Nebr.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Page, Ariz.
Dec. 3	230	310	247	315	271	303	260	41	577	180	353	218	281	190	153	242	255	225	316
Dec. 4	179	302	266	82	254	275	167	9	576	151	413	---	258	208	197	148	230	171	286
Dec. 5	99	316	98	266	267	297	212	7	320	192	333	---	63	94	114	74	130	316	327
Dec. 6	215	307	62	227	303	324	94	8	200	191	365	---	71	37	15	175	39	309	317
Dec. 7	217	243	137	268	143	163	234	24	244	169	368	---	304	67	21	252	180	314	308
Dec. 8	227	214	256	267	81	84	221	11	174	139	402	---	300	136	163	252	290	219	262
Dec. 9	129	173	320	120	---	209	235	29	329	97	364	---	272	194	206	234	234	257	86
Average	185	266	198	221	220	236	203	19	346	160	371	---	221	132	124	197	194	259	272
Dec. 10	95	274	143	40	200	226	136	12	550	98	302	---	141	220	224	141	169	86	221
Dec. 11	236	283	35	19	238	288	90	11	562	198	353	336	21	95	35	94	35	255	302
Dec. 12	220	266	26	293	210	289	215	18	575	53	387	335	15	26	11	204	76	303	249
Dec. 13	155	233	25	244	256	300	193	16	581	182	323	327	45	55	15	158	78	148	187
Dec. 14	181	291	187	137	225	288	107	14	575	130	366	131	251	225	230	175	260	62	294
Dec. 15	149	276	246	29	232	267	159	10	584	38	261	310	128	180	134	231	183	33	292
Dec. 16	216	---	114	17	225	267	69	15	576	21	344	51	58	194	184	157	141	33	301
Average	179	271	111	111	227	275	138	14	572	103	334	248	94	142	119	166	135	131	264
Dec. 17	212	267	45	129	195	245	156	5	434	71	335	246	33	123	101	197	69	22	284
Dec. 18	123	249	51	271	221	244	220	7	449	42	378	340	19	54	39	127	38	306	230
Dec. 19	214	158	290	314	135	142	42	8	561	54	360	335	299	30	---	121	269	298	254
Dec. 20	209	97	141	149	42	47	223	5	479	44	386	274	127	229	---	100	114	296	242
Dec. 21	52	196	50	291	235	224	219	9	557	34	272	136	240	180	137	80	199	236	53
Dec. 22	165	170	277	196	104	119	27	5	581	47	292	315	248	115	197	19	219	113	119
Dec. 23	94	165	121	62	137	160	85	3	485	59	102	329	126	219	209	104	168	63	84
Average	153	186	139	202	153	169	139	6	507	50	303	282	156	136	137	107	154	191	181
Dec. 24	179	34	132	137	51	40	113	17	403	48	273	91	185	193	138	85	65	78	69
Dec. 25	164	178	138	123	223	212	22	9	238	160	333	68	86	145	59	20	184	47	140
Dec. 26	47	312	63	32	277	299	127	30	419	122	290	326	68	48	68	93	195	55	303
Dec. 27	209	306	163	116	235	267	45	8	524	93	322	344	57	112	29	22	113	63	314
Dec. 28	205	211	65	123	212	204	71	13	447	61	180	351	51	18	17	55	153	298	266
Dec. 29	124	294	54	200	222	282	87	20	445	65	357	215	56	42	31	123	66	306	(328)
Dec. 30	140	287	68	311	203	195	183	19	560	59	400	261	50	72	169	209	34	293	(320)
Dec. 31	76	173	157	226	286	307	104	7	561	116	359	252	319	177	168	221	194	77	200
Average	143	224	105	159	214	226	94	15	450	91	314	239	109	101	85	103	126	152	(242)

1959	Portland, Me.	Pullman, Wash.	Rapid City, S. Dak.	Riverside, Calif.	St. Cloud, Minn.	Salt Lake City, Utah	San Antonio, Tex.	Santa Maria, Calif.	Sayville, N. Y.	Seattle-Tacoma, Wash.	Shreveport, La.	Spokane, Wash.	State College, Pa.	Stillwater, Okla.	Tampa, Fla.	Tucson, Ariz.	Washington, D. C. (Obs & Test Dev Ctr)
Dec. 3	171	167	207	338	178	150	345	278	214	47	335	60	177	282	332	330	221
Dec. 4	179	196	(186)	330	136	266	140	269	222	100	89	59	208	111	399	---	248
Dec. 5	71	131	(150)	320	56	244	374	278	192	118	135	52	119	271	369	--	123
Dec. 6	70	141	(190)	353	202	239	380	---	32	32	342	101	47	280	78	362	51
Dec. 7	72	64	(185)	177	66	241	371	165	13	97	330	56	42	288	225	243	144
Dec. 8	146	198	(215)	98	199	228	297	260	139	103	296	92	34	221	387	166	210
Dec. 9	204	56	(210)	218	155	182	83	148	181	28	161	72	216	250	375	---	266
Average	130	136	(192)	262	142	221	284	233	142	75	241	70	120	243	309	275	180
Dec. 10	136	90	(180)	227	149	107	144	251	211	31	79	35	207	74	352	151	221
Dec. 11	195	68	(205)	316	37	220	159	262	42	66	43	56	62	128	370	344	136
Dec. 12	15	23	(210)	333	50	213	329	266	16	77	332	55	18	268	161	240	21
Dec. 13	39	197	(155)	252	86	54	351	271	38	63	248	181	31	164	323	342	122
Dec. 14	203	42	(210)	324	36	252	106	270	231	17	198	46	193	62	373	203	258
Dec. 15	120	103	(138)	326	138	204	182	260	151	16	45	63	180	33	261	322	197
Dec. 16	149	127	(196)	308	159	231	188	251	189	122	75	125	191	24	320	340	203
Average	122	93	(185)	298	94	183	208	262	126	56	146	80	126	108	309	278	165
Dec. 17	179	69	(80)	283	114	209	235	196	89	79	246	64	63	80	337	339	52
Dec. 18	138	127	(168)	289	159	108	144	159	36	139	164	111	7	269	21	345	18
Dec. 19	67	154	(172)	202	136	200	353	242	78	100	329	60	184	237	116	307	215
Dec. 20	202	129	(202)	60	175	211	261	74	222	40	189	56	130	---	277	---	204
Dec. 21	191	160	(149)	208	145	46	252	221	143	53	313	65	40	222	167	---	139
Dec. 22	44	137	(212)	---	25	77	147	82	192	65	176	78	216	99	355	323	203
Dec. 23	238	100	(168)	131	80	224	242	--	227	(59)	127	45	164	45	120	191	187
Average	151	125	(164)	196	119	154	233	162	141	(76)	221	68	115	146	199	301	146
Dec. 24	188	29	(172)	62	67	54	112	77	211	41	154	27	177	80	131	48	137
Dec. 25	195	112	(114)	175	24	36	57	236	86	61	259	62	82	41	257	130	73
Dec. 26	177	216	(113)	352	16	281	75	266	101	133	83	216	44	54	341	358	103
Dec. 27	171	90	(95)	314	18	280	358	210	44	55	189	68	73	69	360	---	200
Dec. 28	43	164	(177)	263	48	208	346	264	26	110	308	145	23	89	230	270	56
Dec. 29	98	143	(189)	347	121	238	293	169	56	59	290	48	21	138	353	200	20
Dec. 30	263	45	(187)	304	227	173	158	157	109	48	297	55	181	273	357	211	133
Dec. 31	107	109	(76)	340	210	135	203	205	186	130	110	113	134	79	271	132	157
Average	155	113	(140)	270	91	176	200	198	102	79	211	92	92	103	287	193	110

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

DECEMBER 1959

Date	Bismarck, N. Dak.	Caribou, Me.	Ft. Worth, Tex.	Green Bay, Wis.	Washington, D.C. (Silver Hill Obs.)
DEC.					
1	---	.310	.307	---	.303
2	---	.300	.333	.318	.323
3	.289	---	.297	---	.321
4	.353	.271	.284	---	.299
5	.386	.278	.303	---	---
6	---	---	.332	---	---
7	---	---	.291	.288	.443
8	.344	---	.287	.350	.295
9	.323	---	---	.323	.332
10	---	---	---	.314	.322
11	.293	.326	.315	---	.321
12	.327	---	.302	---	---
13	---	---	.284	.307	.345
14	.346	---	---	---	.318
15	---	---	---	---	.320
16	---	---	---	---	.334
17	---	.281	---	---	---
18	---	.247	.292	---	---
19	---	.324	.293	.326	.290
20	---	---	---	.353	.312
21	---	---	.306	.390	.373
22	.387	---	---	---	---
23	---	---	---	---	.370
24	.345	---	---	---	---
25	---	---	---	---	---
26	---	---	---	---	---
27	---	.373	---	---	.334
28	---	---	.324	---	---
29	---	---	.322	.380	---
30	---	---	.334	---	.374

The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

CONDENSED CLIMATOLOGICAL SUMMARY

DELAYED DATA

Section	Temperature: Monthly extremes: Station	Highest	Date	Station	Lowest	Date	Precipitation: Monthly extremes: Station	Greatest	Station	Least
		°F			°F			In.		In.
June 1959										
Alaska	Talkeetna FAA AP	89	18	Barrow WB AP	15	3	Annette WB AP	6.33	Bettles FAA AP	T
July 1959										
Alaska	Petersburg	83	11	3 Stations	27	31+	Cordova	21.49	Port Heiden	0.27
August 1959										
Alaska	Eielson Field	83	14	Barter Island WB AP	24	6	Little Port Walter	16.31	2 Stations	.33
Hawaii	Makaha Valley	94	5	Mauna Loa Slope Obs.	31	22	Paakea	23.63	Puako	.00
September 1959										
Alaska	Eklutna Project	71	29	Anaktuvuk Pass	2	27	Little Port Walter	18.70	Chitina	T
Hawaii	Kaanapali	94	8+	Mauna Loa Slope Obs.	30	22	Kahana	21.45	12 Stations	.00
October 1959										
Alaska	Juneau	73	5	Chitina	-20	18	Cordova	31.61	King Salmon WB AP	.20
Hawaii	2 Stations	92	30+	Mauna Loa Slope Obs.	29	29	Piihonua	12.40	6 Stations	.00
November 1959										
Hawaii	Kaanapali	90	17+	Mauna Loa Slope Obs.	29	24	Pepeekeo AF	33.00	Ahua Umi	.36

See reference notes with current data.

C O R R E C T I O N S

Fairbanks, Alaska, East Lansing, Mich., and Phoenix, Ariz. — Solar Radiation Data doubtful and should be deleted for July through November 1959.

Month: August 1959

page 301: Bethel, Alaska — departure from normal temperature should be +1.7°.

CLIMATOLOGICAL DATA

DELAYED DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb.	°F	°F	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
Johnston Island																																
August 1959	7	1010.8	1011.5	85	76	80.8	----	88	21+	71	24	0	0	73	78	15.80	----	8.02	18	0	0.0	0	14.3	---	41	E	24	1	19	11	6.9	66
September 1959	7	1010.5	1011.2	86	77	81.2	----	87	22+	73	11+	0	0	74	80	2.02	----	.63	19	0	.0	0	13.8	---	31	NE	18	0	19	11	6.9	47

STORM SUMMARY

DELAYED DATA

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				‡ HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				∅ ALL OTHER			
								†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE				†DAMAGE	
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	PROP-ERTY	CROPS	DEATHS	INJURIES	PROP-ERTY	CROPS	DEATHS	INJURIES	PROP-ERTY	CROPS	DEATHS	INJURIES	PROP-ERTY	CROPS	DEATHS	INJURIES	PROP-ERTY	CROPS	DEATHS	INJURIES	PROP-ERTY	CROPS
May 1959																													
Virginia	1	1	0	0	7	0	0	4		0	0	3		0	0	3													
June 1959																													
Montana	1	1	0	0	3	0	0	0	3																				
Virginia						0	0		4	0	0	3		0	0	3													
July 1959																													
Florida														1	1	0	0												
Virginia	4	2	0	0	5					0	0	3		0	0	5													
August 1959																													
Connecticut	1	1	0	0	1																								
Maine *	5	4	0	0	4					0	1	5	3	1	6	5	0									0	0	5	5

* These are corrected data.
Also see reference notes with current data.

RAWINSONDE DATA

Average monthly values

DELAYED DATA

1/ CAMAGUEY, CUBA (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	13	122	19.0		46	2.5
1,000	13	146	19.4		52	4.3
950	13	600	20.1		58	12.4
900	13	1,056	17.4		65	8.4
850	13	1,542	15.4		59	3.1
800	13	2,055	13.1		89	3.9
750	13	2,599	10.1		210	1.6
700	13	3,167	7.4		214	3.5
650	13	3,786	4.2		227	6.6
600	13	4,422	1.0		240	7.8
550	13	5,116	- 3.5		233	13.0
500	13	5,864	- 8.0			
450	13	6,687	-13.5			
400	13	7,563	-19.5			
350	13	8,543	-26.8			
300	13	9,636	-35.5			
250	10	10,881	-45.9			
200	10	12,332	-56.7			
175	10	13,170	-61.8			
150	10	14,115	-65.5			
125	10	15,218	-68.3			
100	10	16,544	-73.2			
80	10	17,844	-74.8			
60	8	19,556	-67.4			
50	8	20,671	-62.0			
40	6	22,054	-56.5			
30						
25						
20						
15						

2/ CAMAGUEY, CUBA (1003 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	24	122	17.1	94	50	2.7
1,000	24	143	17.5	92	55	4.7
950	24	598	18.8	79	74	15.7
900	24	1,047	16.4	76	96	11.9
850	24	1,532	14.2	67	98	6.0
800	24	2,043	12.6	55	92	2.3
750	24	2,593	9.8	49	197	2.7
700	24	3,153	7.1	36	218	2.1
650	23	3,767	4.1		280	4.1
600	23	4,406	.3		260	11.7
550	23	5,100	- 3.3		262	17.5
500	23	5,845	- 8.5		258	21.0
450	23	6,665	-13.9		258	27.4
400	23	7,539	-20.6		263	29.7
350	23	8,514	-27.8		263	34.6
300	23	9,604	-36.2		264	43.5
250	23	10,847	-45.3		260	51.1
200	22	12,307	-55.1		252	54.4
175	22	13,153	-59.4			
150	22	14,109	-63.3			
125	21	15,216	-67.9			
100	20	16,535	-73.7			
80	18	17,833	-74.7			
60	17	19,533	-68.3			
50	16	20,642	-62.6			
40	15	22,034	-58.1			
30	14	23,859	-54.0			
25	13	25,034	-52.4			
20	9	26,469	-50.8			
15						

3/ CAMAGUEY, CUBA (1002 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	5	122	18.4			
1,000	5	142	18.5			
950	5	592	20.7			
900	5	1,054	17.9			
850	5	1,541	14.8			
800	5	2,053	12.7			
750	5	2,600	12.1			
700	5	3,170	10.4			
650	5	3,796	8.1			
600	5	4,438	3.7			
550	5	5,132	- 1.5			
500	5	5,889	- 7.5			
450	5	6,706	-14.1			
400	5	7,582	-21.6			
350	5	8,551	-29.4			
300	5	9,636	-37.3			
250	5	10,882	-42.6			
200	5	12,370	-50.8			
175	5	13,230	-56.0			
150	5	14,196	-63.0			
125	5	15,300	-70.2			

4/ FT. HUACHUCA, ARIZ. (855 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,428	13.0	33	205	3.3
1,000	30	82				
950	30	522				
900	30	990				
850	30	1,478	13.9	30	205	3.5
800	30	1,991	13.2	27	204	5.8
750	30	2,526	9.6	25	218	10.3
700	30	3,098	5.9		229	14.8
650	30	3,693	2.2		230	17.5
600	30	4,342	- 2.3		235	19.0
550	30	5,019	- 7.0		239	22.0
500	30	5,764	-12.0		241	25.8
450	30	6,551	-17.9		246	28.4
400	30	7,430	-24.6		249	30.7
350	30	8,386	-32.5		248	34.6
300	30	9,453	-40.9		249	34.4
250	30	10,668	-50.1		253	39.6
200	30	12,094	-58.9		254	42.7
175	30	12,926	-61.6		256	43.9
150	30	13,881	-61.8		253	43.3
125	30	15,007	-62.8		256	37.7
100	28	16,367	-65.4		255	28.8
80	26	17,726	-64.8		254	17.1
60	26	19,496	-61.1		235	6.2
50	25	20,638	-59.0		181	3.3
40	25	22,047	-56.5			
30	25	23,891	-52.8			
25	24	25,075	-50.6			
20	22	26,549	-47.9			
15	11	28,456	-45.3			

4/ MERIDA, MEXICO (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	21.9	95	98	4.1
1,000	31	120	22.9	88	105	8.9
950	31	565	21.8	82	126	19.0
900	31	1,037	20.0	70	129	16.7
850	31	1,530	17.6	63	125	12.4
800	31	2,047	14.4	64	119	7.0
750	31	2,586	11.2	58	127	6.0
700	31	3,164	8.1	50	129	3.5
650	31	3,766	4.9	43	114	2.7
600	31	4,421	1.0	40	19	.6
550	31	5,110	- 2.8	34	325	3.5
500	31	5,866	- 7.5	34	322	5.1
450	31	6,672	-13.0	31	316	6.8
400	31	7,567	-19.2	32	298	11.9
350	31	8,546	-26.5	33	291	15.2
300	31	9,640	-34.9		285	24.5
250	31	10,886	-44.7		281	31.7
200	31	12,343	-55.6		279	35.6
175	30	13,181	-61.2		277	37.7
150	30	14,127	-65.8		278	30.5
125	30	15,224	-69.7		278	22.0
100	30	16,542	-72.9		301	8.9
80	29	17,850	-72.9		49	8.0
60	29	19,569	-64.7		85	14.8
50	28	20,689	-60.8		85	17.7
40	27	22,093	-56.9		85	21.6
30	25	23,933	-53.0		92	24.7
25	24	25,114	-50.5		91	20.6
20	13	26,588	-46.7			
15						

5/ FT. HUACHUCA, ARIZ. (855 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,428	20.2	37	233	4.9
1,000	30	55				
950	30	505				
900	30	985				
850	30	1,485	21.1	35	224	3.9
800	30	2,009	19.8	33	282	.6
750	30	2,558	15.7	36	197	1.0
700	30	3,142	11.4	39	184	4.3
650	30	3,751	6.4	45	186	8.5
600	30	4,407	1.4	52	195	11.9
550	30	5,095	- 3.7	52	204	12.0
500	30	5,848	- 8.8	45	226	11.3
450	30	6,651	-13.9		244	9.7
400	30	7,542	-19.9		249	12.6
350	30	8,519	-26.8		255	18.1
300	30	9,612	-35.2		258	22.3
250	30	10,858	-44.2		256	31.5
200	30	12,320	-54.3		257	37.3
175	30	13,166	-59.3		255	36.9
150	30	14,120	-64.1		253	33.8
125	29	15,223	-68.1		241	23.7
100	26	16,549	-69.1		241	13.0
80	26	17,883	-68.5		145	3.5
60	26	19,635	-61.7		98	12.0
50	26	20,774	-58.8		95	14.2
40	25	22,182	-56.0		89	17.5
30	25	24,032	-52.0		88	20.4
25	24	25,223	-49.9		91	22.0
20	23	26,694	-46.7		88	22.2
15	19	28,619	-42.9		86	23.5
10	7	31,411	-36.9			

5/ HAVANA, CUBA (1009 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	49	24.8	88	129	3.1
1,000	29	125	24.9	85	127	4.5
950	29	580	23.3	73	145	8.0
900	29	1,047	20.3	71	141	5.8
850	29	1,539	17.2	71	156	7.6
800	29	2,054	14.2	68	170	6.4
750	29	2,599	11.4	58	168	5.4
700	29	3,171	8.4	50	175	4.9
650	29	3,781	4.9	48	207	3.1
600	29	4,429	1.2	50	219	2.5
550	29	5,124	- 2.8	48	250	4.1
500	29	5,873	- 7.4	45	272	4.1
450	29	6,689	-12.4	45	293	5.8
400	29	7,577	-18.4	48	324	8.0
350	29	8,561	-25.2	47	314	9.1
300	29	9,662	-33.7	41	323	7.8
250	29	10,915	-43.7		328	12.8
200	28	12,376	-55.6		328	17.9
175	28	13,215	-61.7		321	20.4
150	25	14,156	-67.5		320	17.9
125	22	15,247	-71.8		334	12.4
100	21	16,565	-72.0		32	12.2
80	21	17,891	-68.7		72	15.9
60	20	19,643	-62.4		83	22.3
50	20	20,780	-58.9		83	25.8
40	18	22,190	-56.2		98	27.6
30	14	24,050	-51.3		96	33.2
25	14	25,242	-49.1		94	25.3
20	12	26,728	-45.2		88	27.4
15	7	28,693	-43.7			
10						

5/ JACKASS FLATS, NEV. (888 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	1,100	20.3	22	23	5.8
1,000	29	52				
950	29	501				
900	29	981				
850	29	1,479	23.0	19	165	5.4
800	29	2,003	19.4	21	195	9.9
750	29	2,546	15.4	24	209	10.5
700	29	3,133	10.9	28	201	9.9
650	29	3,740	6.2	34	189	10.1
600	29	4,397	1.0	36	191	10.9
550	29	5,079	- 3.9		203	11.9
500	29	5,836	- 9.4		217	10.9
450	29	6,635	-14.9		233	15.0
400	29	7,523	-21.8		239	16.7
350	29	8,492	-29.3		244	18.3
300	29	9,575	-37.6		249	20.2
250	29	10,807	-47.0		254	23.5
200	29	12,257	-55.1		251	30.3
175	29	13,104	-58.1		248	31.3
150	29	14,069	-60.7		249	30.5
125	29	15,196	-63.4		245	24.5
100	27	16,561	-65.1		241	14.4
80	25	17,923	-63.6		206	7.2
60	24	19,703	-59.6		116	6.8
50	23	20,852	-57.5		98	11.5
40	22	22,271	-54.8		67	15.5
30	21	24,125	-51.4		86	17.7
25	17	25,324	-49.5		93	20.2
20	14	26,785	-46.8		88	21.2
15	6	28,681	-43.2			
10						

5/ MERIDA, MEXICO (1011 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	11	23.3	97	109	3.7
1,000	30	109	23.8	92	116	9.1
950	30	558	23.0	81	137	20.2
900	30	1,032	21.2	68	140	18.7
850	30	1,527	18.8	60	140	15.3
800	30	2,046	15.7	61	144	13.8
750	30	2,588	12.6	58	144	11.7
700	30	3,168	9.4	53	147	9.9
650	30	3,776	6.0	48	137	8.7
600	30	4,432	2.1	49	127	7.4
550	30	5,123	- 1.7	46	120	6.8
500	30	5,883	- 6.0	48	111	4.9
450	30	6,694	-11.1	46	118	3.7
400	30	7,598	-16.9	41	73	.6
350	30	8,586	-23.9	41	329	3.1
300	30	9,692	-32.3	41	317	7.0
250	30	10,952	-42.3		323	11.5
200	30	12,421	-54.4		302	15.5
175	30	13,264	-60.9		312	17.7
150	30	14,207	-67.4		329	17.1
125	30	15,290	-72.6		350	14.2
100	28	16,594	-73.7		50	16.5
80	28	17,906	-70.6		83	21.6
60	28	19,643	-63.0		84	25.6
50	28	20,773	-59.9		88	30.1
40	27	22,177	-56.7		91	33.4
30	26	24,021	-52.2		92	34.6
25	19	25,217	-48.3		93	35.9
20	14	26,698	-44.8			
15						
10						

5/ YUMA, ARIZ. (991 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	105	25.6	29	75	1.0
1,000	29	49				
950	29	503	28.9	26	254	4.7
900	29	983	26.8	25	239	6.6
850	29	1,484	23.4	26	215	7.0
800	29	2,009	19.5	29	194	8.2
750	29	2,558	15.4	29	188	10.5
700	29	3,141	11.1	31	190	12.2
650	29	3,751	6.3	36	186	12.2
600	29	4,404	1.1	40	188	11.7
550	29	5,095	- 3.5		204	10.5
500	29	5,845	- 8.5		219	12.4
450	29	6,653	-14.3		233	12.4
400	29	7,537	-20.8		241	14.8
350	29	8,510	-28.0		243	18.5
300	29	9,597	-36.5		246	22.7
250	29	10,837	-45.1		245	33.0
200	29	12,296	-54.8		245	38.5
175	29	13,140	-59.6		239	36.1
150	29	14,094	-64.0		245	32.6
125	29	15,202	-67.1		241	26.2
100	29	16,542	-68.4		232	15.0
80	27	17,876	-67.2		202	6.6
60	27	19,630	-62.2		107	11.5
50	25	20,760	-59.1		92	16.1
40	25	22,167	-56.4		87	19.6
30	24	24,007	-53.6		85	23.3
25	24	25,185	-51.0		84	25.1
20	22	26,647	-48.7		84	27.2
15	13	28,566	-44.0		76	27.4
10	5	31,311	-40.2			

6/ FT. HUACHUCA, ARIZ. (858 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	1,428	20.3	69	215	1.9
1,000	29	88				
950	29	533				
900	29	1,011				
850	29	1,515	21.1	62	197	1.9
800	29	2,041	20.0	48	49	2.7
750	29	2,587	16.5	48	64	4.1
700	29	3,178	12.3	53	79	5.6
650	29	3,783	7.6	60	79	6.6
600	29	4,449	2.7	66	81	8.5
550	29	5,132	- 2.0	67	77	10.1
500	29	5,897	- 7.3	64	59	11.7
450	29	6,704	-12.1	59	71	8.4
400	29	7,603	-17.9	50	71	6.2
350	29	8,588	-24.6	40	49	8.4
300	29	9,691	-33.2		28	4.3
250	29	10,946	-43.0		359	3.9
200	29	12,410	-55.0		339	5.2
175	28	13,250	-61.1		321	6.6
150	27	14,195	-67.3		339	4.7
125	26	15,283	-71.3		19	5.8
100	22	16,596	-70.7		65	5.8
80	21	17,929	-66.0		81	11.5
60	20	19,702	-60.3		86	15.7
50	20	20,845	-58.2		84	21.2
40	19	22,261	-55.2		96	24.7
30	16	24,117	-52.1		91	24.9
25	13	25,320	-50.2		91	29.5
20	10	26,795	-46.5		91	30.9
15						
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6/ HILO, HAWAII (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	21.7	88	239	4.9
1,000	31	144	22.7	81	263	3.3
950	31	590	20.0	84	68	4.7
900	31	1,056	17.2	83	78	8.0
850	31	1,543	14.5	82	80	8.2
800	31	2,054	12.4	71	90	10.1
750	31	2,595	10.8	49	88	10.5
700	31	3,167	7.9	35	88	10.3
650	31	3,777	5.0	26	82	9.5
600	31	4,424	2.0		84	4.7
550	31	5,113	- 2.0		67	1.6
500	31	5,872	- 6.4		337	2.3
450	31	6,684	-11.6		309	3.5
400	31	7,581	-17.7		292	7.6
350	31	8,565	-25.0		286	13.0
300	31	9,667	-33.5		282	18.5
250	31	10,921	-43.4		288	29.3
200	31	12,384	-55.1		284	35.4
175	31	13,225	-60.9		283	35.6
150	30	14,172	-66.5		282	31.5
125	30	15,264	-70.3		272	14.0
100	29	16,588	-70.5		105	4.7
80	29	17,918	-68.1		91	21.0
60	29	19,669	-62.5		91	33.8
50	29	20,801	-59.8		90	38.5
40	29	22,203	-56.8		93	40.0
30	26	24,044	-52.4		88	39.6
25	22	25,227	-50.2		88	35.2
20	8	26,710	-47.3			
15						
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6/ JACKASS FLATS, NEV. (891 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	1,100	24.2	26	31	4.1
1,000	31	70				
950	31	520				
900	31	1,004				
850	31	1,512	26.6	22	151	3.7
800	31	2,043	22.8	24	184	8.9
750	31	2,594	18.8	26	204	8.0
700	31	3,188	14.0	31	209	7.0
650	31	3,799	8.7	38	191	6.6
600	31	4,464	3.1	43	181	6.8
550	31	5,150	- 2.1	44	188	7.6
500	31	5,913	- 7.2	40	218	9.7
450	31	6,716	-12.6		242	11.3
400	31	7,617	-18.9		252	13.4
350	31	8,598	-26.1		253	17.3
300	31	9,696	-34.1		248	22.3
250	31	10,949	-43.2		243	27.6
200	31	12,419	-53.5		241	33.0
175	31	13,267	-59.2		244	33.8
150	31	14,220	-64.6		250	29.0
125	31	15,323	-68.6		257	15.7
100	31	16,659	-68.0		233	2.9
80	29	18,012	-64.2		104	5.4
60	28	19,793	-59.1		87	13.6
50	28	20,943	-56.3		89	16.3
40	28	22,369	-53.9		86	20.2
30	24	24,225	-51.5		91	25.8
25	23	25,416	-49.6		88	29.0
20	22	26,886	-47.0		90	30.1
15	18	28,804	-44.4		91	35.0
10	6	31,536	-40.7			

6/ MERIDA, MEXICO (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	22.4	97	99	3.5
1,000	31	135	24.3	87	108	8.7
950	31	585	23.1	77	124	15.5
900	31	1,058	20.9	66	118	13.8
850	31	1,551	18.2	61	113	12.4
800	31	2,069	15.2	59	114	10.7
750	31	2,608	11.8	57	115	9.7
700	31	3,188	8.4	58	116	8.5
650	31	3,795	4.8	59	113	8.2
600	31	4,447	.8	61	100	7.4
550	31	5,136	- 3.0	57	83	8.0
500	31	5,892	- 7.6	54	65	7.8
450	31	6,700	-12.7	53	69	8.7
400	31	7,596	-18.4	45	70	8.4
350	31	8,579	-25.1	35	60	7.0
300	30	9,680	-33.7	34	47	5.2
250	30	10,931	-43.8		8	3.5
200	30	12,392	-55.5		316	4.9
175	30	13,230	-61.8		316	7.6
150	30	14,170	-67.8		339	8.5
125	30	15,259	-69.9		35	8.9
100	30	16,589	-68.8		73	15.3
80	30	17,924	-68.0		86	25.1
60	30	19,673	-62.4		83	34.8
50	30	20,805	-59.1		89	41.8
40	30	22,215	-55.2		95	42.9
30	30	24,069	-50.4		95	35.0
25	28	25,263	-47.9		90	32.4
20	26	26,744	-44.9		89	31.1
15	14	28,678	-43.1		79	35.8
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6/ SAN JUAN, P. R. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	6	25.2	82	116	3.3
1,000	31	151	24.8	78	103	12.4
950	31	598	22.1	77	97	16.3
900	31	1,070	19.3	77	98	17.5
850	31	1,560	16.5	72	98	17.1
800	31	2,075	13.9	64	98	16.5
750	31	2,610	11.2	56	99	15.3
700	31	3,191	8.2	45	98	14.0
650	31	3,795	4.4	42	93	12.6
600	31	4,448	.9	40	83	12.4
550	31	5,137	- 2.6	33	81	9.9
500	31	5,894	- 6.8		74	7.8
450	31	6,702	-12.5		82	4.7
400	31	7,598	-19.1		130	1.4
350	31	8,577	-26.6		201	3.3
300	31	9,670	-35.4		239	4.1
250	31	10,913	-45.4		254	7.0
200	31	12,364	-57.2		262	11.7
175	31	13,200	-61.7		263	13.2
150	30	14,145	-65.4		263	7.4
125	30	15,245	-68.7		184	1.6
100	30	16,569	-72.3		92	12.2
80	30	17,889	-69.3		88	25.8
60	30	19,629	-63.9		84	38.3
50	29	20,755	-60.8		87	41.2
40	28	22,157	-56.6		92	38.1
30	28	24,005	-50.9		93	35.0
25	28	25,201	-47.7		90	31.9
20	25	26,677	-45.2		87	26.6
15	14	28,606	-41.5		83	26.0
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See reference note at end of table

RAWINSONDE DATA

Average monthly values

DELAYED DATA

6/ YUMA, ARIZ. (994 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	105	30.2	45	102	1.4
1,000	29	75				
950	29	532	30.6	37	191	4.5
900	29	1,018	28.4	38	210	6.4
850	29	1,523	25.2	41	217	5.8
800	29	2,053	21.2	46	199	3.3
750	29	2,603	16.9	51	153	2.9
700	29	3,193	12.3	56	136	3.1
650	29	3,803	7.5	61	136	3.3
600	29	4,465	2.7	61	110	3.3
550	29	5,158	-2.7	67	102	3.7
500	29	5,912	-7.9	64	100	3.1
450	29	6,720	-12.4	47	96	2.5
400	29	7,617	-17.9	36	210	.6
350	29	8,601	-24.9		237	2.9
300	29	9,703	-33.4		225	6.4
250	29	10,957	-43.3		215	10.7
200	29	12,422	-55.0		222	15.5
175	29	13,263	-61.2		220	17.3
150	29	14,206	-67.2		225	16.7
125	28	15,294	-71.3		246	5.8
100	26	16,618	-70.6		87	6.4
80	25	17,956	-66.3		84	11.1
60	24	19,722	-60.5		90	19.0
50	24	20,864	-57.8		90	22.3
40	24	22,277	-55.6		88	27.2
30	23	24,122	-51.9		94	29.7
25	22	25,309	-49.9		90	33.4
20	21	26,773	-48.0		89	33.6
15	17	28,668	-45.3		86	36.7
10	9	31,398	-39.1			

7/ FT. HUACHUCA, ARIZ. (858 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	1,428	18.7	85	191	1.0
1,000	29	90				
950	29	535				
900	29	1,010				
850	29	1,509	19.0	80	192	1.2
800	29	2,031	17.6	72	195	.8
750	29	2,575	14.1	73	134	1.4
700	29	3,160	10.3	75	144	3.9
650	29	3,769	6.6	71	158	6.6
600	29	4,427	2.2	70	155	6.4
550	29	5,116	-2.0	69	163	6.4
500	29	5,878	-6.0	64	165	5.1
450	29	6,685	-10.9	55	177	4.1
400	29	7,592	-17.2	50	174	4.7
350	29	8,580	-24.1	48	184	4.9
300	29	9,687	-32.2	45	179	9.7
250	29	10,947	-42.5		188	10.5
200	29	12,417	-54.5		208	11.5
175	29	13,260	-61.0		220	9.9
150	28	14,204	-67.0		228	8.9
125	27	15,292	-70.8		209	4.3
100	24	16,613	-71.3		133	5.8
80	23	17,951	-66.2		97	12.6
60	23	19,718	-60.9		90	20.8
50	22	20,856	-58.2		94	23.7
40	21	22,271	-55.6		89	25.3
30	19	24,121	-52.4		88	24.9
25	16	25,298	-50.2		90	23.9
20	13	26,758	-49.2		85	28.4
15	8	28,646	-45.4			
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7/ JACKASS FLATS, NEV. (891 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	15	1,100	22.4		356	4.7
1,000	15	78				
950	15	525				
900	15	1,005				
850	15	1,512	24.3		182	5.2
800	15	2,039	20.6		199	10.3
750	15	2,588	16.8		208	8.0
700	15	3,176	12.2		190	5.1
650	15	3,781	7.1		139	4.7
600	15	4,444	1.6		119	8.2
550	15	5,129	-3.7		113	8.4
500	15	5,885	-8.5		189	4.5
450	15	6,691	-12.8		263	9.9
400	15	7,587	-18.5		256	15.3
350	15	8,570	-25.1		257	17.7
300	15	9,673	-33.2		250	22.5
250	15	10,931	-42.3		239	25.8
200	15	12,408	-52.5		239	32.8
175	15	13,260	-58.4		238	29.3
150	15	14,216	-64.3		244	24.7
125	15	15,320	-68.2		260	15.7
100	15	16,661	-67.5		249	3.7
80	15	18,017	-63.8		98	4.1
60	15	19,804	-58.9		90	11.9
50	14	20,955	-55.4		92	15.5
40	11	22,378	-53.2		92	18.8
30	9	24,239	-51.3			
25	9	25,426	-50.1			
20	8	26,889	-47.6			
15	5	28,786	-46.4			
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7/ MERIDA, MEXICO (1013 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	22.2	97	111	3.7
1,000	31	122	23.6	88	114	8.5
950	31	570	23.2	76	127	16.5
900	31	1,044	21.0	68	127	14.6
850	31	1,537	18.3	61	126	12.8
800	31	2,056	15.5	56	126	11.5
750	31	2,598	12.4	53	120	11.1
700	31	3,177	9.0	52	115	9.9
650	31	3,785	5.6	51	105	9.3
600	31	4,438	1.7	54	93	9.5
550	31	5,126	-2.5	54	83	9.7
500	31	5,886	-6.8	46	77	11.9
450	31	6,695	-11.8	43	81	12.0
400	31	7,595	-17.4	37	78	12.2
350	31	8,581	-24.6	33	78	13.8
300	31	9,684	-33.2		73	15.7
250	31	10,939	-43.3		72	18.1
200	31	12,402	-55.2		73	19.6
175	31	13,241	-61.4		67	20.4
150	31	14,184	-67.3		64	18.7
125	31	15,271	-70.9		65	20.6
100	31	16,590	-71.1		75	23.1
80	31	17,920	-67.9		87	26.6
60	31	19,671	-61.8		88	35.4
50	31	20,808	-58.6		91	39.2
40	31	22,222	-54.5		95	35.8
30	31	24,082	-50.3		93	31.1
25	30	25,278	-48.1		90	29.7
20	26	26,760	-45.6		82	30.9
15	21	28,687	-42.2		82	34.0
10	10	31,432	-37.3			

7/ YUCCA FLAT, NEV. (880 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	16	1,196	13.8	36	184	2.5
1,000	16	92				
950	16	529				
900	16	996				
850	16	1,490	21.7		198	6.0
800	16	2,012	18.3		201	18.3
750	16	2,557	14.1		205	19.2
700	16	3,139	9.7		203	17.3
650	16	3,744	5.6		206	14.8
600	16	4,399	1.3		214	15.5
550	16	5,084	-3.2		226	15.7
500	16	5,842	-8.0		236	22.3
450	16	6,639	-13.9		238	26.0
400	16	7,537	-20.7		236	30.3
350	16	8,511	-27.7		236	35.0
300	16	9,601	-35.7		235	40.4
250	16	10,846	-44.9		232	45.3
200	16	12,308	-53.1		235	44.7
175	16	13,162	-56.7		233	49.5
150	16	14,131	-61.1		237	39.6
125	16	15,257	-63.5		236	25.6
100	16	16,624	-64.0		220	18.1
80	13	17,997	-61.3		168	3.3
60	12	19,799	-56.5		115	9.9
50	11	20,963	-54.4		104	9.9
40	8	22,398	-52.3			
30	6	24,271	-49.3			
25						
20						
15						
10						

7/ YUMA, ARIZ. (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	105	27.9	56	70	1.7
1,000	31	72				
950	31	528	28.1	52	158	2.9
900	31	1,007	25.5	52	191	6.8
850	31	1,509	22.3	54	197	7.6
800	31	2,033	18.6	59	183	7.0
750	31	2,585	14.4	66	168	6.8
700	31	3,164	10.2	64	164	7.8
650	31	3,778	6.6	56	175	8.0
600	31	4,431	2.4	49	181	5.1
550	31	5,127	-1.9	46	210	3.1
500	31	5,882	-6.2		243	3.7
450	31	6,696	-11.7		258	5.8
400	31	7,591	-18.0	35	252	8.9
350	31	8,576	-25.1		235	12.4
300	31	9,678	-33.2		220	16.9
250	31	10,934	-42.9		216	21.6
200	31	12,403	-54.1		211	28.0
175	31	13,247	-60.5		215	29.3
150	31	14,194	-66.1		222	24.9
125	29	15,291	-69.1		225	10.9
100	27	16,623	-68.9		130	4.7
80	26	17,972	-64.8		103	11.9
60	26	19,747	-60.2		92	20.8
50	26	20,892	-57.4		95	22.5
40	26	22,309	-54.8		92	26.4
30	26	24,159	-52.2		90	31.5
25	22	25,345	-50.1		93	32.3
20	19	26,803	-47.5		90	34.6
15	15	28,707	-43.5		[illegible]	36.3
10	5	31,384	-41.5			

8/ FT. HUACHUCA, ARIZ. (857 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	28	1,428	17.8	57	214	2.7
1,000	28	82				
950	28	524				
900	28	1,003				
850	28	1,500	19.1	52	213	2.9
800	28	2,022	17.4	44	215	6.0
750	28	2,567	13.8	42	222	11.3
700	28	3,148	9.6	43	235	12.8
650	28	3,754	5.6	36	237	11.1
600	28	4,408	1.3		251	12.2
550	28	5,094	-3.1		256	12.8
500	28	5,850	-7.9		265	11.9
450	28	6,650	-13.5		272	12.2
400	28	7,545	-20.0		273	16.7
350	28	8,519	-27.7		273	20.0
300	28	9,607	-36.1		272	23.5
250	28	10,848	-45.3		270	26.8
200	28	12,303	-55.3		273	33.8
175	28	13,144	-60.4		272	37.7
150	27	14,092	-65.5		273	39.6
125	27	15,188	-69.8		272	31.3
100	26	16,511	-70.8		270	21.2
80	26	17,849	-66.1		276	9.3
60	26	19,620	-60.0		91	5.8
50	26	20,765	-57.5		96	7.4
40	23	22,183	-54.9		93	11.7
30	21	24,033	-52.2		87	16.1
25	21	25,218	-50.2		92	18.5
20	17	26,692	-46.8		84	25.5
15	12	28,613	-44.2			
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8/ MERIDA, MEXICO (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	11	22.1	98	111	3.9
1,000	30	118	23.7	89	116	7.0
950	30	568	23.4	78	131	11.9
900	30	1,041	21.1	74	132	10.3
850	30	1,536	18.5	68	134	8.4
800	30	2,054	15.6	60	135	6.6
750	30	2,597	12.5	57	135	6.8
700	30	3,177	9.4	51	129	6.4
650	30	3,785	6.0	48	122	5.6
600	30	4,440	2.1	49	103	5.1
550	30	5,128	-2.0	45	69	5.6
500	30	5,889	-6.6	41	58	5.1
450	30	6,699	-11.9	42	57	4.7
400	30	7,598	-17.9	41	47	2.3
350	30	8,583	-24.9	36	335	2.1
300	30	9,685	-33.3		276	4.5
250	29	10,939	-43.3		266	10.3
200	28	12,402	-55.2		272	13.6
175	28	13,242	-61.3		278	13.0
150	28	14,185	-67.1		302	9.1
125	28	15,273	-71.2		356	4.7
100	28	16,589	-71.5		54	8.9
80	28	17,917	-68.4		84	15.7
60	28	19,664	-62.7		88	21.6
50	28	20,800	-58.1		85	22.7
40	28	22,218	-54.0		90	23.3
30	28	24,081	-50.3		89	23.1
25	[illegible]	25,277	-47.8		91	22.0
20	25	26,755	-45.4		90	19.4
15	25	28,691	-41.6		82	20.8
10	12	31,475	-35.6			

8/ YUCCA FLAT, NEV. (880 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	1,196	11.1	40	340	1.6
1,000	30	104				
950	30	537				
900	30	1,005				
850	30	1,489	18.1	30	321	2.5
800	30	2,005	15.0	32	234	3.9
750	30	2,545	11.4	34	225	5.8
700	30	3,121	7.4	34	225	7.2
650	30	3,723	3.4	35	237	7.6
600	30	4,371	-.6	32	255	11.7
550	30	5,055	-4.8	32	266	17.5
500	30	5,806	-9.4		269	22.2
450	30	6,603	-15.2		270	25.8
400	30	7,492	-21.9		270	29.9
350	30	8,461	-29.1		271	33.2
300	30	9,544	-37.7		271	36.1
250	30	10,777	-46.9		271	40.8
200	30	12,227	-55.4		269	48.2
175	30	13,072	-58.5		268	48.6
150	30	14,035	-61.5		271	43.1
125	30	15,157	-64.5		272	34.6
100	29	16,520	-65.2		276	19.8
80	29	17,889	-62.3		284	10.5
60	29	19,689	-57.0		243	1.7
50	27	20,849	-55.5		157	1.6
40	27	22,278	-53.7		93	4.7
30	26	24,133	-51.7		99	6.0
25	23	25,316	-50.4		103	7.0
20	16	26,777	-49.2		109	6.2
15	10	28,657	-47.4			
10						

8/ YUMA, ARIZ. (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	105	23.4	49	45	0.8
1,000	30	71				
950	30	520	26.1	39	247	3.3
900	30	997	24.0	35	222	6.4
850	30	1,494	21.0	35	207	7.6
800	30	2,015	17.2	39	213	9.3
750	30	2,561	13.5	35	224	10.3
700	30	3,140	10.0	32	227	12.2
650	30	3,749	6.1	30	232	13.2
600	30	4,402	1.9	28	237	15.0
550	30	5,095	-2.8		246	16.5
500	30	5,848	-7.6		256	16.7
450	30	6,657	-13.5		267	18.3
400	30	7,545	-20.3		265	21.4
350	30	8,519	-27.9		272	23.7
300	30	9,607	-36.5		273	25.3
250	30	10,846	-45.9		266	29.7
200	30	12,298	-55.8		267	38.9
175	30	13,139	-60.6		264	38.1
150	28	14,093	-65.1		267	41.4
125	22	15,195	-68.8		264	32.8
100	18	16,525	-69.2		268	19.2
80	12	17,855	-65.6		266	10.9
60	11	19,621	-60.0		124	1.0
50	11	20,768	-56.5		123	5.8
40	11	22,188	-54.9		109	11.5
30	10	24,038	-52.3		93	16.5
25	10	25,224	-49.6		93	13.6
20	6	26,705	-47.9			
15						
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9/ HAVANA, CUBA (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	49	24.1	91	101	2.7
1,000	29	111	24.2	89	98	4.9
950	29	559	22.8	79	128	11.1
900	29	1,032	20.1	77	133	9.3
850	29	1,525	17.4	72	140	8.5
800	29	2,041	14.5	67	139	6.6
750	29	2,580	11.5	63	142	6.8
700	29	3,161	8.5	56	150	6.0
650	29	3,767	5.1	53	152	6.0
600	29	4,422	1.4	49	153	5.1
550	29	5,114	-2.6	49	165	3.9
500	29	5,870	-7.1	44	176	1.9
450	28	6,680	-12.2	41	158	1.9
400	28	7,580	-17.9	39	250	2.5
350	28	8,565	-24.7	37	266	2.9
300	28	9,668	-33.2		266	3.7
250	28	10,923	-43.4		297	6.0
200	28	12,386	-55.4		305	8.2
175	27	13,225	-62.0		345	8.9
150	26	14,162	-68.4		348	11.1
125	24	15,236	-74.3		359	9.9
100	22	16,521	-77.1		26	6.2
80	20	17,813	-72.1		61	6.6
60	18	19,539	-63.9		94	9.1
50	17	20,667	-59.5		80	8.4
40	17	22,076	-55.7		71	10.3
30	16	23,927	-51.8		101	11.5
25	15	25,126	-48.3		102	9.5
20	13	26,596	-46.8			
15						
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9/ MERIDA, MEXICO (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	31	11	22.5	97	101	3.7
1,000	31	98	23.7	91	105	7.0
950	31	545	23.2	84	129	14.0
900	31	1,022	21.1	74	132	11.9
850	31	1,516	18.4	73	131	9.7
800	31	2,035	15.6	70	135	7.6
750	31	2,581	12.6	68	142	7.2
700	31	3,158	9.3	66	138	6.0
650	31	3,767	6.1	60	126	5.4
600	31	4,423	2.4	58	119	4.9
550	31	5,116	-1.6	52	102	5.1
500	31	5,876	-5.8	45	85	4.1
450	31	6,691	-10.7	40	89	4.1
400	31	7,592	-16.6	39	96	4.7
350	31	8,581	-23.5	34	62	3.9
300	31	9,689	-32.0		39	4.3
250	31	10,949	-42.2		8	4.9
200	31	12,418	-54.4		359	5.8
175	30	13,260	-61.0		9	8.2
150	30	14,201	-67.9		9	9.9
125	30	15,277	-74.8		20	10.1
100	30	16,557	-78.1		33	8.9
80	30	17,850	-72.1		69	7.6
60	29	19,579	-63.7		96	7.4
50	28	20,708	-60.0		85	6.6
40	28	22,115	-55.5		70	7.6
30	27	23,965	-50.7		79	8.7
25	26	25,152	-48.3		82	9.5
20	26	26,630	-46.0		79	8.9
15	24	28,565	-42.0		91	7.8
10	10	31,325	-38.9			

10/ FT. HUACHUCA, ARIZ. (859 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	12	1,428	6.2		211	0.6
1,000	12	173				
950	12	597				
900	12	1,047				
850	12	1,522	7.9		239	.6
800	12	2,022	7.1		89	2.1
750	12	2,549	5.5		84	3.5
700	12	3,112	3.2		3	4.1
650	12	3,698	-.5		339	6.2
600	12	4,344	-4.4		311	6.8
550	12	5,008	-9.0		319	7.2
500	12	5,753	-14.6		285	10.5
450	12	6,534	-20.4		305	11.5
400	12	7,403	-26.7		297	18.7
350	12	8,352	-33.9		289	27.4
300	12	9,415	-41.7		293	33.8
250	12	10,627	-50.7		286	39.8
200	12	12,054	-58.4		277	52.7
175	12	12,885	-62.8		280	49.5
150	12	13,830	-64.9		280	42.2
125	12	14,937	-67.4		283	33.4
100	11	16,284	-69.9		278	33.4
80	8	17,602	-69.0			
60	7	19,323	-66.6			
50	7	20,433	-63.6			
40	6	21,809	-60.1			
30	6	23,616	-56.4			
25	6	24,776	-55.6			
20						
15						
10						

10/ MERIDA, MEXICO (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	30	11	18.7	95	24	2.9
1,000	30	137	22.3	82	37	5.8
950	30	582	20.6	78	43	9.7
900	30	1,051	17.8	75	39	7.6
850	30	1,539	15.1	69	35	4.7
800	30	2,051	12.6	64	56	2.1
750	30	2,593	10.9	54	111	1.9
700	30	3,165	8.4	40	88	1.4
650	30	3,771	5.4	35	105	.6
600	30	4,424	1.6	32	279	1.6
550	30	5,115	-2.8	30	267	3.5
500	30	5,870	-7.5	31	270	6.2
450	30	6,680	-12.5		269	10.9
400	30	7,573	-19.1		259	14.6
350	30	8,553	-26.4		263	19.0
300	30	9,647	-35.1		264	22.9
250	30	10,892	-45.1		267	26.6
200	30	12,344	-56.7		269	29.9
175	30	13,179	-62.8		261	30.9
150	29	14,114	-68.8		259	30.1
125	27	15,199	-73.2		263	27.6
100	26	16,495	-76.0		270	20.2
80	26	17,787	-73.9		273	11.5
60	25	19,500	-66.0		250	2.7
50	24	20,614	-62.1		224	1.9
40	24	22,009	-57.1		269	2.9
30	24	23,847	-52.3		44	2.9
25	24	25,034	-49.6		96	3.7
20	23	26,505	-46.0		82	5.2
15	20	28,433	-42.4		74	9.1
10	13	31,165	-39.7			

10/ YUMA, ARIZ. (1002 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	29	105	12.8	44	32	3.3
1,000	29	146			33	4.1
950	29	583	17.7	35	5	9.7
900	29	1,043	15.4	35	40	8.7
850	29	1,525	12.2	34	44	8.0
800	29	2,030	9.3	34	35	6.6
750	29	2,559	6.8		31	7.0
700	29	3,126	3.5		20	6.4
650	29	3,721	.0		11	5.8
600	29	4,360	-4.1		347	6.0
550	29	5,039	-8.4		321	7.0
500	29	5,774	-13.8		304	6.8
450	29	6,558	-20.0		296	8.2
400	29	7,428	-26.6		279	11.9
350	29	8,378	-33.7		275	18.3
300	29	9,442	-41.3		278	23.7
250	29	10,657	-49.7		269	32.8
200	29	12,093	-56.7		272	36.3
175	28	12,928	-59.9		269	32.8
150	25	13,890	-63.1		271	32.1
125	20	14,993	-66.7		280	21.8
100	14	16,341	-69.3		298	18.8
80	13	17,670	-68.2		308	11.7
60	12	19,401	-64.6		325	10.5
50	12	20,521	-61.7		12	2.9
40	11	21,902	-59.9		287	5.1
30	10	23,710	-56.4		289	8.2
25	10	24,873	-53.9			
20	9	26,313	-51.7			
15						
10						

1. December 1958
2. January 1959
3. February 1959
4. May 1959
5. June 1959
6. July 1959
7. August 1959
8. September 1959
9. October 1959
10. November 1959

Also see reference notes with current data.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

1956	Pullman, Wash.	Sep.	Pullman, Wash.	Oct.	Pullman, Wash.	Nov.	Pullman, Wash.	Dec.	Pullman, Wash.
Aug. 6	734	3	600	1	---	5	374	3	108
Aug. 7	715	4	595	2	---	6	---	4	163
Aug. 8	731	5	579	3	---	7	108	5	---
Aug. 9	713	6	565	4	---	8	188	6	100
Aug. 10	696	7	394	5	407	9	193	7	121
Aug. 11	692	8	487	6	401	10	118	8	52
Aug. 12	690	9	550	7	396	11	80	9	23
Average	710		539		---		177		94
Aug. 13	686	10	471	8	356	12	189	10	54
Aug. 14	619	11	470	9	332	13	175	11	21
Aug. 15	521	12	498	10	49	14	228	12	22
Aug. 16	703	13	---	11	171	15	---	13	111
Aug. 17	664	14	---	12	87	16	120	14	122
Aug. 18	663	15	---	13	268	17	104	15	16
Aug. 19	656	16	---	14	179	18	98	16	151
Average	645		---		206		152		71
Aug. 20	650	17	---	15	99	19	113	17	67
Aug. 21	624	18	---	16	74	20	137	18	77
Aug. 22	631	19	---	17	200	21	210	19	144
Aug. 23	406	20	---	18	---	22	201	20	112
Aug. 24	580	21	---	19	---	23	212	21	156
Aug. 25	335	22	---	20	212	24	211	22	60
Aug. 26	127	23	---	21	237	25	114	23	40
Average	479		---		165		171		94
Aug. 27	286	24	---	22	272	26	40	24	106
Aug. 28	578	25	---	23	66	27	30	25	166
Aug. 29	445	26	---	24	---	28	29	26	149
Aug. 30	636	27	---	25	---	29	31	27	153
Aug. 31	617	28	---	26	---	30	15	28	160
Sep. 1	520	29	---	27	47	Dec.1	33	29	169
Sep. 2	626	30	---	28	43	2	54	30	69
								31	127
Average	530		---		107		33	Avg.	137
				29	286				
				30	90				
				31	---				
				Nov.1	---				
				2	299				
				3	256				
				4	121				
				Avg.	211				

1956	1957 Jan.	Pullman, Wash.	Feb.	Pullman, Wash.	Mar.	Pullman, Wash.	Apr.	Pullman, Wash.	May	Pullman, Wash.
Aug. 6	1	135	5	---	5	134	2	412	7	751
Aug. 7	2	110	6	269	6	81	3	381	8	710
Aug. 8	3	187	7	258	7	185	4	254	9	177
Aug. 9	4	100	8	214	8	104	5	---	10	628
Aug. 10	5	25	9	251	9	157	6	293	11	275
Aug. 11	6	69	10	273	10	---	7	527	12	308
Aug. 12	7	120	11	320	11	---	8	621	13	402
Average		107		264		152		415		464
Aug. 13	8	70	12	335	12	141	9	610	14	134
Aug. 14	9	120	13	186	13	343	10	518	15	391
Aug. 15	10	61	14	---	14	---	11	496	16	481
Aug. 16	11	91	15	---	15	---	12	301	17	710
Aug. 17	12	104	16	309	16	---	13	473	18	410
Aug. 18	13	214	17	---	17	---	14	174	19	209
Aug. 19	14	117	18	---	18	472	15	682	20	226
Average		111		---		---		465		366
Aug. 20	15	152	19	120	19	500	16	587	21	346
Aug. 21	16	248	20	---	20	231	17	330	22	418
Aug. 22	17	241	21	224	21	351	18	425	23	507
Aug. 23	18	199	22	381	22	---	19	355	24	797
Aug. 24	19	96	23	161	23	---	20	611	25	741
Aug. 25	20	103	24	133	24	298	21	414	26	808
Aug. 26	21	137	25	205	25	500	22	624	27	796
Average		168		204		376		478		630
Aug. 27	22	103	26	232	26	531	23	506	28	791
Aug. 28	23	70	27	214	27	464	24	190	29	794
Aug. 29	24	155	28	283	28	343	25	365	30	777
Aug. 30	25	---	Mar.1	406	29	---	26	694	31	752
Aug. 31	26	---	2	408	30	175	27	679	Jun.1	731
Sep. 1	27	150	3	163	31	179	28	709	2	---
Sep. 2	28	161	4	136	Apr.1	---	29	703	3	---
Average		128		263		339		549		769
	29	147					30	535		
	30	172					May 1	598		
	31	128					2	189		
	Feb 1	85					3	235		
	2	152					4	599		
	3	235					5	664		
	4	---					6	329		
		153						450		

1956	Jun.	Pullman, Wash.	Jul.	Pullman, Wash.	Aug.	Pullman, Wash.	Sep.	Pullman Wash.	Oct.	Pullman, Wash.
Aug. 6	4	763	2	556	6	---	3	578	1	113
Aug. 7	5	497	3	597	7	---	4	572	2	53
Aug. 8	6	150	4	810	8	601	5	514	3	166
Aug. 9	7	545	5	788	9	766	6	516	4	349
Aug. 10	8	311	6	775	10	688	7	301	5	197
Aug. 11	9	801	7	748	11	693	8	584	6	234
Aug. 12	10	849	8	793	12	---	9	379	7	107
Average		560		724		687		492		174
Aug. 13	11	340	9	756	13	---	10	549	8	352
Aug. 14	12	582	10	749	14	690	11	530	9	310
Aug. 15	13	483	11	781	15	683	12	506	10	367
Aug. 16	14	642	12	667	16	663	13	537	11	325
Aug. 17	15	370	13	332	17	615	14	526	12	259
Aug. 18	16	864	14	473	18	684	15	517	13	109
Aug. 19	17	777	15	672	19	---	16	499	14	259
Average		580		633		667		523		283
Aug. 20	18	515	16	794	20	---	17	489	15	368
Aug. 21	19	603	17	821	21	660	18	130	16	307
Aug. 22	20	521	18	807	22	651	19	446	17	223
Aug. 23	21	705	19	772	23	629	20	493	18	282
Aug. 24	22	804	20	773	24	597	21	494	19	246
Aug. 25	23	808	21	674	25	618	22	495	20	342
Aug. 26	24	784	22	580	26	457	23	480	21	169
Average		677		746		602		432		277
Aug. 27	25	642	23	769	27	589	24	---	22	99
Aug. 28	26	421	24	773	28	458	25	440	23	84
Aug. 29	27	805	25	562	29	608	26	254	24	283
Aug. 30	28	815	26	771	30	549	27	197	25	85
Aug. 31	29	853	27	770	31	532	28	---	26	31
Sep. 1	30	862	28	741	Sep.1	537	29	---	27	67
Sep. 2	Jul.1	640	29	715	2	474	30	---	28	117
Average		720		729		535		---		109
			30	698					29	103
			31	759					30	136
			Aug.1	766					31	303
			2	718					Nov.1	228
			3	459					2	291
			4	559					3	289
			5	---					4	275
				660						232

1956	Nov.	Pullman, Wash.	Dec.	Pullman, Wash.	1958 Jan.	Pullman, Wash.	Feb.	Pullman, Wash.	Apr.	Pullman, Wash.
Aug. 6	5	277	3	136	1	---	5	28	2	---
Aug. 7	6	207	4	73	2	---	6	253	3	---
Aug. 8	7	240	5	36	3	164	7	58	4	---
Aug. 9	8	251	6	30	4	159	8	67	5	---
Aug. 10	9	234	7	58	5	135	9	90	6	--
Aug. 11	10	97	8	161	6	202	10	141	7	---
Aug. 12	11	121	9	173	7	163	11	243	8	---
Average		204		95		165		126		---
Aug. 13	12	52	10	174	8	37	12	47	9	---
Aug. 14	13	65	11	124	9	98	13	130	10	---
Aug. 15	14	52	12	129	10	48	14	122	11	---
Aug. 16	15	147	13	166	11	122	15	103	12	646
Aug. 17	16	206	14	93	12	26	16	202	13	497
Aug. 18	17	197	15	59	13	166	17	162	14	454
Aug. 19	18	61	16	51	14	42	18	134	15	171
Average		112		114		77		129		442
Aug. 20	19	107	17	61	15	86	19	262	16	---
Aug. 21	20	135	18	83	16	149	20	217	17	115
Aug. 22	21	212	19	40	17	24	21	---	18	451
Aug. 23	22	---	20	28	18	145	22	---	19	193
Aug. 24	23	---	21	31	19	176	23	---	20	101
Aug. 25	24	---	22	158	20	66	24	---	21	280
Aug. 26	25	71	23	47	21	160	25	---	22	247
Average		131		64		115		---		231
Aug. 27	26	211	24	64	22	133	26	---	23	394
Aug. 28	27	124	25	25	23	32	27	---	24	---
Aug. 29	28	208	26	86	24	172	28	---	25	---
Aug. 30	29	---	27	45	25	83	Mar.1	---	26	156
Aug. 31	30	73	28	67	26	144	2	---	27	385
Sep. 1	Dec.1	50	29	95	27	56	3	---	28	522
Sep. 2	2	89	30	156	28	221	4	---	29	708
			31	---						
Average		126		77		120		---		433
					29	37			30	662
					30	73			May 1	700
					31	113			2	691
					Feb.1	234			3	644
					2	---			4	698
					3	---			5	479
					4	249			6	138
						141				573

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

DELAYED DATA

1958	Pullman, Wash.	Jun.	Pullman, Wash.	Jul.	Pullman, Wash.	Aug.	Pullman, Wash.	1959 Jan.	Seattle, Wash.	Feb.	Seattle, Wash.	Mar.	Seattle, Wash.
May 7------	503	4	707	2	793	6	682	1	99	5	74	5	101
May 8------	648	5	729	3	261	7	684	2	151	6	77	6	185
May 9------	729	6	565	4	341	8	678	3	157	7	184	7	166
May 10------	---	7	760	5	774	9	341	4	37	8	44	8	314
May 11------	---	8	714	6	746	10	664	5	47	9	76	9	66
May 12------	---	9	---	7	736	11	624	6	57	10	43	10	286
May 13------	673	10	---	8	596	12	560	7	21	11	167	11	98
Average-------	638		695		607		605		81		95		174
May 14------	750	11	468	9	742	13	697	8	17	12	117	12	334
May 15------	741	12	119	10	746	14	---	9	25	13	24	13	269
May 16------	736	13	588	11	746	15	---	10	82	14	32	14	217
May 17------	728	14	770	12	749	16	---	11	42	15	132	15	114
May 18------	750	15	774	13	732	17	---	12	59	16	49	16	342
May 19------	695	16	773	14	762	18	---	13	67	17	262	17	327
May 20------	---	17	758	15	772	19	---	14	80	18	89	18	226
Average-------	733		607		750		---		53		101		261
May 21------	---	18	681	16	765	20	---	15	25	19	53	19	391
May 22------	715	19	569	17	755	21	---	16	17	20	239	20	202
May 23------	339	20	737	18	671	22	---	17	52	21	259	21	352
May 24------	729	21	697	19	695	23	---	18	63	22	68	22	391
May 25------	746	22	726	20	698	24	---	19	124	23	77	23	180
May 26------	---	23	630	21	742	25	---	20	103	24	49	24	257
May 27------	---	24	---	22	729	26	---	21	28	25	147	25	92
Average-------	633		673		722		---		59		128		266
May 28------	---	25	---	23	719	27	---	22	15	26	146	26	384
May 29------	---	26	---	24	742	28	---	23	16	27	84	27	154
May 30------	747	27	---	25	713	29	---	24	13	28	96	28	241
May 31------	256	28	653	26	633	30	---	25	155	Mar.1	245	29	219
June 1------	681	29	582	27	708	31	---	26	84	2	85	30	192
June 2------	548	30	444	28	714	Sep.1	---	27	76	3	178	31	96
June 3------	501	Jul.1	---	29	698	2	---	28	88	4	321	Apr.1	82
Average-------	546		---		704		---		64		165		195
				30	551			29	140				
				31	692			30	26				
				Aug.1	705			31	82				
				2	710			Feb.1	193				
				3	424			2	84				
				4	656			3	56				
				5	594			4	137				
				Avg.	619				103				

1958	Apr.	Mauna Loa, Hawaii	Resolute, N.W.T.	Seattle, Wash.	Stillwater, Okla.	May	Blue Hill, Mass.	Lemont, Ill.	Mauna Loa, Hawaii	Normandin, Quebec	Resolute, N.W.T.	Seattle, Wash.	Stillwater, Okla.
May 7------	2	785	210	531	553	7	407	693	---	381	571	649	601
May 8------	3	814	265	368	539	8	544	653	---	695	575	387	170
May 9------	4	712	253	258	560	9	676	331	---	472	543	243	329
May 10------	5	451	234	161	537	10	615	608	---	594	543	382	78
May 11------	6	799	219	482	497	11	480	657	---	478	618	673	637
May 12------	7	586	294	556	267	12	398	487	---	424	625	648	659
May 13------	8	432	274	571	134	13	219	456	858	528	604	612	579
Average-------		654	250	418	441		477	555	---	510	583	513	436
May 14------	9	667	316	591	453	14	293	351	843	87	520	72	---
May 15------	10	591	213	518	467	15	360	433	792	326	533	95	410
May 16------	11	372	319	156	506	16	648	475	575	504	607	337	166
May 17------	12	---	355	402	186	17	518	532	425	606	542	250	486
May 18------	13	746	281	305	573	18	703	323	447	740	657	517	670
May 19------	14	759	327	136	609	19	387	379	715	293	567	283	665
May 20------	15	544	315	278	516	20	474	396	596	346	497	612	594
Average-------		613	304	341	473		483	413	628	415	560	309	498
May 21------	16	580	380	249	326	21	---	581	760	266	649	393	310
May 22------	17	323	384	246	538	22	565	254	769	466	633	719	267
May 23------	18	159	353	374	131	23	637	184	839	572	609	725	408
May 24------	19	601	379	579	427	24	319	679	735	363	612	275	312
May 25------	20	470	427	608	219	25	702	394	707	586	---	252	---
May 26------	21	605	395	496	116	26	583	406	---	567	546	278	191
May 27------	22	776	449	344	631	27	613	536	---	567	481	504	595
Average-------		502	395	414	341		570	433	762	484	589	450	347
May 28------	23	738	439	153	637	28	562	601	---	723	562	503	678
May 29------	24	820	455	479	496	29	619	496	---	393	568	530	685
May 30------	25	849	378	380	528	30	386	231	---	413	616	730	664
May 31------	26	849	421	306	389	31	669	551	---	621	580	763	471
June 1------	27	835	431	177	450	Jun.1	637	416	---	204	591	733	---
June 2------	28	840	466	265	619	2	103	741	---	711	595	340	---
June 3------	29	834	439	156	544	3	494	682	786	651	510	524	---
Average-------		824	433	274	523		496	531	---	531	575	589	625
	30	632	500	436	624								
	May 1	853	492	505	524								
	2	801	526	489	384								
	3	839	532	572	413								
	4	839	547	254	228								
	5	833	549	680	104								
	6	---	569	644	521								
		799	531	511	400								

1958	Jun.	Aklavik, MacKenzie	Ames, Iowa	Blue Hill, Mass.	Dartmouth, N. S.	Edmonton, Alberta	Flaming Gorge, Utah	Lemont, Ill.	Mauna Loa, Hawaii	Moosonee, Ontario	Nanaimo, B.C.	Normandin, Quebec	Ottawa, Ontario	Resolute, N.W.T.
May 7------	4	663	---	651	571	638	--	724	853	578	239	611	692	507
May 8------	5	741	---	387	683	645	---	596	875	195	492	375	700	509
May 9------	6	644	---	479	492	444	---	665	874	512	381	218	437	544
May 10------	7	460	---	402	572	606	---	695	851	552	396	196	---	553
May 11------	8	608	---	512	171	623	---	705	874	213	494	57	---	598
May 12------	9	563	---	647	317	497	---	633	878	202	280	73	675	424
May 13------	10	625	---	618	187	118	---	488	508	693	656	538	612	493
Average-------		615	---	528	427	510	---	644	816	421	420	295	623	518
May 14------	11	640	---	---	712	561	---	520	877	512	131	715	577	642
May 15------	12	393	---	---	731	619	---	753	758	448	466	238	213	686
May 16------	13	430	---	---	124	641	---	642	866	264	684	190	333	461
May 17------	14	386	---	69	149	493	---	547	---	708	512	268	487	773
May 18------	15	534	---	176	627	589	---	586	---	751	740	193	152	536
May 19------	16	729	---	213	345	483	---	720	---	638	411	296	322	574
May 20------	17	750	---	75	92	273	---	724	---	705	751	---	458	726
Average-------		552	---	133	397	523	---	642	---	575	528	367	363	628
May 21------	18	741	---	148	153	633	667	425	---	548	755	667	276	694
May 22------	19	730	---	97	167	296	429	679	---	537	625	682	375	466
May 23------	20	729	---	623	186	195	506	498	789	446	573	542	647	397
May 24------	21	730	---	583	525	330	618	628	863	463	---	384	590	653
May 25------	22	743	---	188	389	415	693	518	872	364	---	116	480	673
May 26------	23	727	---	603	161	676	802	685	884	382	162	607	706	709
May 27------	24	726	---	553	660	320	276	601	876	482	511	495	607	607
Average-------		732	---	399	320	409	570	576	857	460	585	542	526	600
May 28------	25	702	---	82	670	319	598	491	---	630	494	458	634	764
May 29------	26	730	---	132	---	259	361	624	---	562	423	659	549	529
May 30------	27	734	---	243	417	457	---	541	---	396	452	671	368	687
May 31------	28	745	---	112	613	670	174	462	---	419	655	117	449	744
June 1------	29	697	---	501	137	596	---	435	---	215	644	597	672	617
June 2------	30	716	---	688	496	538	(788)	568	---	555	737	578	711	598
June 3------	Jul.1	718	439	597	727	610	816	217	---	435	475	367	456	260
Average-------		720	---	336	510	493	(547)	477	---	459	554	493	548	600

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

DELAYED DATA

1959	Seattle, Wash.	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
June 4	142	682	693	144	559
June 5	684	579	657	592	577
June 6	619	504	668	511	587
June 7	469	513	562	300	512
June 8	330	703	676	429	542
June 9	241	469	603	187	440
June 10	461	466	511	568	263
Average	424	559	624	390	497
June 11	204	577	588	132	502
June 12	368	652	387	309	345
June 13	509	595	523	636	603
June 14	553	690	770	305	601
June 15	761	700	721	684	515
June 16	176	594	363	352	466
June 17	531	620	394	581	160
Average	443	633	535	429	456
June 18	759	731	379	666	536
June 19	716	509	726	570	765
June 20	530	509	694	588	215
June 21	289	168	636	533	644
June 22	599	405	444	609	697
June 23	657	547	741	513	207
June 24	655	483	428	538	532
Average	601	479	578	574	514
June 25	462	569	410	513	634
June 26	528	145	382	336	382
June 27	347	152	506	577	521
June 28	491	456	615	605	410
June 29	538	651	647	578	466
June 30	755	608	297	631	685
July 1	614	667	542	350	530
Average	533	464	485	513	518

	Aklavik, MacKenzie	Ames, Iowa	Boston, Mass.	Blue Hill, Mass.	Dartmouth, N. S.	Edmonton, Alberta	Laramie, Wyo.	Lemont, Ill.	Moosonee, Ontario	Nanaimo, B. C.	Normandin, Quebec	Ottawa, Ontario	Resolute, N. W. T.	Stillwater, Okla.	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
Jul. 2	640	752	350	318	128	359	632	755	509	412	285	367	529	714	415	700	460	717
3	203	719	700	692	602	666	513	748	546	653	546	724	596	498	467	521	549	586
4	369	424	768	684	744	617	722	515	465	521	520	694	489	553	674	713	509	307
5	501	494	758	700	661	481	740	699	142	495	539	625	510	509	564	384	339	736
6	568	726	264	195	701	631	565	732	331	460	267	130	501	652	692	516	393	407
7	229	707	702	707	166	455	710	750	480	564	280	676	476	666	719	738	564	525
8	512	344	692	661	538	506	774	705	324	724	666	720	301	614	662	693	610	379
Average	432	595	605	565	506	531	665	701	400	547	443	562	486	601	599	609	489	523
9	547	732	719	661	734	603	754	741	413	769	533	629	222	604	650	516	658	733
10	272	405	402	373	606	688	746	606	436	743	629	668	179	662	702	694	627	657
11	395	728	418	399	236	675	728	690	438	731	470	567	278	---	551	447	634	649
12	311	506	189	183	346	620	669	674	413	556	390	453	407	450	687	675	586	689
13	---	658	403	319	343	667	478	695	463	769	476	675	374	167	694	661	586	704
14	---	654	125	112	236	633	685	660	551	734	664	674	586	528	678	693	639	348
15	---	397	98	118	333	537	453	652	505	760	595	661	657	212	677	693	623	660
Average	381	583	336	309	405	632	645	674	460	723	537	618	386	437	[illegible]63	626	622	634
16	---	422	416	293	138	690	752	583	290	761	605	582	603	491	537	660	633	630
17	---	253	601	581	295	679	660	503	418	751	482	623	384	461	620	553	633	672
18	---	681	621	557	---	701	578	376	490	755	158	418	245	666	667	353	622	674
19	---	678	443	378	---	430	687	269	583	745	498	---	194	494	594	599	626	594
20	---	600	215	180	---	403	565	691	567	751	625	559	142	582	501	410	615	362
21	---	618	317	248	157	615	651	528	325	744	647	663	309	503	509	647	597	618
22	---	497	543	494	547	665	695	457	639	733	344	589	363	221	668	584	604	533
Average	---	536	451	390	284	598	656	487	473	748	480	572	320	488	585	544	619	583
23	---	688	512	480	489	647	655	293	422	362	526	522	596	541	628	182	234	388
24	---	687	449	351	223	565	681	618	372	393	161	386	613	660	430	452	234	600
25	---	651	494	481	359	618	553	674	299	685	452	686	597	656	666	699	572	270
26	---	625	625	582	677	457	476	547	509	734	313	679	492	210	665	701	555	675
27	---	501	689	664	683	232	481	529	448	717	530	635	531	263	668	665	530	468
28	---	493	633	589	657	285	497	304	441	595	410	614	556	560	232	623	500	600
29	---	506	596	570	607	663	380	578	578	---	528	628	544	632	577	414	613	629
Average	---	593	571	531	528	495	532	506	438	581	417	593	561	503	552	534	463	519
30	---	566	581	494	397	643	488	226	433	737	580	566	296	637	655	563	616	632
31	---	674	315	342	429	632	287	600	429	688	450	540	436	642	651	605	592	653
Aug. 1	---	---	686	649	401	558	389	679	248	709	445	688	502	604	611	691	581	591
2	---	---	676	635	552	311	550	504	481	635	635	688	356	636	620	684	326	593
3	---	---	695	671	555	456	462	219	495	197	543	628	(357)	641	639	615	96	587
4	---	553	619	616	407	304	249	511	129	481	314	241	425	629	650	239	518	628
5	---	128	114	107	---	609	617	446	258	703	566	---	352	619	470	402	589	426
Avg.	---	480	527	502	457	502	435	455	353	593	505	559	(389)	630	614	543	474	587

	Aklavik, MacKenzie	Dartmouth, N. S.	Edmonton, Alberta	Manhattan, Kans.	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Resolute, N. W. T.	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
Aug. 6	---	---	601	391	509	596	473	250	644	478	554	576
7	531	110	555	663	166	559	576	351	613	521	549	613
8	349	277	486	643	630	421	411	293	607	585	569	608
9	114	402	569	619	---	365	545	200	546	392	508	389
10	266	103	132	588	---	93	173	145	553	424	532	614
11	252	176	578	618	---	116	499	325	622	585	435	435
12	244	282	589	625	---	462	561	146	183	543	432	596
Average	293	225	501	593	---	373	463	245	538	504	511	547
13	425	497	506	602	---	442	603	330	609	563	540	93
14	506	583	243	317	---	185	502	255	602	544	146	598
15	396	575	385	132	533	433	464	231	296	466	427	612
16	180	485	216	435	542	400	236	329	546	325	206	398
17	415	188	347	603	208	287	---	403	(484)	299	443	414
18	477	257	271	557	389	389	469	405	562	619	403	309
19	374	594	347	553	423	149	381	170	224	578	536	238
Average	396	454	331	457	419	327	443	303	(475)	485	386	380
20	229	558	179	560	176	381	445	148	45	548	538	225
21	407	72	155	582	465	521	268	375	523	233	110	453
22	375	516	315	482	472	540	599	175	421	114	416	79
23	209	544	535	481	436	571	394	370	554	501	228	533
24	173	575	389	532	390	83	426	359	451	574	514	546
25	256	147	323	580	300	328	543	351	549	582	274	462
26	279	404	275	491	499	110	462	331	481	277	80	549
Average	275	402	310	530	391	362	448	301	432	404	308	407
27	374	121	190	333	516	217	371	325	483	433	426	549
28	401	278	307	534	414	337	---	275	(448)	386	235	459
29	360	101	483	554	322	494	396	237	541	506	406	428
30	192	134	515	487	434	331	372	335	510	440	346	543
31	346	133	275	457	391	124	272	314	281	456	369	272
Sep. 1	359	174	482	289	495	332	337	291	510	482	447	221
2	262	220	491	569	282	304	109	309	519	337	407	145
Average	328	166	392	461	408	306	309	298	(470)	434	376	374

	Aklavik, MacKenzie	Dartmouth, N. S.
Sep. 3	225	174
4	145	(176)
5	57	522
6	89	509
7	111	528
8	151	509
9	133	512
Average	130	(419)
10	119	521
11	301	165
12	305	368
13	155	503
14	254	301
15	125	431
16	260	366
Average	217	379
17	50	376
18	29	309
19	56	493
20	48	469
21	77	388
22	89	357
23	79	310
Average	61	386
24	117	275
25	100	464
26	73	451
27	154	313
28	113	309
29	178	342
30	42	168
Average	111	332

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

DELAYED DATA

1959	Edmonton, Alberta	Laramie, Wyo.	Lemont, Ill.	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Resolute, N. W. T.	Seattle, Wash.	Scarboro, Ontario	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
Sep. 3-----	308	572	593	235	306	387	287	290	551	427	546	186	212
Sep. 4-----	365	462	552	348	392	429	308	92	452	363	411	61	391
Sep. 5-----	412	449	558	351	365	519	190	115	512	341	494	120	155
Sep. 6-----	252	419	521	351	466	530	(107)	208	520	486	513	448	305
Sep. 7-----	437	477	519	439	346	451	225	78	471	221	460	65	445
Sep. 8-----	164	547	482	474	484	340	(114)	515	423	150	457	371	200
Sep. 9-----	446	561	433	404	(445)	470	---	530	483	497	472	446	215
Average-------	341	498	523	434	(401)	447	(205)	261	488	355	479	243	274
Sep. 10-----	388	509	578	85	330	308	83	296	227	474	199	411	489
Sep. 11-----	434	389	497	419	423	498		285	480	397	452	386	486
Sep. 12-----	429	497	532	359	(415)	511	82	461	534	462	525	391	475
Sep. 13-----	407	533	511	176	421	526	---	317	523	420	493	269	425
Sep. 14-----	102	390	504	287	317	314	---	227	264	222	228	289	454
Sep. 15-----	409	400	154	203	316	347	110	162	206	152	174	154	471
Sep. 16-----	334	305	271	234	269	484	25	370	437	170	412	195	433
Average-------	358	432	435	252	(356)	427	75	317	382	328	355	299	462
Sep. 17-----	202	--	347	112	264	323	55	460	353	122	327	392	433
Sep. 18-----	236	470	461	357	272	358	107	101	332	253	380	101	331
Sep. 19-----	59	173	230	401	405	476	101	149	430	418	426	94	54
Sep. 20-----	306	382	398	130	314	364	94	146	362	193	349	83	182
Sep. 21-----	208	413	319	78	50	344	100	85	444	264	432	134	341
Sep. 22-----	199	391	421	330	227	346	74	211	219	289	255	290	33
Sep. 23-----	375	217	337	86	48	264	72	351	417	416	388	216	338
Average-------	227	341	359	213	226	354	86	215	366	279	365	187	245
Sep. 24-----	223	68	307	262	238	285	83	102	348	402	324	37	395
Sep. 25-----	(111)	323	278	375	343	442	62	127	470	267	437	99	228
Sep. 26-----	282	149	67	63	136	365	73	114	365	338	342	303	70
Sep. 27-----	160	359	440	163	87	207	75	260	279	194	266	348	116
Sep. 28-----	297	229	218	308	171	344	72	326	412	323	392	342	104
Sep. 29-----	100	375	422	260	97	245	67	237	268	353	258	181	153
Sep. 30-----	163	346	413	182	268	133	113	324	32	139	40	293	153
Average-------	(191)	264	307	230	191	289	78	213	311	288	294	229	174

	Aklavik, MacKenzie	Corvallis, Oreg.	Dartmouth, N. S.	Edmonton, Alberta	Laramie, Wyo.	Lexington, Ky.	Manhattan, Kans.	Moosonee, Ontario	Normandin, Quebec	Ottawa, Ontario	Resolute, N. W. T.	Scarboro, Ontario	Suffield, Alberta	Toronto, Ontario	Vancouver, B. C.	Winnipeg, Manitoba
Oct. 1	112	449	180	(198)	420	534	21	341	149	48	66	228	209	234	334	372
2	58	429	182	274	252	532	26	154	374	406	71	149	271	132	322	364
3	59	391	314	105	461	517	302	143	17	126	44	312	353	306	129	338
4	97	200	301	97	456	483	41	202	302	303	42	379	145	347	304	76
5	40	62	393	283	444	413	74	192	217	113	73	62	194	63	285	322
6	66	189	47	122	247	127	181	293	379	181	70	83	146	82	132	57
7	141	105	89	97	198	465	315	300	(81)	40	52	107	208	107	182	18
	82	261	215	(168)	354	439	137	232	(217)	174	60	188	218	182	241	221
8	60	92	104	48	414	121	422	229	(134)	91	36	46	206	99	143	31
9	64	185	85	155	153	536	401	33	20	270	36	371	201	381	269	78
10	87	81	266	221	216	416	271	56	117	158	42	251	173	242	105	49
11	66	---	275	147	385	520	413	22	115	90	34	349	152	337	67	109
12	43	---	215	258	61	491	183	95	162	179	41	236	315	209	110	161
13	66	---	245	184	319	---	346	79	215	146	37	209	292	157	94	67
14	97	---	192	168	375	---	385	119	179	261	29	221	227	165	55	172
	69	---	198	169	275	417	346	90	(134)	171	37	240	224	227	120	95
15	105	241	194	154	358	---	384	67	164	209	17	164	304	133	183	31
16	74	379	313	189	103	---	341	60	144	93	17	294	291	294	253	163
17	66	333	284	215	406	---	403	105	81	85	20	88	294	83	224	176
18	59	101	242	235	394	---	387	124	205	147	15	258	253	240	119	254
19	62	202	230	128	359	---	373	160	205	321	15	312	56	310	111	102
20	68	264	300	64	341	---	223	174	195	54	20	190	137	190	84	204
21	44	53	---	151	340	---	352	131	293	345	27	379	259	333	50	58
	68	225	261	162	329	---	352	117	184	179	19	241	228	226	146	141
22	30	93	343	100	238	---	126	200	268	200	26	237	209	234	114	125
23	38	141	182	213	290	---	229	84	33	48	16	159	248	150	56	119
24	37	120	274	68	346	---	261	38	30	41	19	49	110	49	63	259
25	25	327	136	120	345	---	343	21	81	---	18	94	172	95	236	59
26	39	208	24	151	348	---	270	38	146	170	7	135	240	94	188	181
27	17	155	---	43	253	---	387	87	103	79	7	76	235	80	111	65
28	20	167	---	62	75	---	376	67	152	294	7	182	116	200	218	114
	29	173	192	108	271	---	285	76	116	139	14	133	190	129	141	132
29	15	301	247	148	62	---	337	218	106	188	5	125	78	144	213	27
30	24	291	302	158	122	---	30	59	127	137	3	146	185	170	73	84
31	27	281	145	43	343	---	67	60	68	23	2	70	204	59	132	220
Nov. 1	35	245	75	78	332	---	376	47	97	129	7	218	153	173	151	101
2	21	87	252	97	323	---	370	49	195	125	2	203	138	202	29	60
3	33	193	262	79	196	---	279	61	130	91	1	54	89	58	187	69
4	34	270	45	165	228	---	33	53	141	86	1	17	211	20	212	89
Avg.	27	238	190	110	230	---	213	78	123	111	3	119	151	118	142	93

	Aklavik, MacKenzie	Corvallis, Oreg.	Dartmouth, N. S.	Edmonton, Alberta	Normandin, Quebec	Ottawa, Ontario	Resolute, N. W. T.	Scarboro, Ontario	Toronto, Ontario
Nov. 5	29	276	154	104	27	(69)	2	176	154
6	27	217	194	119	87	(79)	2	86	71
7	13	256	57	169	171	--	1	209	114
8	16	259	51	93	73	130	1	155	155
9	23	250	64	63	116	163	1	257	244
10	25	93	60	154	134	218	1	219	193
11	19	87	252	95	46	113		61	55
	22	206	119	114	93	(129)	1	166	141
12	7	192	134	142	103	(192)	---	230	242
13	13	252	246	113	166	51	---	14	17
14	11	250	100	71	29	54	---	35	12
15	13	89	16	144	172	245	---	152	147
16	5	193	9	142	143	171	---	60	56
17	11	132	96	142	15	78	---	159	169
18	9	168	124	120	165	118	---	108	167
	10	182	103	125	113	(130)	--	108	[illegible]
19	5	51	140	94	154	136	--	178	141
20	3	-	176	108	144	180	--	73	74
21	9	---	189	123	102	65		109	107
22	4	-	31	30	125	63	---	202	185
23	5	---	29	114	23	53	---	67	63
24	5	---	25	17	60	47	-	45	58
25	3	-	16	69	23	41	---	116	80
	5	-	87	79	90	83	---	113	101
26	3		129	109	100	202	---	153	162
27	1	---	110	119	49	23	--	54	56
28	1	152	39	87	35	63	--	185	177
29	1	55	21	75	153	204	---	213	213
30	1	35	68	95	112	62	--	35	25
Dec. 1	1	91	168	52	130	192	---	38	38
2	1	34	79	89	75	79	--	155	136
	1	73	88	90	94	118		119	116

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

	Vancouver, B. C.	Winnipeg, Manitoba
1959		
Nov. 5----	125	127
Nov. 6----	163	161
Nov. 7----	153	150
Nov. 8----	172	210
Nov. 9----	45	79
Nov. 10----	155	69
Nov. 11----	48	168
Average------	123	138
Nov. 12----	169	199
Nov. 13----	110	191
Nov. 14----	24	151
Nov. 15----	162	110
Nov. 16----	70	157
Nov. 17----	18	149
Nov. 18----	25	169
Average------	83	161
Nov. 19----	23	137
Nov. 20----	23	120
Nov. 21----	142	55
Nov. 22----	15	53
Nov. 23----	37	72
Nov. 24----	34	157
Nov. 25----	148	113
Average------	60	101
Nov. 26----	142	119
Nov. 27----	116	120
Nov. 28----	46	113
Nov. 29----	75	141
Nov. 30----	39	54
Dec. 1----	44	141
Dec. 2----	51	112
Average------	73	114

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun

DELAYED DATA

Date	Sun's zenith distance								
	A.M.					P.M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
LINCOLN, NEBR.									
	Air mass								
	4.80	3.84	2.88	1.92	*	1.92	2.88	3.84	4.80
Jan. 1959									
4------	0.98	1.10	----	----	1.35	----	1.23	----	----
5------	.93	1.04	1.16	----	1.18	----	1.09	1.00	0.90
6------	.88	.98	1.12	----	1.27	----	1.15	1.01	.92
9------	----	----	.97	----	1.17	----	.97	.84	.74
15-----	.96	1.08	1.20	----	1.35	----	1.20	1.06	.96
16-----	1.01	1.12	1.24	----	1.38	----	1.23	----	----
21-----	----	----	----	----	1.40	----	1.25	1.13	----
22-----	----	1.08	1.19	----	1.32	----	1.21	1.16	.96
24-----	----	----	----	----	1.32	1.32	1.17	----	----
30-----	1.01	1.06	1.20	----	----	----	----	----	----
Averages	0.96	1.06	1.15	----	1.30	1.32	1.17	1.03	0.90
MAUNA LOA OBS., HAWAII									
	Air mass								
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
June 1959									
2------	----	----	----	----	----	1.43	----	----	----
3------	1.18	1.26	----	----	1.59	----	----	----	----
5------	1.18	1.28	1.37	1.49	1.64	1.49	1.36	1.29	1.21
6------	1.20	1.28	1.37	1.48	----	----	----	----	----
7------	1.17	1.26	1.35	1.48	----	----	1.32	1.24	1.06
8------	1.14	1.23	1.34	1.45	1.60	1.48	1.38	1.28	1.21
9------	1.17	1.26	1.35	1.48	1.61	1.44	1.39	1.27	1.21
10-----	1.21	1.30	1.39	1.50	----	----	----	----	----
11-----	1.20	1.28	1.37	1.49	1.58	----	----	----	----
13-----	----	----	----	1.47	1.58	1.43	1.32	1.22	1.15
14-----	----	1.27	1.36	1.47	----	----	----	----	----
18-----	----	----	----	----	----	----	1.30	1.22	1.14
19-----	1.18	1.26	1.35	1.46	1.57	1.44	1.32	1.23	1.15
20-----	1.19	1.28	1.36	1.46	1.58	1.41	----	----	1.12
22-----	----	1.29	1.38	1.48	----	----	----	----	----
23-----	1.23	1.30	1.40	1.49	1.63	1.47	1.34	1.23	1.15
24-----	1.20	1.28	1.36	1.48	1.58	1.46	1.37	1.28	1.20
25-----	1.24	1.31	1.40	1.51	1.64	----	----	----	----
Averages	1.19	1.28	1.37	1.48	1.60	1.45	1.34	1.25	1.16
MADISON, WIS.									
	Air mass								
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
June 1959									
3------	S 0.80	S 0.92	S 1.03	S 1.19	----	----	----	----	----
12-----	----	----	----	----	S 1.39	----	----	----	----
Averages	0.80	0.92	1.03	1.19	1.39	----	----	----	----
BLUE HILL, MASS.									
	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
July 1959									
5------	0.41	0.52	0.69	0.87	1.20	1.09	0.92	0.85	0.77
7------	----	----	.97	1.07	----	----	----	----	.57
8------	.83	.91	1.05	1.17	1.30	----	----	----	----
9------	.65	----	.85	----	----	----	----	----	----
27-----	.79	.85	.96	1.09	1.26	.99	.81	.67	.60
28-----	.66	.75	.85	1.01	----	----	----	----	----
30-----	----	----	----	----	----	.97	.81	61	.49
Averages	0.66	0.76	0.90	1.04	1.25	1.02	0.85	0.71	0.61

* Values corresponding to true solar noon.
H Haze.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.
Also see reference notes with current data.

Date	Sun's zenith distance								
	A.M.					P.M.			
	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
MAUNA LOA OBS., HAWAII									
	Air mass								
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
Apr. 1959									
1-----	1.26	1.34	1.43	1.55	1.69	1.52	1.41	1.33	1.24
2-----	1.29	1.36	----	----	----	----	----	----	----
3-----	1.28	1.37	1.46	1.58	1.71	1.50	1.39	1.27	1.19
4-----	----	----	----	----	1.65	----	----	----	----
5-----	1.23	1.30	1.39	1.51	----	1.48	1.37	1.27	1.20
6-----	1.25	1.34	1.45	1.57	1.69	1.54	1.43	1.33	1.25
13----	1.23	1.30	----	----	----	----	----	----	----
24----	----	----	1.34	1.47	1.62	1.48	1.36	1.27	1.17
25----	1.28	1.35	1.45	1.56	1.68	1.53	1.43	1.34	1.26
26----	1.29	1.38	1.47	1.56	1.70	1.48	1.38	1.34	1.26
27----	1.25	1.34	1.42	1.53	1.64	1.50	1.39	1.30	1.21
28----	----	----	----	----	1.65	1.51	1.40	1.30	1.21
29----	1.26	1.33	1.43	1.54	1.64	1.50	1.40	1.29	1.18
30----	1.26	1.35	1.44	1.55	1.63	----	----	----	----
Averages	1.26	1.34	1.43	1.54	1.66	1.50	1.40	1.30	1.22
MAUNA LOA OBS., HAWAII									
	Air mass								
	3.36	2.69	2.01	1.34	*	1.34	2.01	2.69	3.36
May 1959									
1-----	1.30	1.38	1.47	1.52	1.66	1.49	1.38	1.30	1.21
2-----	1.27	1.35	1.45	1.49	1.64	1.52	1.36	1.28	1.18
3-----	1.26	1.34	1.42	1.53	1.68	1.47	1.39	1.28	1.20
4-----	1.26	1.33	1.42	1.53	----	1.51	1.39	1.30	1.21
5-----	1.28	1.35	1.45	1.49	1.61	1.43	1.39	1.27	1.20
6-----	1.28	1.35	1.44	1.54	1.66	----	----	----	----
12----	----	----	----	----	----	1.43	1.34	1.25	1.16
13----	1.20	1.28	1.39	1.51	1.66	1.51	1.40	1.31	1.22
14----	1.21	1.29	1.39	1.51	1.66	----	----	----	----
19----	1.16	1.24	----	----	----	----	----	----	----
22----	1.19	1.27	1.37	1.48	----	----	----	----	----
23----	1.22	1.30	1.40	1.51	1.61				
Averages	1.24	1.32	1.42	1.51	1.65	1.48	1.38	1.28	1.20
BLUE HILL, MASS.									
	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
May 1959									
3-----	----	----	----	1.07	1.38	1.17	0.98	0.85	0.75
4-----	0.77	0.88	1.02	1.17	1.38	1.29	----	----	----
6-----	.69	.83	.98	1.14	----	----	----	----	----
8-----	----	----	----	----	----	1.19	1.06	.98	.78
9-----	.63	.77	.96	1.16	1.35	1.05	.82	.65	.60
10----	.58	.70	.84	1.08	----	----	----	----	----
18----	.69	.81	.99	1.12	1.31	1.12	.96	.82	.75
19----	.31	.41	.60	.92	----	----	----	----	----
25----	.76	.87	.99	1.12	1.29	1.07	.85	.78	.70
31----	----	----	----	----	----	1.12	.95	.80	.69
Averages	0.63	0.75	0.91	1.10	1.34	1.14	0.94	0.81	0.71
BLUE HILL, MASS.									
	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
June 1959									
30----	0.69	----	0.97	1.09	1.25	1.05	0.81	0.72	0.57
GUAM, M. I. (WBO)									
	Air mass								
	4.92	3.93	2.95	1.97	*	1.97	2.95	3.93	4.92
Nov. 1959									
1-----	----	----	S 0.87	----	M 1.41	----	----	----	----

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

SOLAR RADIATION DATA

Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun.

DELAYED DATA

BLUE HILL, MASS.

Date	A M				*	P M			
Sun's zenith distance	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
Air mass	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
Aug. 1959									
1------	----	----	----	----	----	1.08	0.88	0.72	0.61
2---- -	----	----	----	----	----	1.16	1.02	.89	.79
3-----	0.76	0.81	1.01	1.10	----	1.14	1.00	.89	.81
4------	.65	.77	.91	1.10	1.24	----	----	----	----
16-----	H .34	H .46	H .65	H .90	----	----	----	----	----
19-----	59	.76	.88	1.07	1.20	----	----	----	----
23-----	----	----	----	1.18	1.36	1.15	.99	.91	.82
26-----	----	----	----	----	----	1.02	86	.72	.64
Averages	0.59	0.70	0.86	1.07	1.27	1.11	0.95	0.83	0.73

MADISON, WIS.

Date	A M				*	P M			
Sun's zenith distance	78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°
Air mass	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
Aug. 1959									
1-----	----	----	----	S 1.18	1.38	----	----	----	----
12----	----	----	----	----	S 1.14	----	----	----	----
17----	----	----	----	----	1.39	S 1.25	S 1.10	S 0.97	S 0.88
18----	S 0.88	S 0.96	S 1.07	1.21	S 1.33	S 1.17	S 1.02	S .91	S .78
19----	M .75	M .86	H 1.01	H 1.17	----	S 1.02	M .70	M .54	M .43
Averages	0.82	0.91	1.04	1.19	1.31	1.15	0.94	0.81	0.70

* Values corresponding to true solar noon.
H Haze.
S Slight haze - indeterminable.
M Moderate haze - indeterminable.
Also see reference notes with current data.

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station listed above appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

DELAYED DATA

Date	Bismarck, N. Dak.	Caribou, Me.	Green Bay, Wis.	Mauna Loa, Hawaii	Washington, D. C. (U)	Date	Bismarck, N. Dak.	Caribou, Me.	Green Bay, Wis.	Mauna Loa, Hawaii
1959										
JAN.						FEB.				
1	---	.350	---	.246	---	1	.483	.411	---	.270
2	.440	---	---	.247	.291	2	.396	---	.466	.270
3	---	.348	---	.251	.285	3	---	.466	---	.261
4	.403	---	---	.256	.318	4	---	---	---	.257
5	.341	---	---	.256	.354	5	.455	.394	.416	.256
6	.331	---	---	.258	.352	6	---	.431	.444	---
7	.307	---	---	.258	---	7	.369	.389	---	.254
8	.330	---	.349	---	.345	8	.410	---	.372	.251
9	.273	---	.400	---	.397	9	---	.376	---	---
10	---	---	.374	.254	.415	10	.435	.364	---	---
11	.334	---	.385	.249	.432	11	.425	.354	.435	---
12	.253	---	---	.243	.371	12	.401	---	---	---
13	---	---	---	.244	.333	13	---	.390	---	.256
14	.334	---	---	---	.291	14	.386	.382	---	.257
15	.412	---	---	.260	.294	15	---	---	---	.258
16	---	---	---	.258	---	16	---	---	.420	.256
17	.363	---	.447	---	.400	17	.340	.407	---	.261
18	---	---	---	---	.374	18	.435	---	---	.263
19	---	.391	.378	---	---	19	.430	---	---	.261
20	.408	.371	---	.243	---	20	.381	---	.419	.267
21	.408	.310	---	.243	.264	21	.380	---	.378	.268
22	---	---	---	.243	.302	22	.399	---	.363	.275
23	.339	.392	---	.243	.337	23	.397	---	.411	.281
24	.281	.388	---	.252	.351	24	.394	---	.389	.273
25	.355	.356	---	.248	.308	25	.411	.392	.396	.274
26	.354	.371	---	.242	---	26	---	.386	.416	.274
27	.340	.385	---	.252	---	27	.405	.376	---	.271
28	---	.372	---	.254	.337	28	.393	.351	---	.269
29	---	.342	---	.256	---					
30	.446	---	---	.255	---					
31	.490	.426	.458	.260	.290					

The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

DELAYED DATA

Date	Washington, D. C. (U)	Date	Bismarck, N. Dak.	Caribou, Me.	Green Bay, Wis.	Mauna Loa, Hawaii	Washington, D. C. (U)	Date	Bismarck, N. Dak.	Caribou, Me.
1959										
FEB.		MAR.						APR.		
1---------	.329	1	.384	---	.396	.269	.338	1	.375	.385
2---------	.364	2	.470	.366	---	.272	.371	2	.417	---
3---------	.330	3	---	.395	---	.265	.343	3	.385	---
4---------	---	4	.453	---	.454	.275	.371	4	.370	---
5---------	.328	5	.428	.445	---	.272	.360	5	.358	.428
6---------	.368	6	.434	---	---	.274	.338	6	.337	---
7---------	.338	7	.441	---	.479	.275	.382	7	.373	---
8---------	.337	8	.401	---	---	.268	.383	8	---	.379
9---------	---	9	.443	.475	.400	.267	---	9	.448	.331
10--------	.302	10	---	.457	.462	.272	.413	10	.418	.334
11--------	.317	11	---	.442	---	.281	.402	11	.452	---
12--------	.335	12	---	---	---	.283	.397	12	.368	---
13--------	.341	13	.424	---	---	.270	.434	13	.368	.410
14--------	---	14	.440	---	---	.269	.367	14	.363	---
15--------	.310	15	.429	.408	---	.271	---	15	.378	---
16--------	.347	16	.407	---	---	.277	.344	16	.375	---
17--------	.336	17	.382	.418	.448	.276	.372	17	---	---
18--------	---	18	.381	.419	.392	.276	.413	18	.382	.392
19--------	.382	19	.382	---	.384	.298	.368	19	---	.396
20--------	.390	20	.397	.379	.380	.281	.327	20	.394	.374
21--------	.375	21	.351	---	.434	.269	.344	21	.409	.411
22--------	.351	22	.375	---	.361	.273	.352	22	.366	.415
23--------	.363	23	.376	.415	.368	.271	.330	23	.357	.428
24--------	.335	24	.381	.413	.404	.271	.344	24	.411	.382
25--------	.318	25	.398	.391	.382	.271	.359	25	.392	.376
26--------	.344	26	.377	.446	---	.279	.334	26	---	.365
27--------	.330	27	.375	.425	.391	.284	---	27	.388	.400
28--------	.333	28	.396	.439	.379	.301	---	28	.429	.386
		29	.395	.421	---	.301	---	29	---	---
		30	---	.399	.374	.280	---	30	.370	---
		31	.457	.402	---	.274	---			

The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

DELAYED DATA

Date	Green Bay, Wis.	Mauna Loa, Hawaii	Date	Bismarck, N. Dak.	Caribou, Me.	Green Bay, Wis.	Mauna Loa, Hawaii	Date	Bismarck, N. Dak.	Caribou, Me.
1959										
APR.			MAY					JUN.		
1----------	---	---	1	.355	---	.366	.278	1	.356	---
2----------	---	---	2	---	---	.352	.282	2	.336	.324
3----------	---	---	3	.333	---	---	.291	3	.345	.348
4----------	---	.288	4	---	---	.344	.288	4	.334	.363
5----------	.397	.285	5	---	.372	.319	.287	5	.314	.362
6----------	.368	.279	6	---	.362	.271	---	6	.312	.361
7----------	.354	---	7	.406	---	.369	---	7	.330	---
8----------	---	---	8	.399	.394	.389	---	8	.340	---
9----------	.340	---	9	.359	.430	.367	---	9	.336	---
10---------	.462	---	10	---	.378	.370	---	10	.326	.358
11---------	.461	---	11	.402	---	.375	---	11	.344	.326
12---------	.450	---	12	.393	---	.367	---	12	.298	.344
13---------	.381	.280	13	.379	---	.332	---	13	.322	---
14---------	.374	.285	14	.367	---	---	.298	14	.304	---
15---------	.371	.283	15	.371	---	.439	---	15	.303	---
16---------	.384	---	16	.370	---	.452	---	16	.318	---
17---------	---	---	17	.369	---	.395	---	17	.275	---
18---------	---	---	18	.380	---	---	---	18	.304	---
19---------	---	---	19	---	---	.351	---	19	.304	---
20---------	---	---	20	---	---	---	---	20	.305	---
21---------	.414	---	21	.387	---	.322	---	21	---	---
22---------	.407	---	22	.360	---	.323	.296	22	.321	---
23---------	.371	.275	23	.362	---	---	.301	23	.313	.389
24---------	.394	.283	24	.341	---	.348	---	24	---	.422
25---------	---	.291	25	.348	.373	---	---	25	.319	.379
26---------	---	.287	26	---	.371	.299	---	26	.303	---
27---------	---	.287	27	---	.351	.326	---	27	.339	---
28---------	.405	.279	28	---	.344	---	---	28	.387	---
29---------	.440	.273	29	.343	---	.335	---	29	.336	---
30---------	.420	---	30	.403	.345	---	---	30	---	.318
			31	.376	.351	.318	---			

The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

TOTAL OZONE DATA

Total amount of ozone in the atmosphere, expressed in terms of integrated depth, in units of 10^{-3} centimeter. These data are given as daily averages obtained from measurements with a Dobson Ozone Spectrophotometer using the sun or zenith cloud (see explanation below) as a light source.

DELAYED DATA

Date	Green, Bay, Wis.	Mauna Loa, Hawaii	Date	Bismarck, N. Dak.	Caribou, Me.	Ft. Worth, Tex.	Green Bay, Wis.	Mauna Loa, Hawaii	Date	Ft. Worth, Tex.
1959 JUN.			JULY						JUN.	
1	.335	---	1	.348	.316	.359	.347	.295	1	---
2	.358	.301	2	.340	---	.357	.351	.290	2	---
3	.376	.295	3	.328	---	.347	.337	.290	3	---
4	.355	---	4	.364	.342	.342	.327	.289	4	---
5	.356	.306	5	.345	.361	.346	.358	.293	5	---
6	.346	.304	6	.316	.337	.341	.361	---	6	---
7	.340	---	7	.314	.380	.349	.322	---	7	---
8	.329	---	8	.398	.357	.346	.323	.293	8	---
9	.354	.305	9	.377	.312	.341	.366	.292	9	---
10	.342	.305	10	.365	.313	.347	---	.287	10	---
11	---	.300	11	.352	.319	.356	.388	---	11	---
12	.350	---	12	.361	.307	.364	.364	.286	12	---
13	.347	.292	13	.354	.311	.364	.356	.285	13	---
14	.339	.291	14	---	---	---	.358	.286	14	---
15	.355	---	15	.314	---	.348	.340	---	15	---
16	.335	---	16	.322	---	.356	.344	---	16	---
17	.317	---	17	.316	---	.345	---	.284	17	---
18	.340	---	18	.332	---	---	.310	.288	18	---
19	.334	.294	19	.318	---	---	.360	.284	19	---
20	.328	.290	20	.334	---	---	.324	.288	20	---
21	.313	.284	21	.317	.333	.335	.327	.289	21	---
22	.335	---	22	.335	.315	.319	.337	.291	22	---
23	.346	---	23	.322	.321	.332	---	.292	23	---
24	---	---	24	.307	.322	.335	.328	.280	24	---
25	.318	.295	25	.307	---	.332	.323	.276	25	---
26	.313	---	26	.299	.322	---	.319	.276	26	---
27	.296	---	27	.301	.320	.340	.309	.283	27	.373
28	---	---	28	.302	.305	.351	---	.283	28	.349
29	.311	---	29	.303	---	.342	.308	.289	29	.357
30	---	---	30	.299	.311	.332	.300	.293	30	.359
			31	.306	---	.340	.304	.290		

The spectrophotometer measures the total amount of ozone in the atmosphere, i.e., the amount contained in a vertical column of air extending from the ground to the top of the atmosphere in the vicinity of the station. The amount of ozone in this column of air is expressed in terms of thickness it would occupy if it were compressed to standard pressure and temperature.

The standard method of observation is that using A (3055 Å and 3254 Å) and D (3176 Å and 3398 Å) wave length pairs. On cloudy days when no observation can be obtained directly upon the sun, observations are taken by using light from the zenith cloud. These observations are not quite as reliable as the sunlight observations; therefore, average values based upon zenith cloud observations are denoted with an asterisk. A detailed description of the spectrophotometer and observational procedures may be found in the "Observer's Handbook of the Ozone Spectrophotometer", Annals of the International Geophysical Year, Volume V, Pergamon Press, 1957.

DESCRIPTION of CHARTS

CHART I..A. AVERAGE TEMPERATURE (°F.) AT SURFACE. B. DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL.-The average monthly temperature presented in Chart I-A is computed from the average daily maximum and the average daily minimum which in turn are computed from the daily maximum and minimum temperatures reported by some 225 first-order Weather Bureau stations and 700 cooperative stations. The departures from normal are presented in Chart I-B. They are based on the 30-year normals (1921-50) for the first-order Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for the cooperative stations.

CHART II. TOTAL PRECIPITATION.-

CHART III. A. DEPARTURE OF PRECIPITATION FROM NORMAL (INCHES). B. PERCENTAGE OF NORMAL PRECIPITATION.-Chart II is based on daily precipitation records at about 800 Weather Bureau and cooperative stations. In Chart III the anomaly in the month's precipitation is shown as a departure from the normal total and as a percentage of the normal total. These anomalies show the deviations from the 30-year normals (1921-50) for about 225 first-order Weather Bureau stations in Charts III A and B, supplemented in Chart III-A by the deviation from means of 25 years or more (mostly 1931-55) for about 700 cooperative stations.

CHART IV. TOTAL SNOWFALL.-

CHART V. A. PERCENTAGE OF MEAN MONTHLY SNOWFALL. B. DEPTH OF SNOW ON GROUND.-Chart IV gives the total depth in inches of unmelted snowfall as reported during the month by Weather Bureau and cooperative stations. This is converted in Chart V-A into a percentage of the mean monthly total amount computed for each Weather Bureau station having at least 10 years of record. The depth of snow on ground is that reported by both Weather Bureau and cooperative stations as of 7:00 a.m. Eastern Standard Time on the last Monday of the month. This is reported only for the months December through April. The snowfall charts are presented each month November through April.

CHART VI. A. PERCENTAGE OF SKY COVER BETWEEN SUNRISE AND SUNSET. B. PERCENTAGE OF MEAN MONTHLY SKY COVER BETWEEN SUNRISE AND SUNSET.-These charts are based on visual observations made hourly at Weather Bureau stations and averaged for the month. Sky cover includes, in addition to cloudiness, obscuration of the sky by fog, smoke, etc. Mean amount of sky cover is computed for stations having at least 10 years of record.

CHART VII. A. PERCENTAGE OF POSSIBLE SUNSHINE. B. PERCENTAGE OF MEAN MONTHLY SUNSHINE.-CHART VII-A shows the amount of sunshine received in terms of percentage of the total hours of sunshine possible during the month. In Chart VII-B this is shown as a percentage of the mean number of hours of sunshine received. Means are computed for Weather Bureau stations having at least 10 years of record.

CHART VIII. A. AVERAGE DAILY VALUES OF SOLAR RADIATION, LANGLEYS. B. PERCENTAGE OF MEAN DAILY SOLAR RADIATION.-Shown on Chart VIII-A are the monthly averages of daily total solar radiation, both direct and diffuse, in langleys (gm. cal. $cm.^{-2}$) for all Weather Bureau stations which record this element. Supplementary data for which limits of accuracy are wider than for those data shown are drawn upon in making the analysis. Chart VIII-B shows the percentages of the mean based on the period 1951-55.

CHART IX.-TRACKS OF CENTERS OF ANTICYCLONES AT SEA LEVEL.-

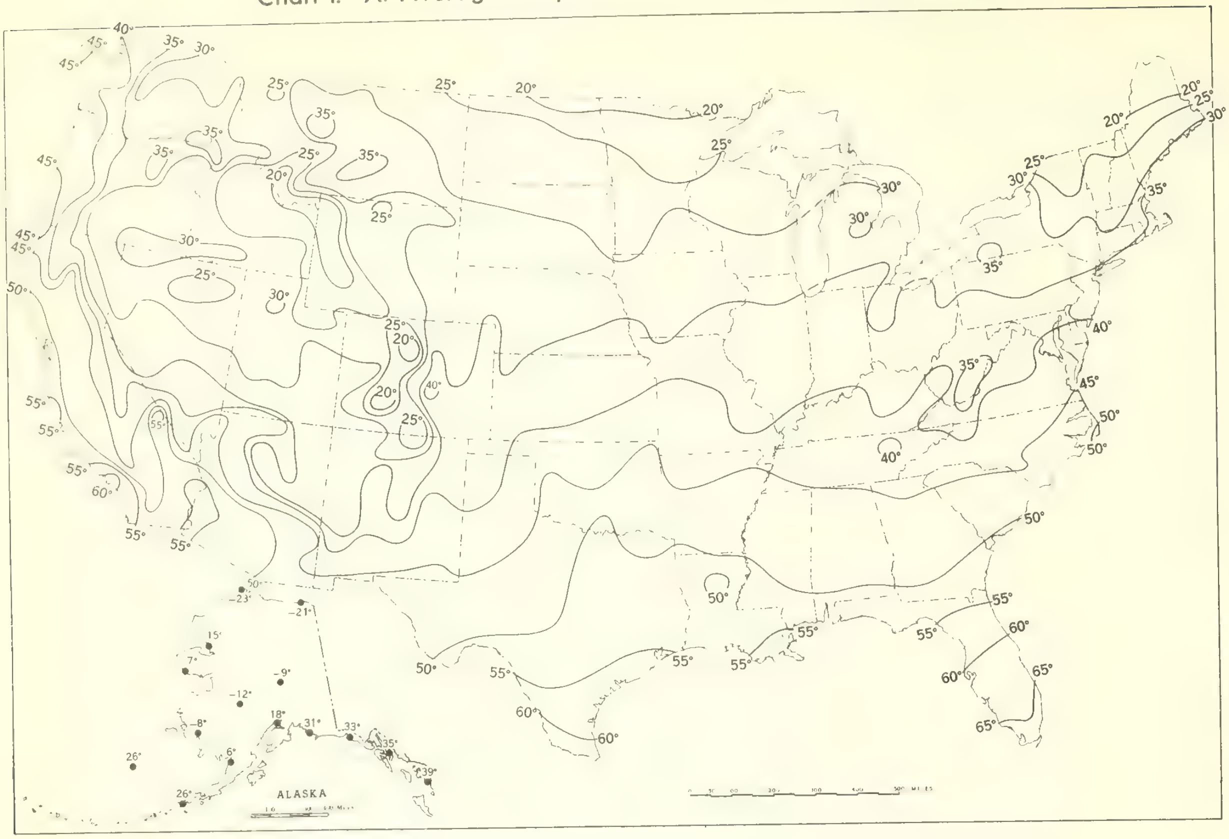
CHART X. TRACKS OF CENTERS OF CYCLONES AT SEA LEVEL.-Centers which can be identified for 24 hours or more are tracked in these charts. Semi-permanent features such as the Great Basin and Pacific Highs and Colorado and Mexico Lows are not shown. The 7:00 a.m. EST positions are shown by open circles, with the intermediate positions at 6-hour intervals shown by solid dots. The date is given above the circle and the central pressure to whole millibars below. A dashed track indicates a regeneration rather than actual movement to the next position. Solid squares indicate position of stationary center for period shown beside it.

CHART XI. AVERAGE SEA LEVEL PRESSURE (mb.) AND SURFACE WINDROSES.-The average monthly sea level pressure is obtained from the averages of the 7:00 a.m. and 7:00 p.m. EST pressures reported at Weather Bureau stations. Windroses are based on the hourly wind directions (to 16 points of the compass) reported by Weather Bureau stations, each circle or arc indicating 5 percent of the time. The inset shows the departure of the average pressure based on 30-year normals for first-order Weather Bureau stations, other stations having at least 10 years of record, and, for each 10° intersection in a diamond grid over the oceans, from interpolated values read from the Historical Weather Maps for the 20 years of best coverage prior to 1940.

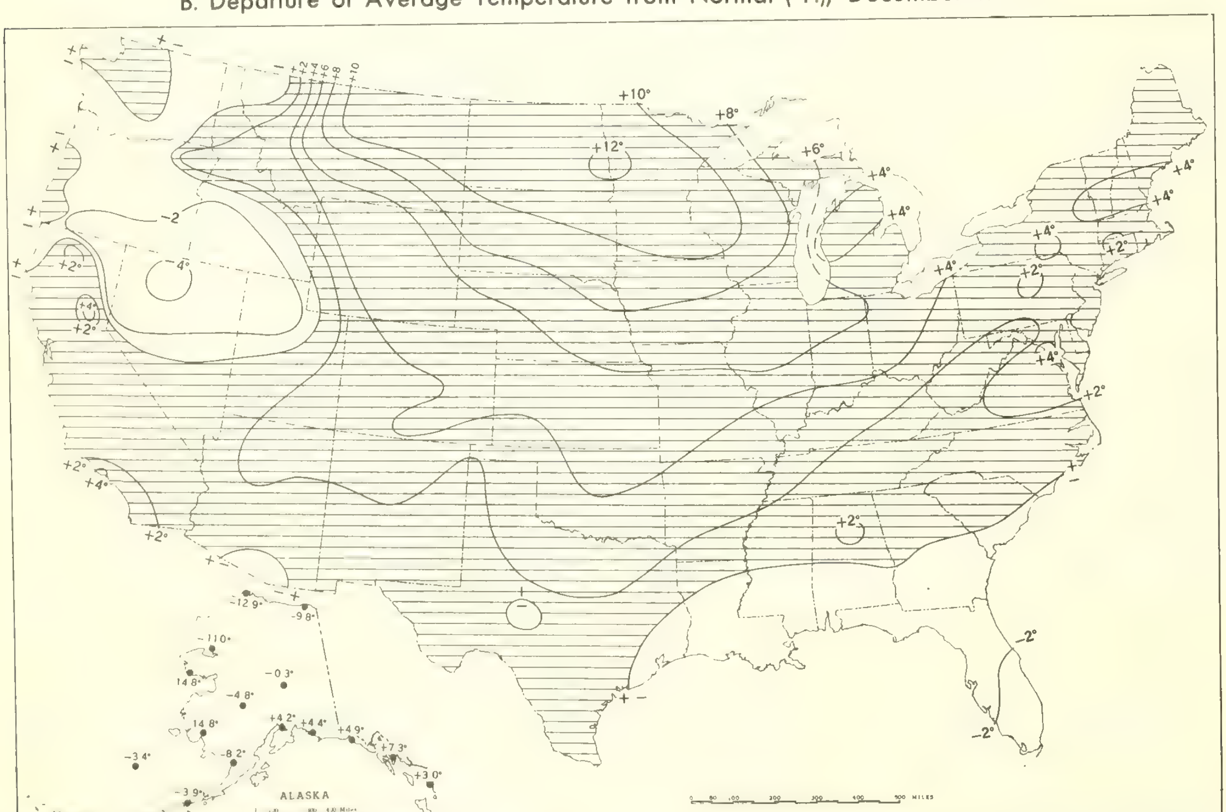
CHARTS XII-XVII. AVERAGE HEIGHT, TEMPERATURE, AND RESULTANT WINDS, 850, 700, 500, 300, 200, and 100 mb.-Height is given in geopotential meters and temperature in degrees Celsius. These are the averages of the 1200 GMT radiosonde reports. Wind speeds are given in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. Directions are shown to 360° of the compass. Winds are based on rawins at the indicated pressure surface and at 1200 GMT.

Exact values of most of these charted elements for Weather Bureau stations are printed each month in tabular form in CLIMATOLOGICAL DATA, NATIONAL SUMMARY. Extreme values of temperature and precipitation for each state are included in the table, Condensed Climatological Summary. Annual averages are presented in the CDNS Annual Issue each year.

Chart I. A. Average Temperature (°F.) at Surface, December 1959.

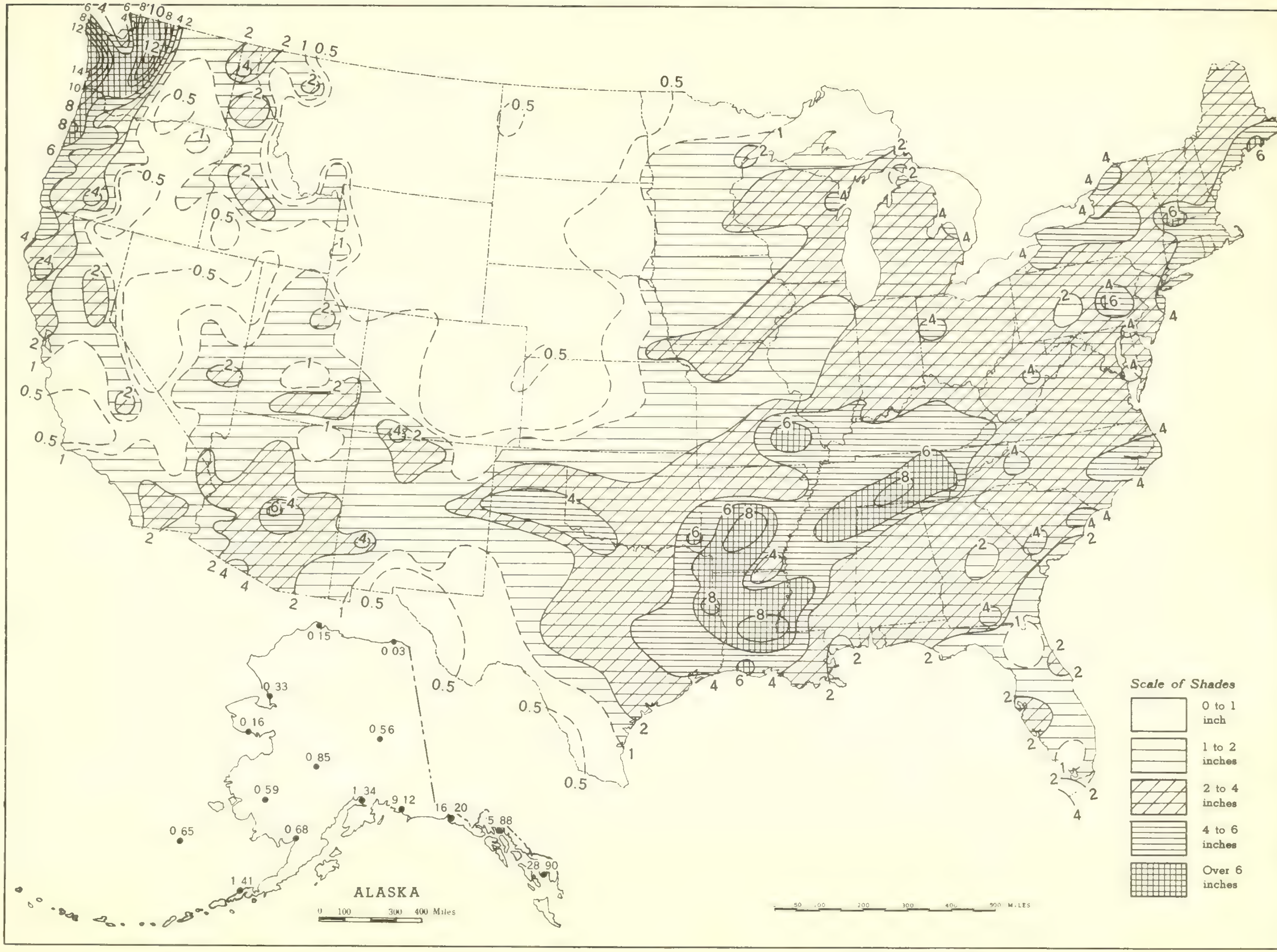


B. Departure of Average Temperature from Normal (°F.), December 1959.



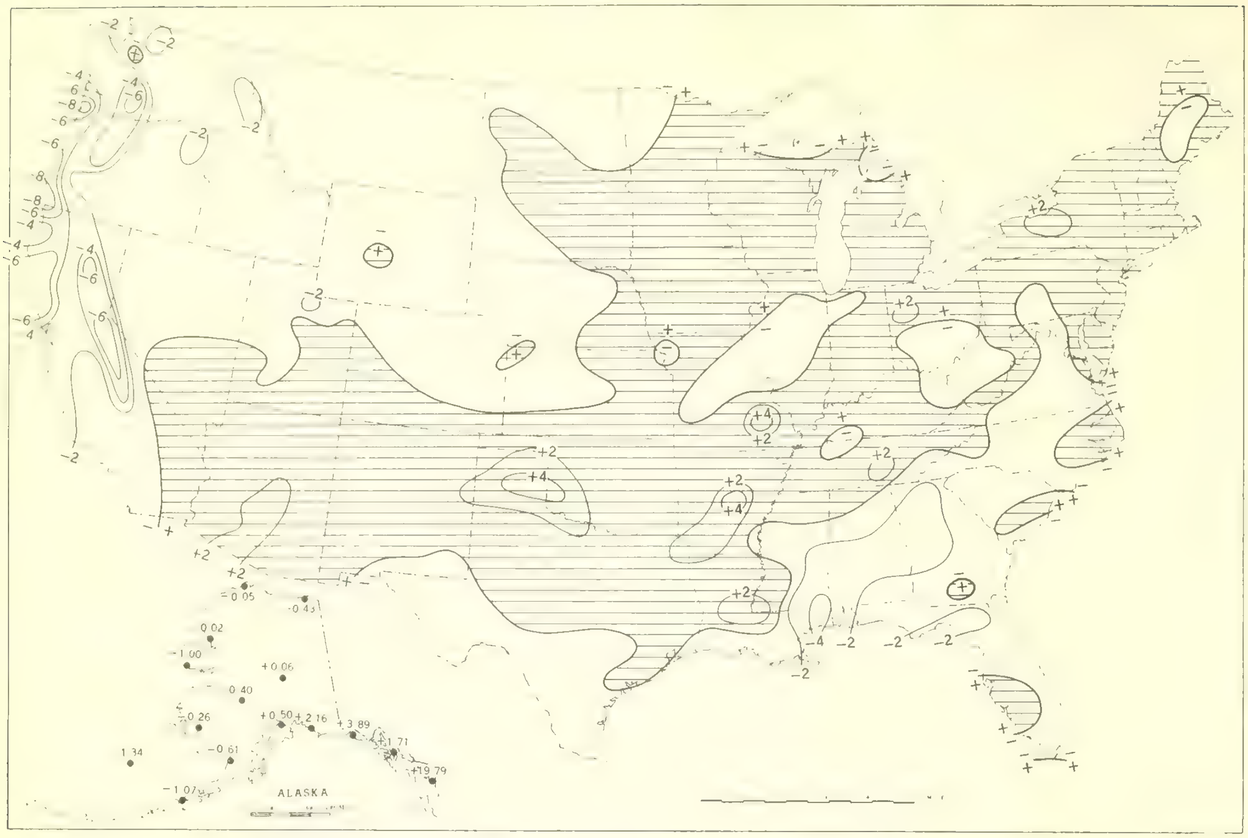
A. Based on reports from over 900 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Departures from normal are based on the 30-yr. normals (1921-50) for Weather Bureau stations and on means of 25 years or more (mostly 1931-55) for cooperative stations.

Chart II. Total Precipitation (Inches), December 1959.

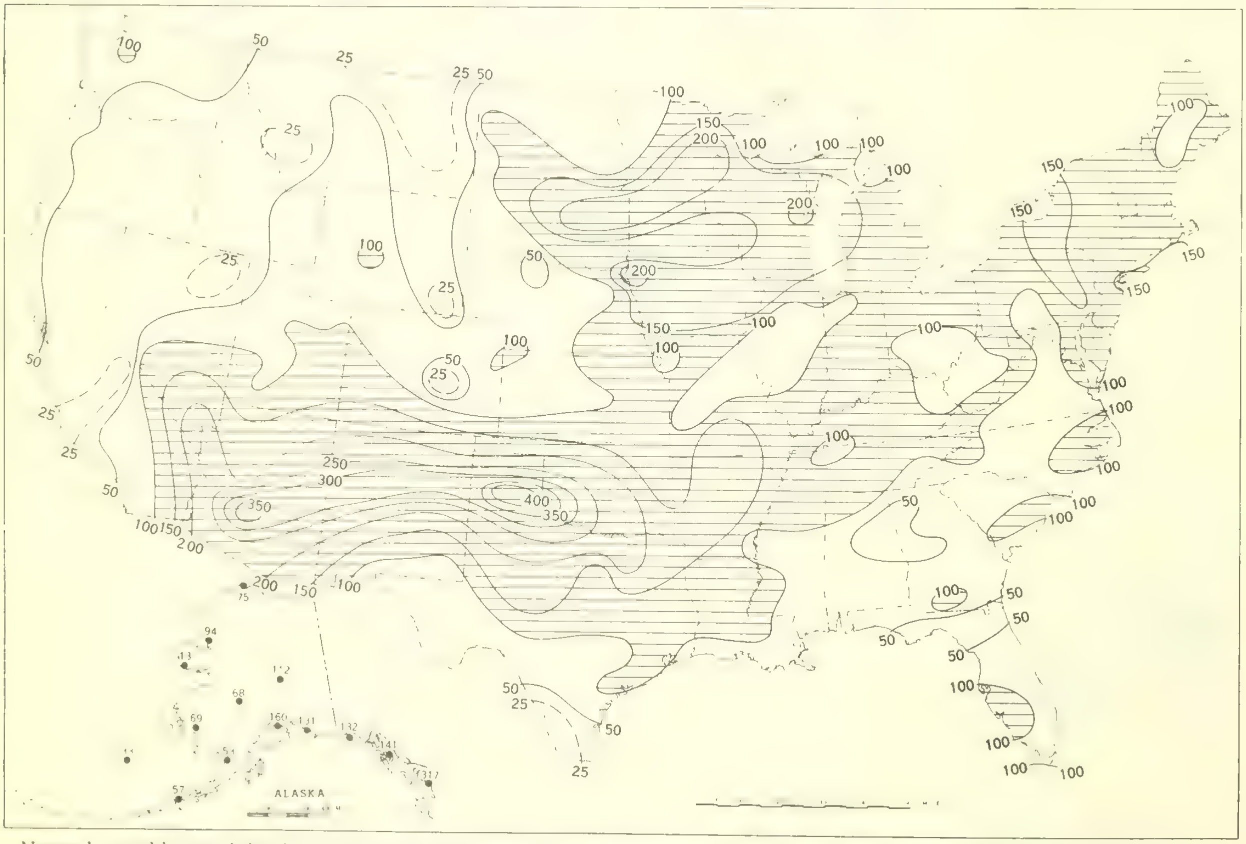


Based on daily precipitation records at about 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), December 1959.

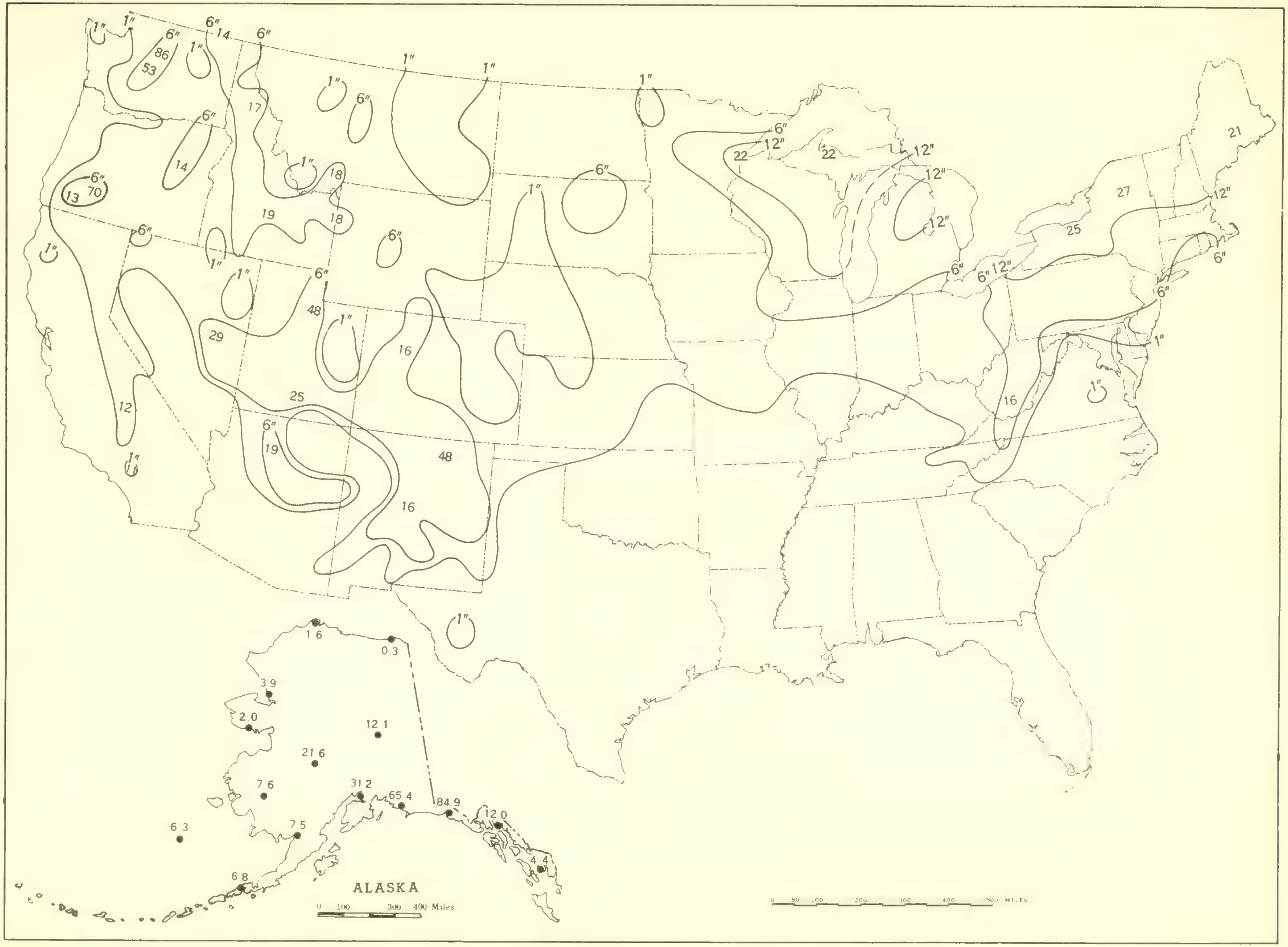


B. Percentage of Normal Precipitation, December 1959.



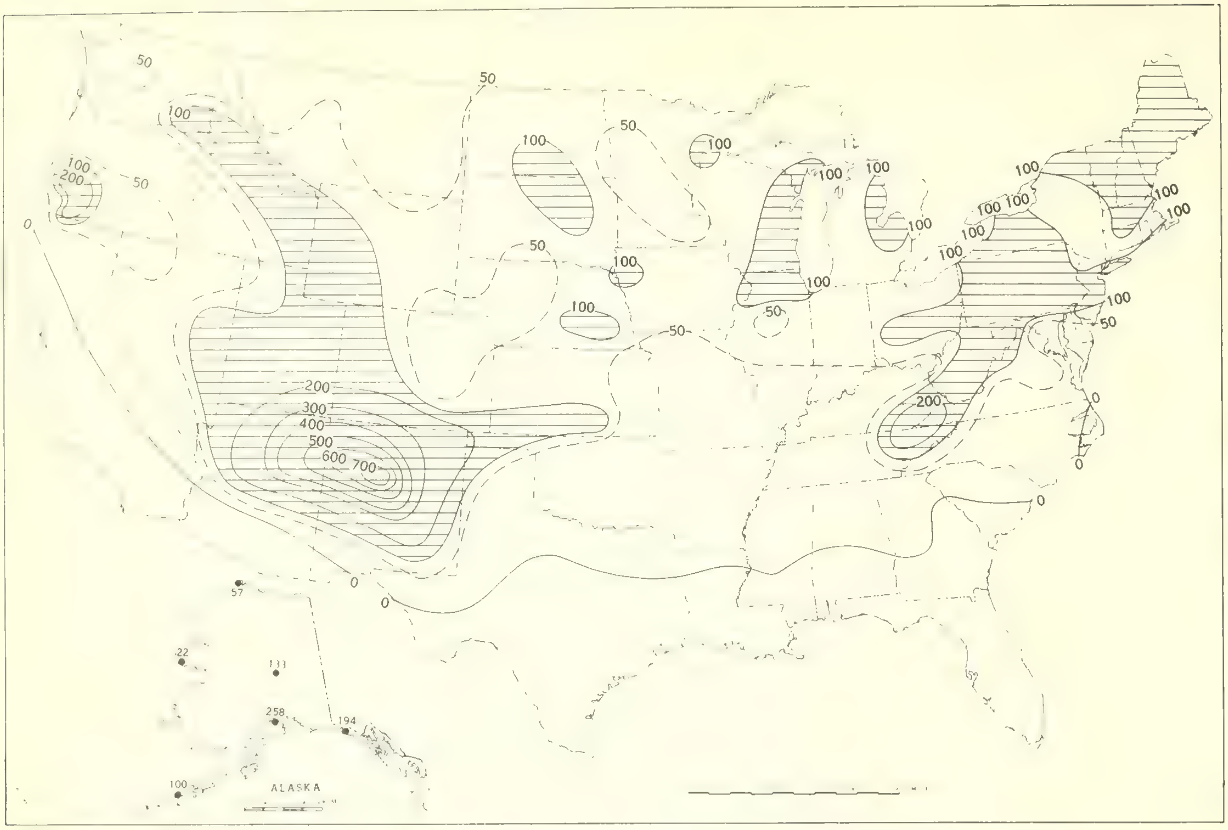
Normal monthly precipitation amounts are computed from the records for 1921-50 for Weather Bureau stations and from records of 25 years or more (mostly 1931-55) for cooperative stations.

Chart IV. Total Snowfall (Inches), December 1959.

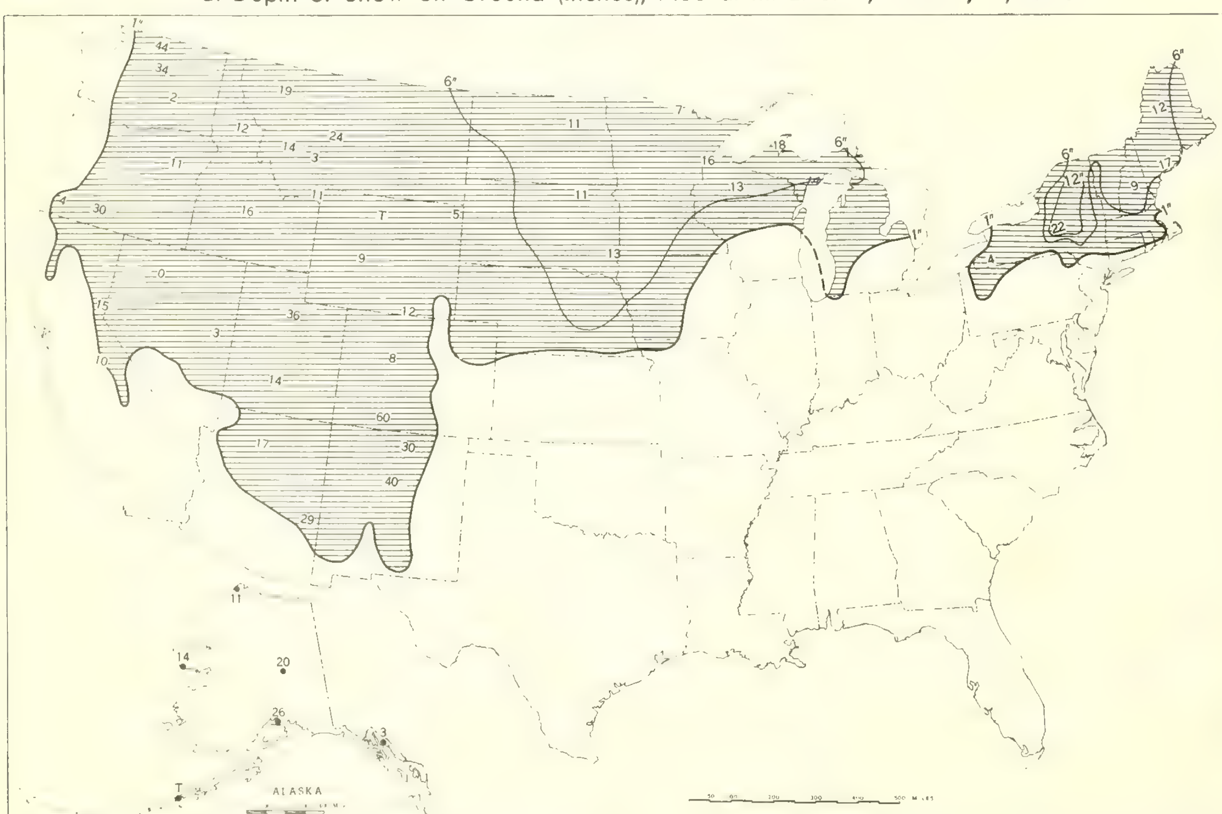


This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

Chart V. A. Percentage of Mean Monthly Snowfall, December 1959.

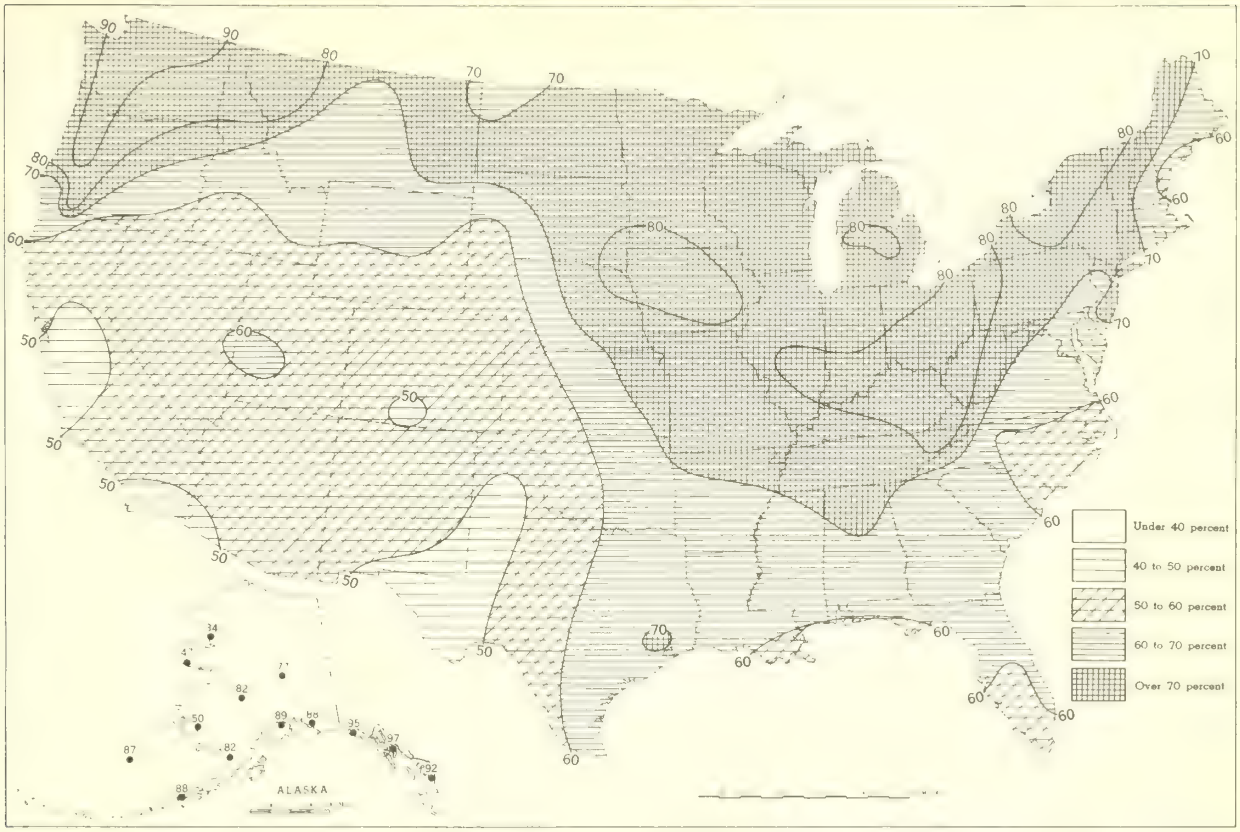


B. Depth of Snow on Ground (Inches), 7:00 a. m. E. S. T., January 4, 1960.

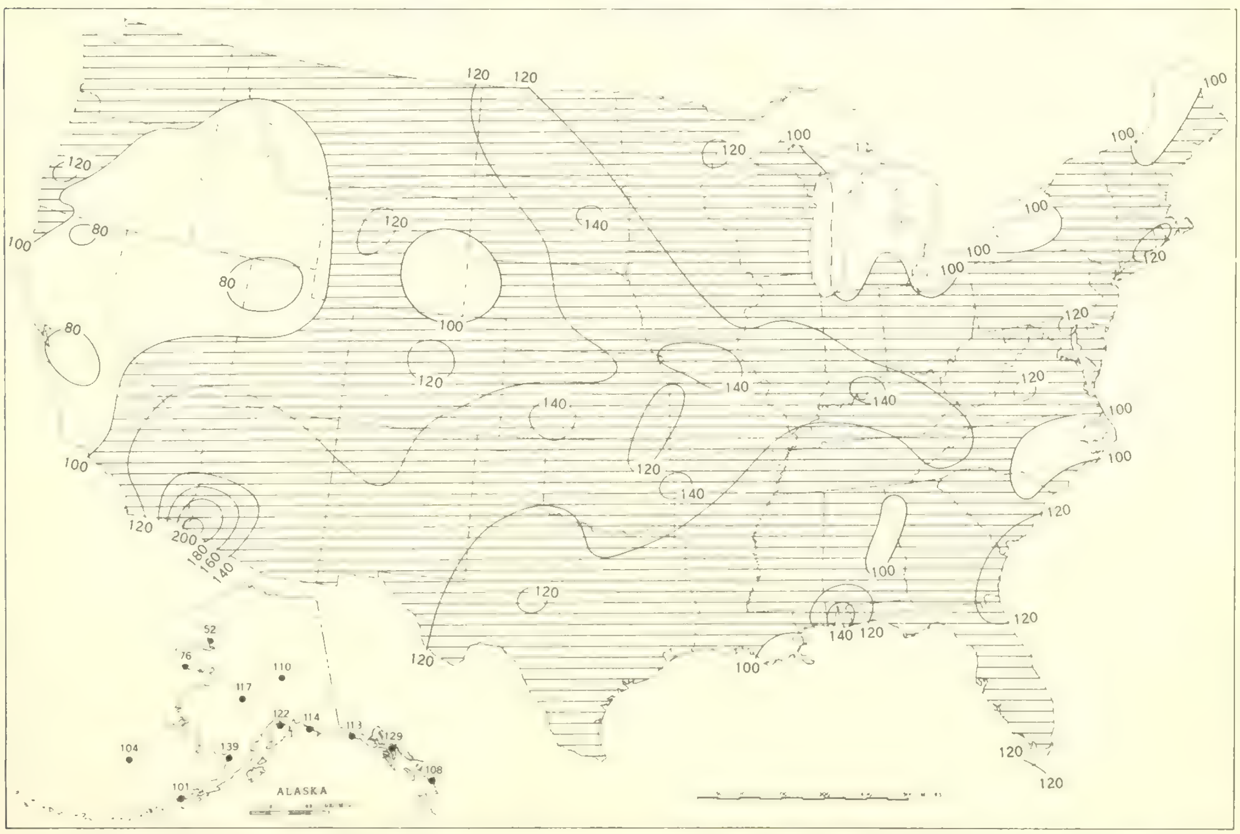


A. Amount of mean monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
B. Shows depth currently on ground at 7:00 a.m. E.S.T., of the Monday nearest the end of the month.
It is based on reports from Weather Bureau and cooperative stations.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, December 1959.

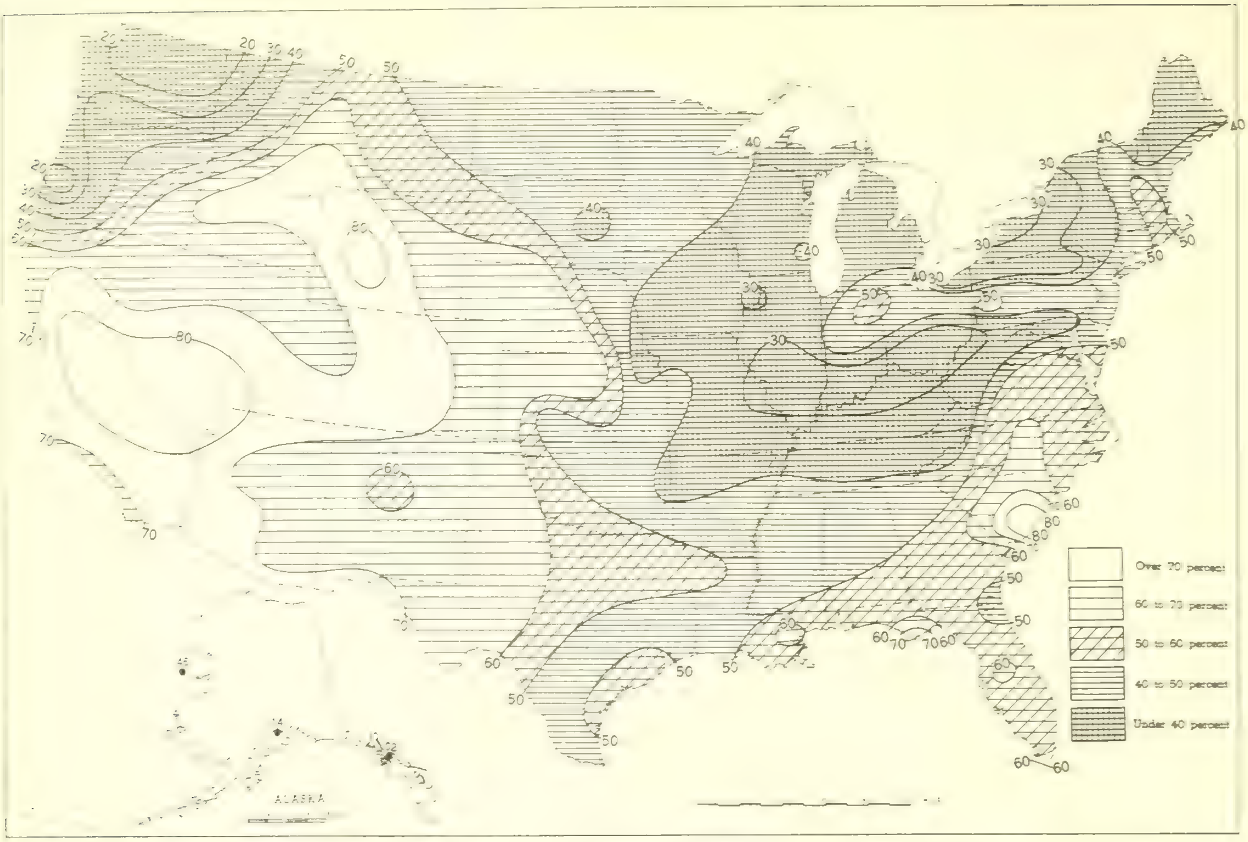


B. Percentage of Mean Monthly Sky Cover Between Sunrise and Sunset, December 1959.

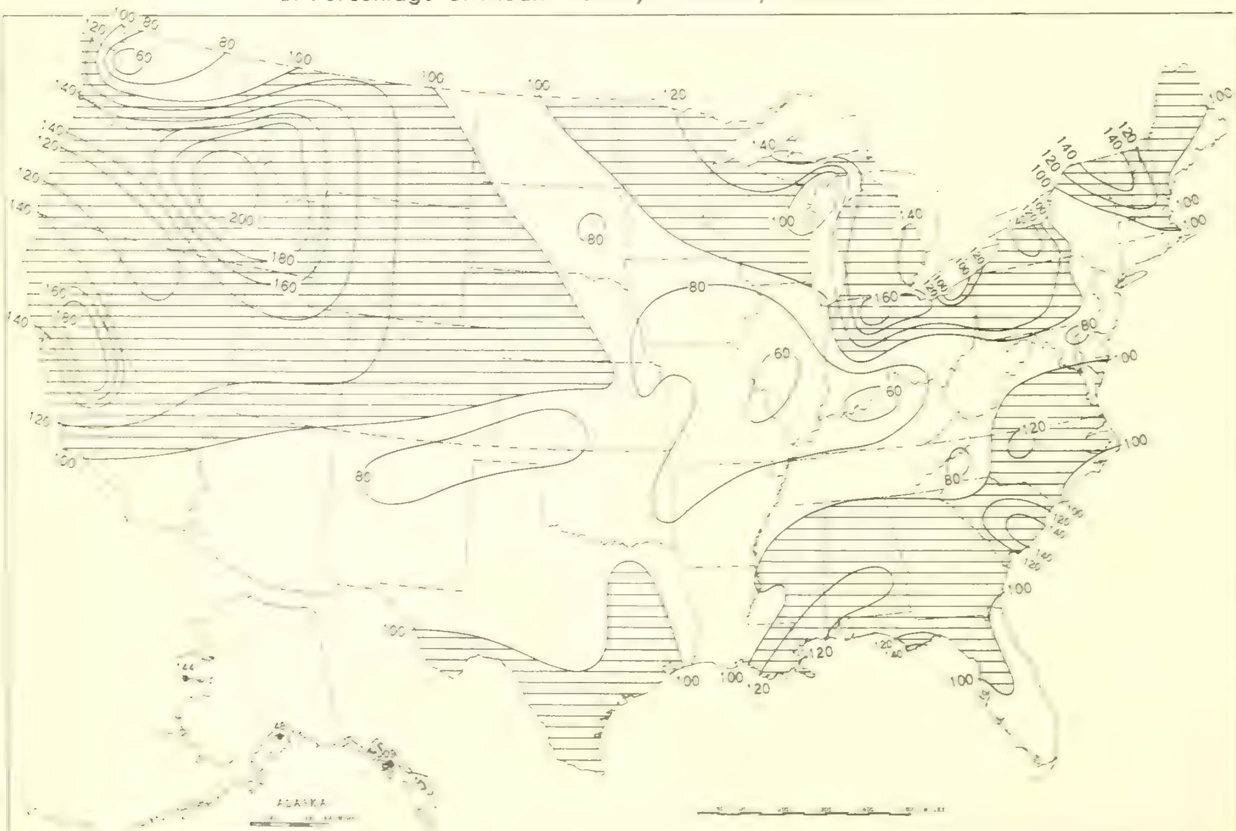


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of mean amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, December 1959.

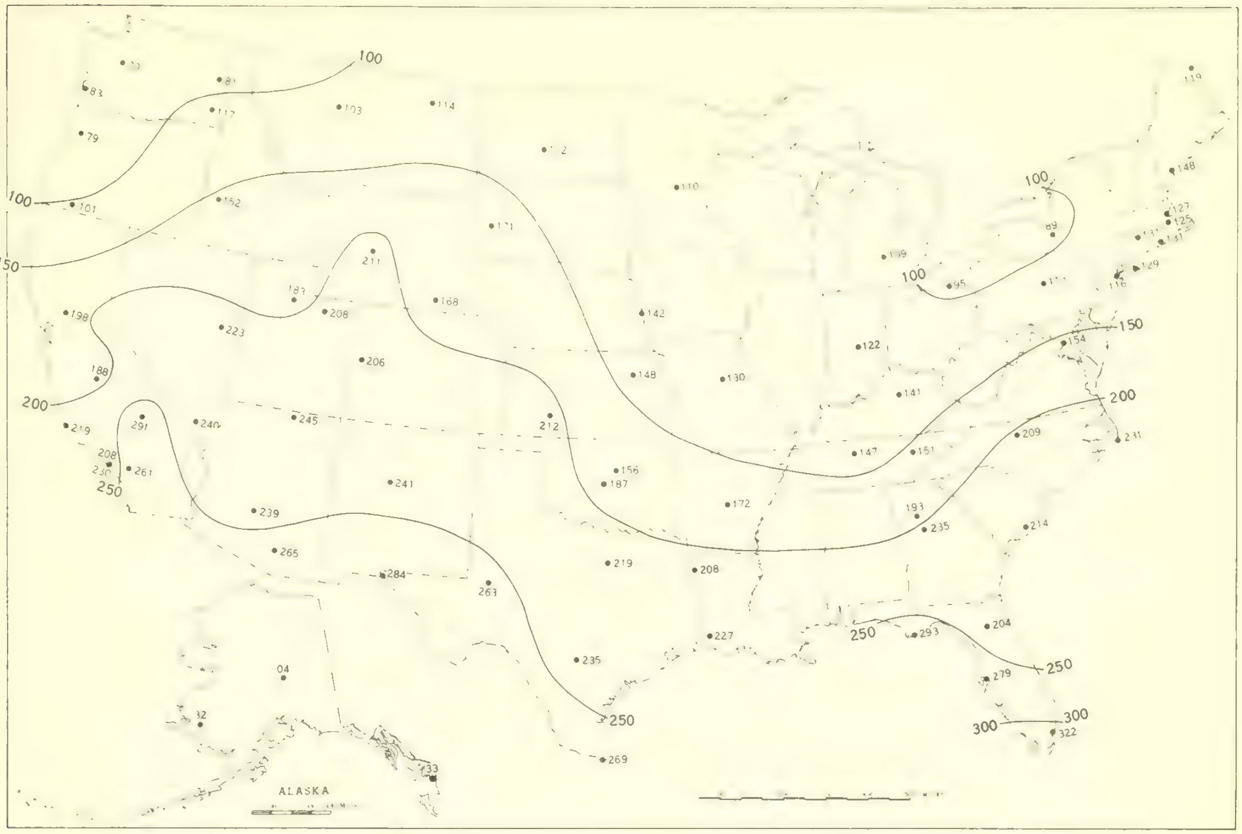


B. Percentage of Mean Monthly Sunshine, December 1959.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Means are computed for stations having at least 10 years of record.

Chart VIII. A. Average Daily Values of Solar Radiation, Langleys, December 1959.

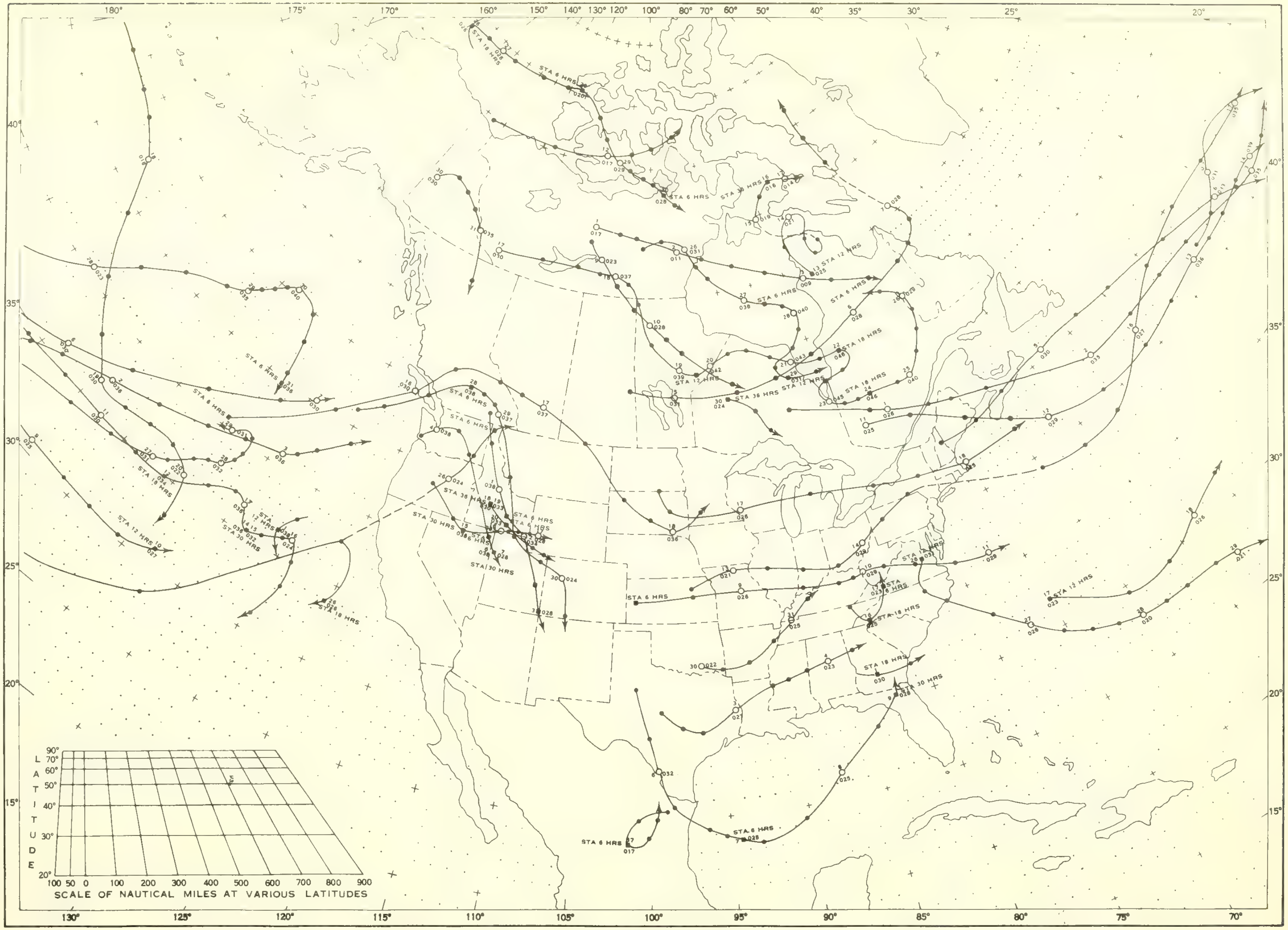


B. Percentage of Mean Daily Solar Radiation, December 1959.

A. Mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm.$^{-2}$) and recorded in International Pyrheliometer Scale of 1956.

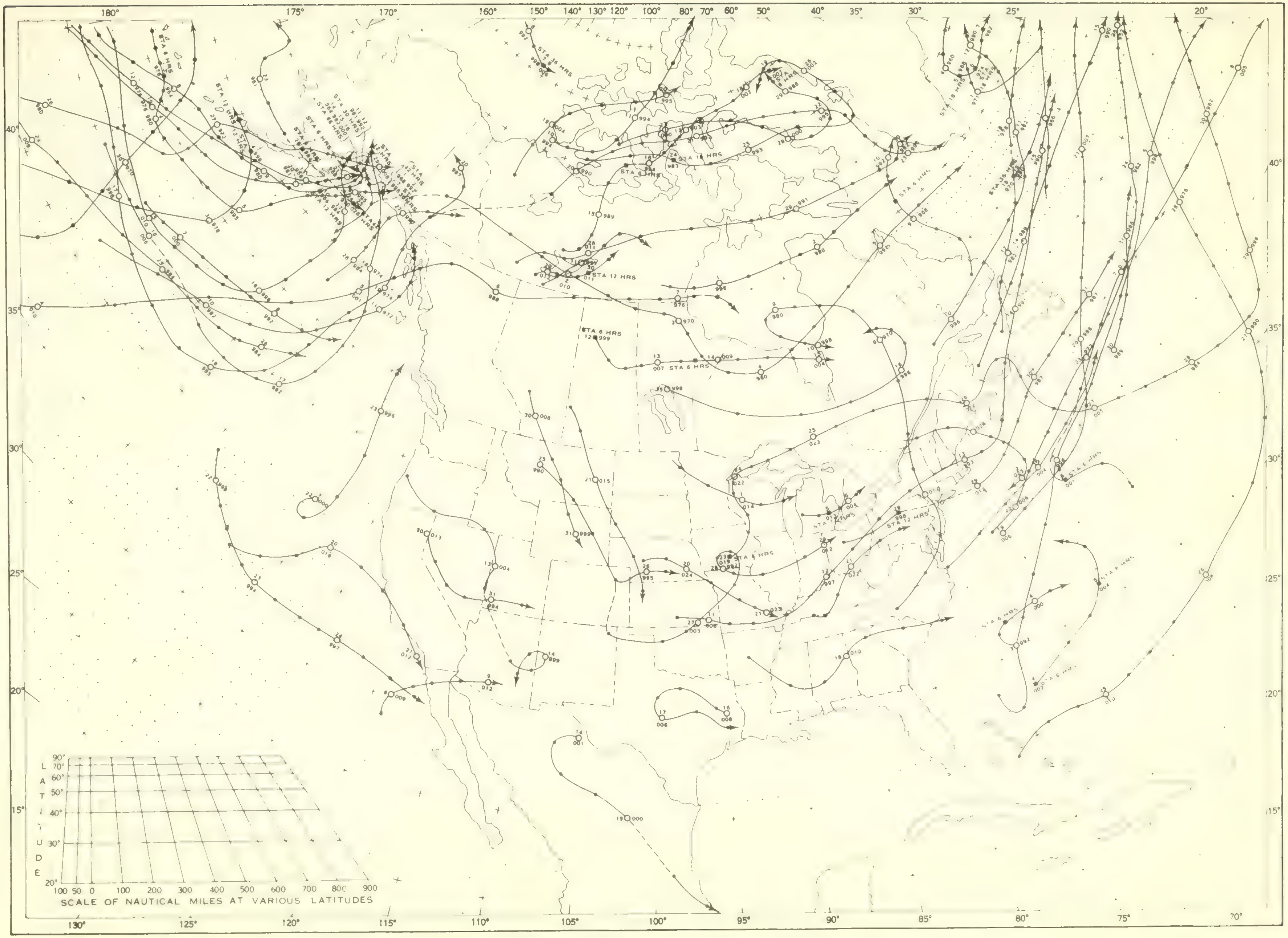
B. Percentage of the mean based on the period 1953-57, and corrected to the International Pyrheliometer Scale of 1956.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, December 1959.



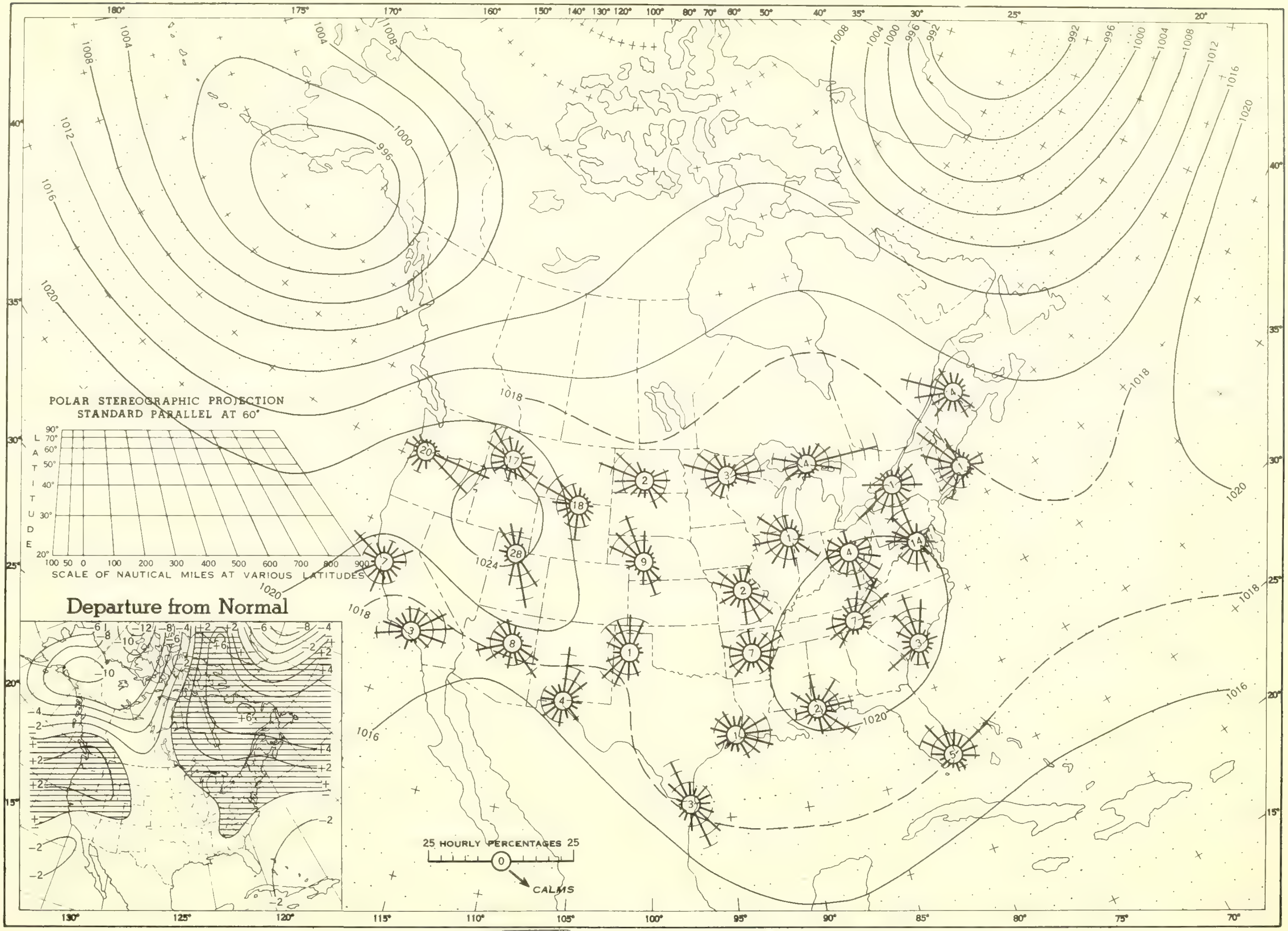
Circle indicates position of center at 7:00 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, December 1959.



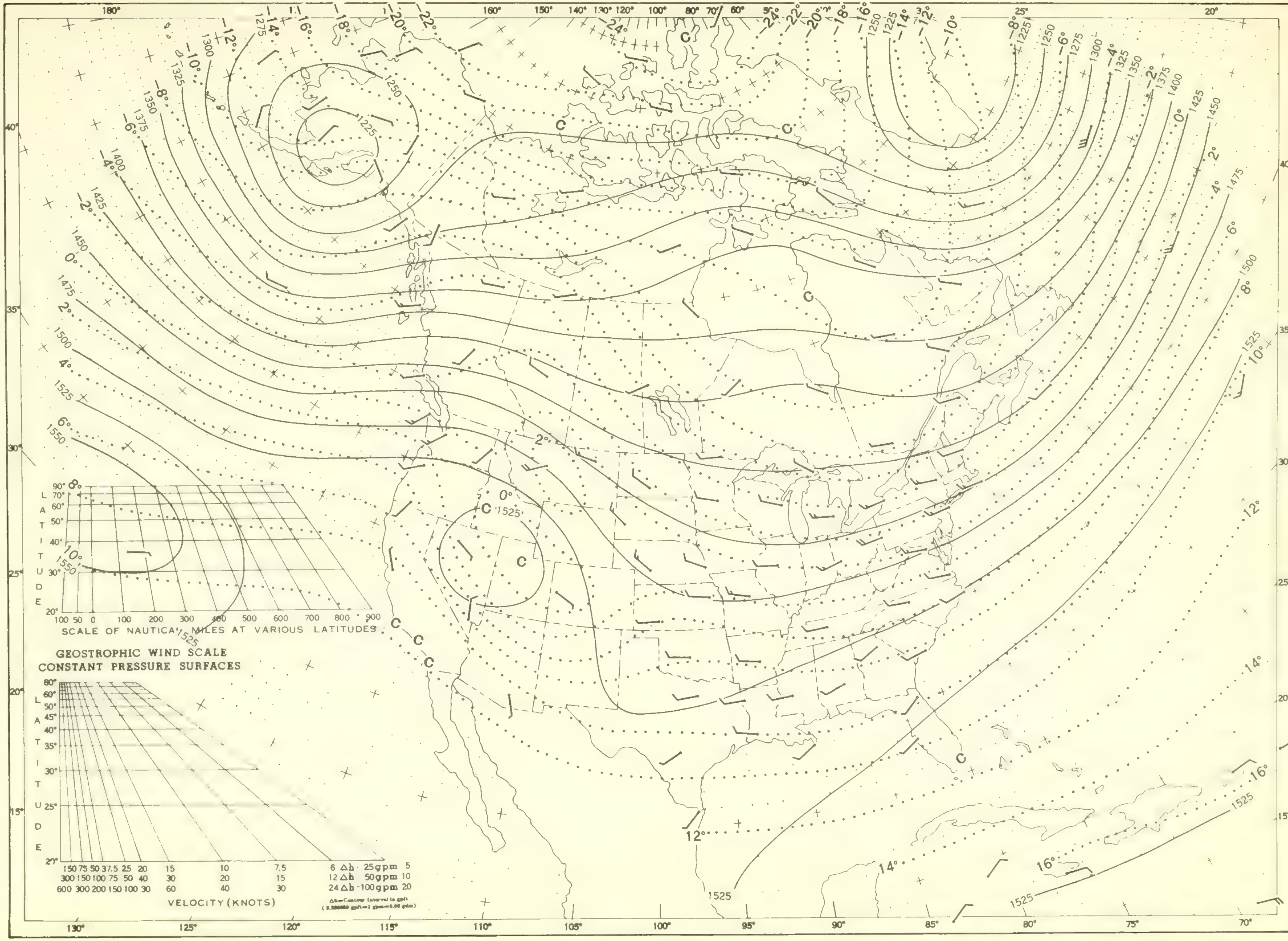
Circle indicates position of center at 7:00 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, December 1959. Inset: Departure of Average Pressure (mb.) from Normal, December 1959.



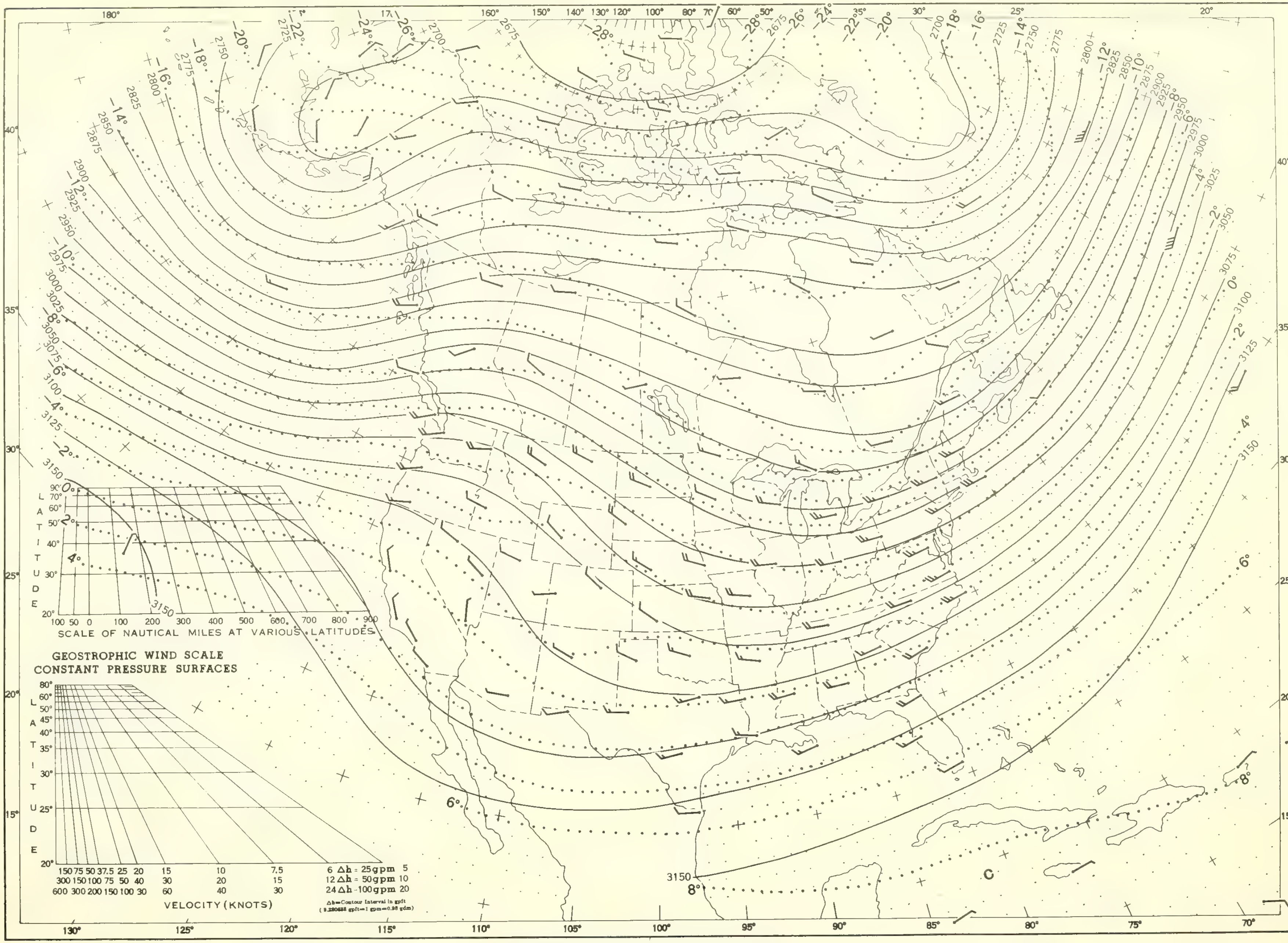
Average sea level pressures are obtained from the averages of the 7:00 a. m. and 7:00 p. m. E. S. T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. 850-mb. Surface, 1200 GMT, December 1959. Average Height and Temperature, and Resultant Winds.



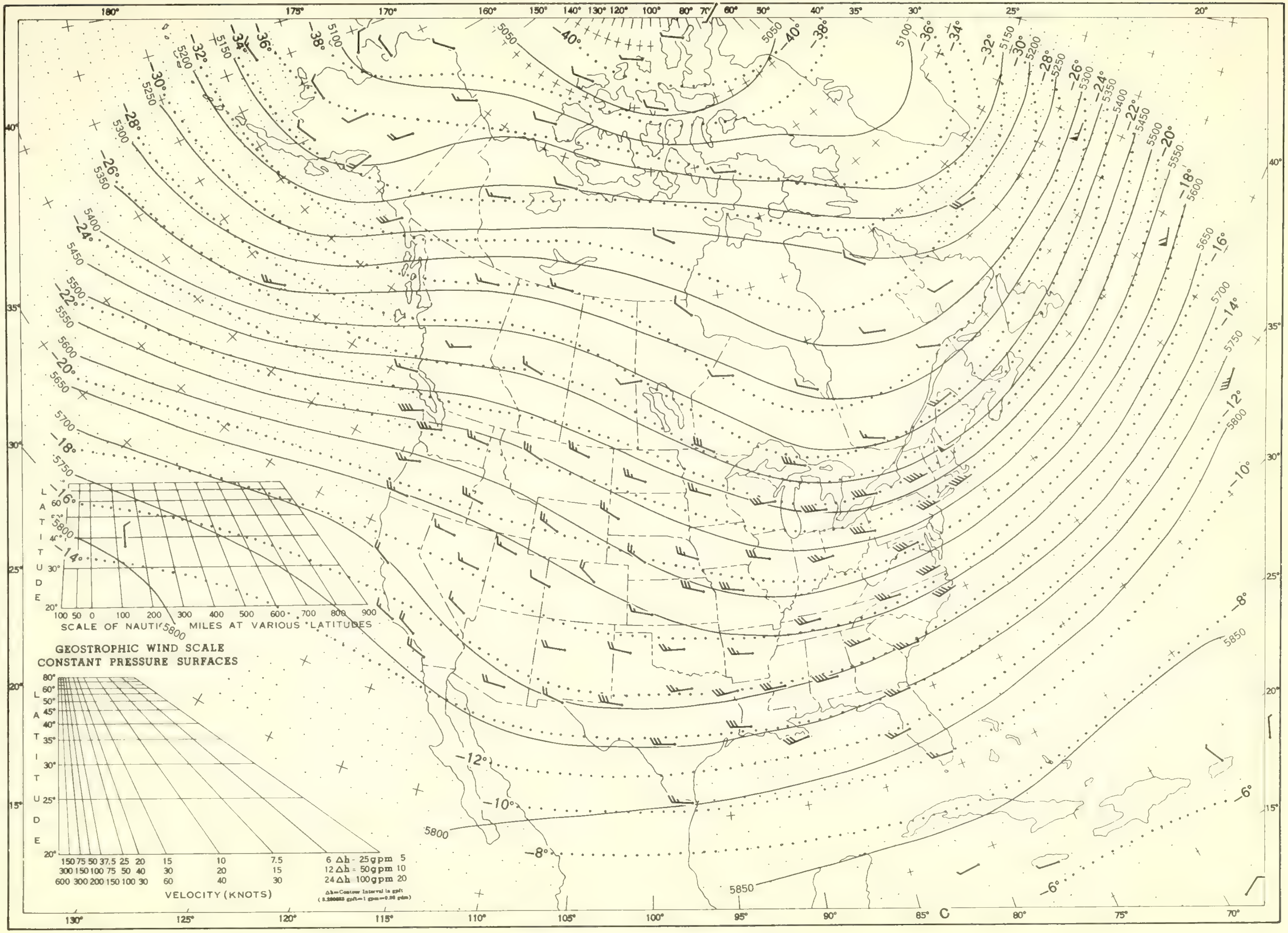
Height in geopotential meters (1 g.p.m. = 0.98 dynamic meters). Temperature in °C. Wind speed in knots; flag represents 50 knots, full feather 10 knots, and half feather 5 knots. All wind data are based on rawin observations.

Chart XIII. 700-mb. Surface, 1200 GMT, December 1959. Average Height and Temperature, and Resultant Winds.



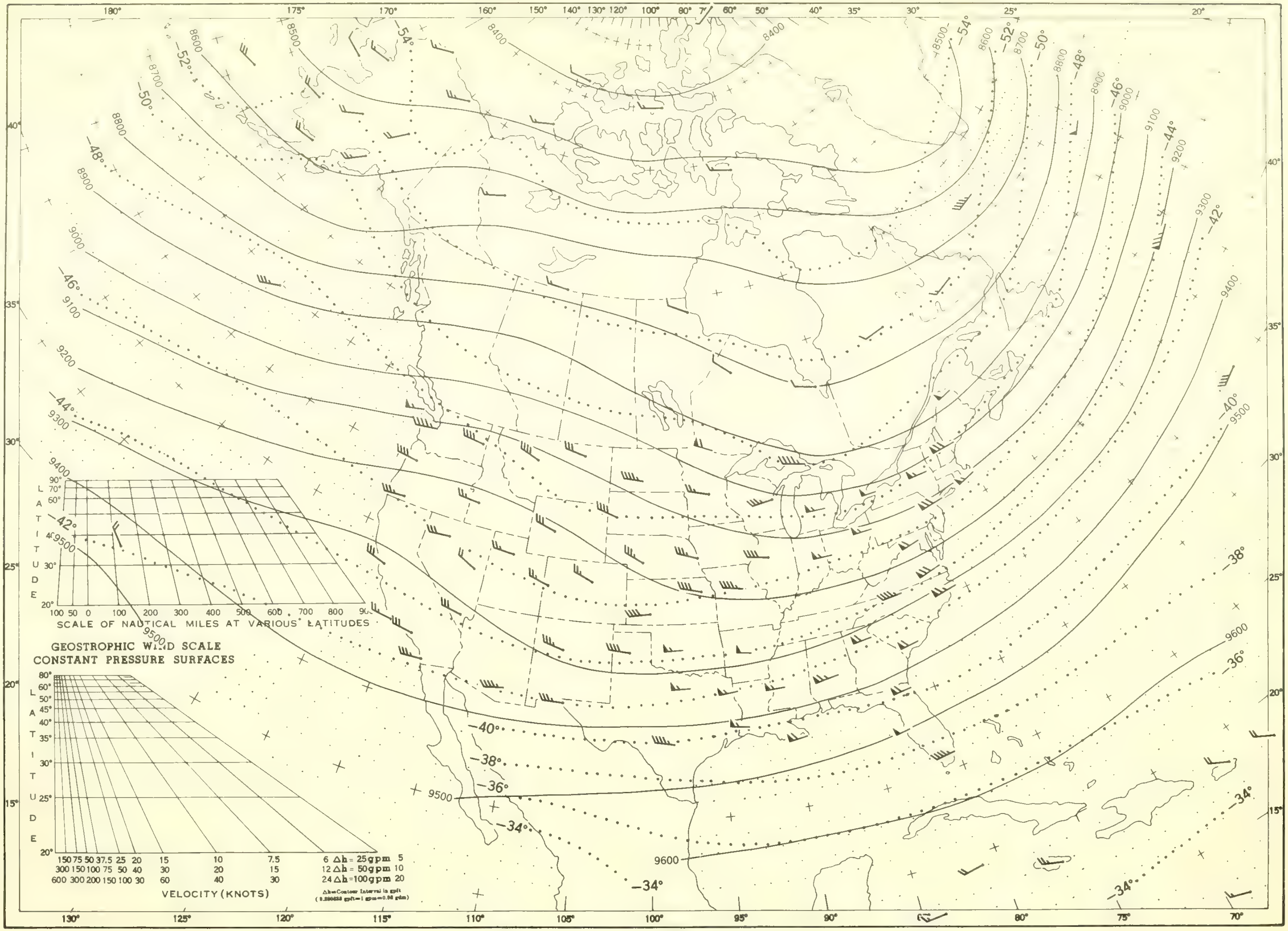
See Chart XII for explanation of map.

Chart XIV. 500-mb. Surface, 1200 GMT, December 1959. Average Height and Temperature, and Resultant Winds.



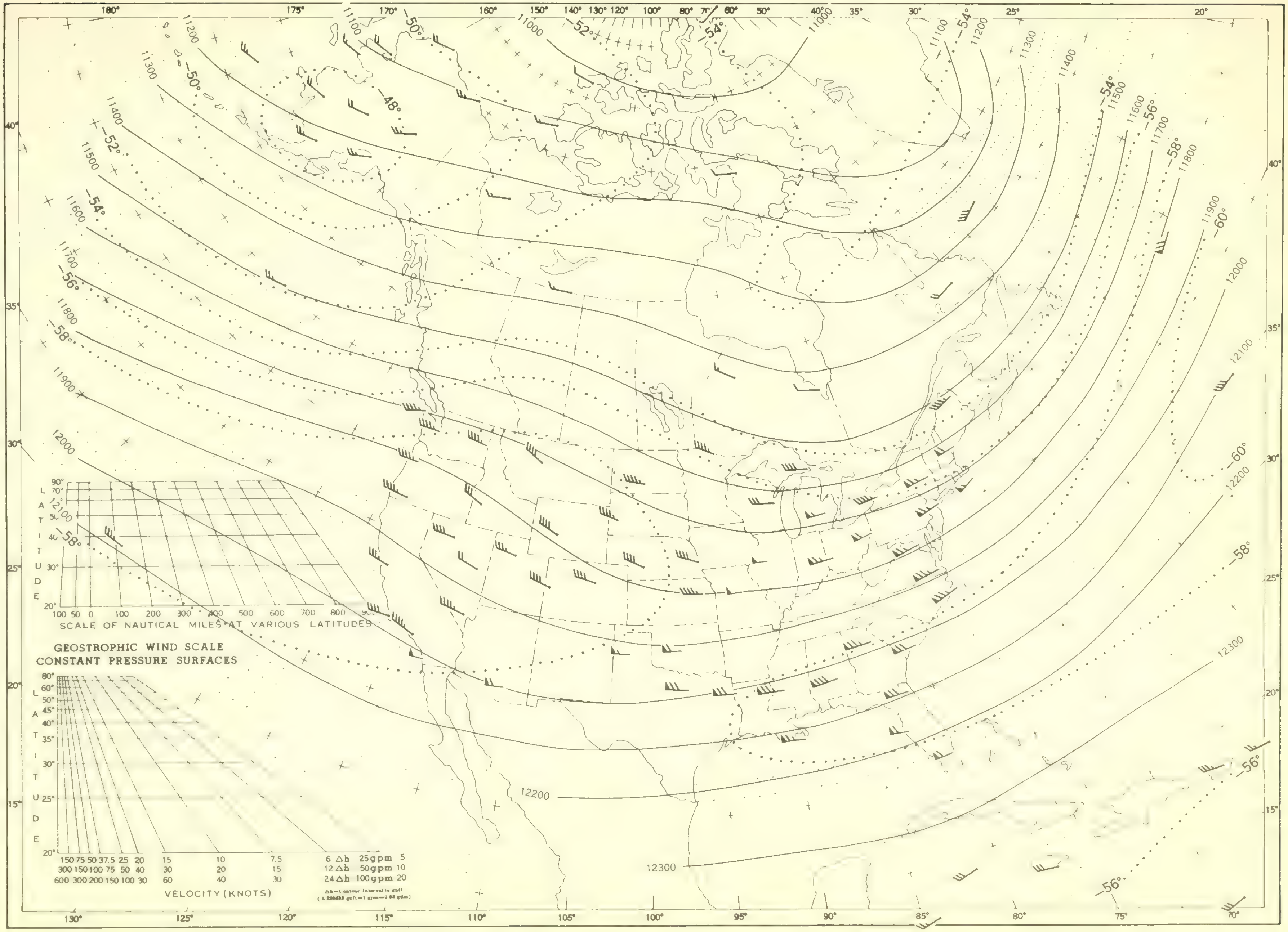
See Chart XII for explanation of map.

Chart XV. 300-mb. Surface, 1200 GMT, December 1959. Average Height and Temperature, and Resultant Winds.



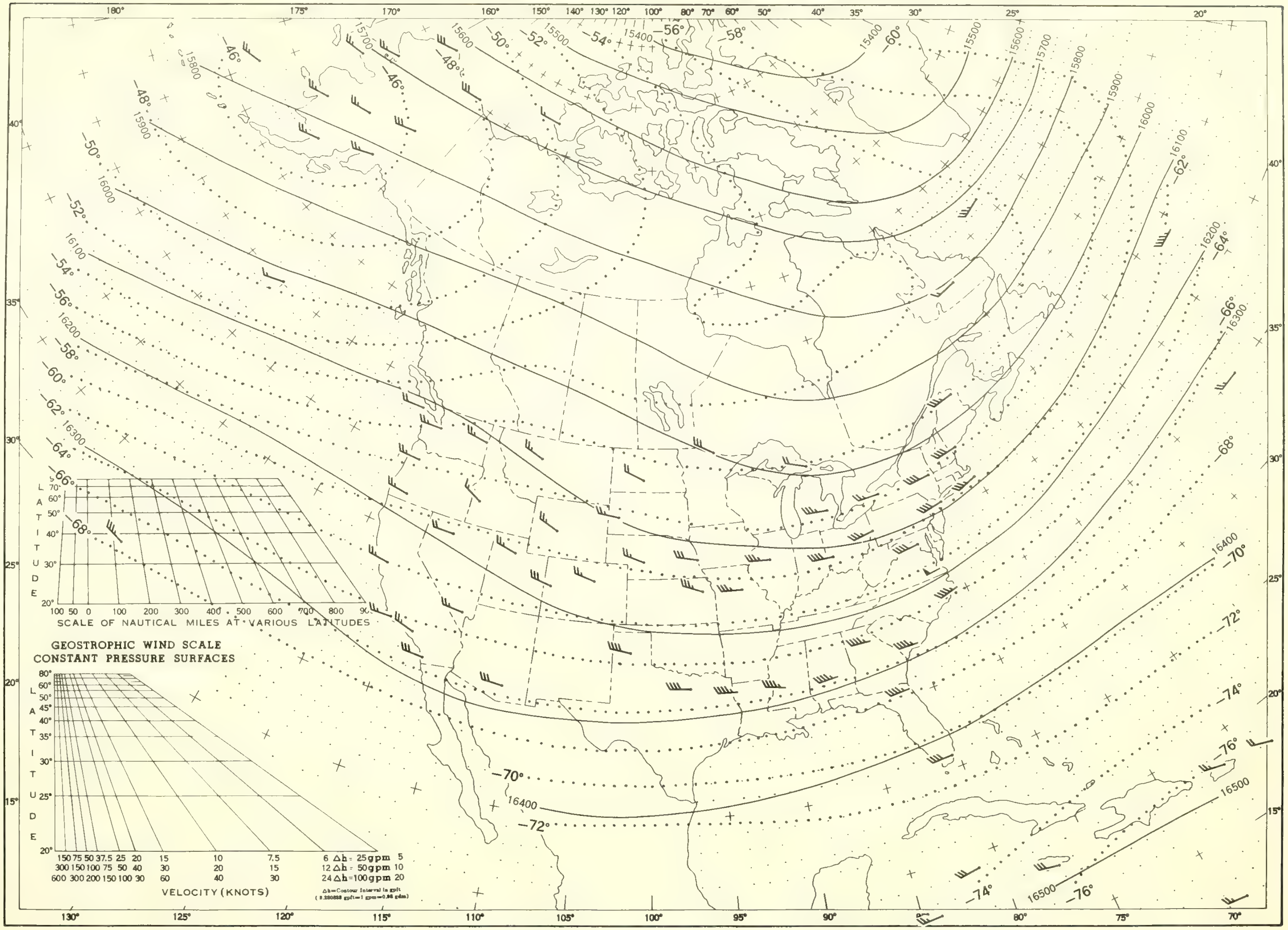
See Chart XII for explanation of map.

Chart XVI. 200-mb. Surface, 1200 GMT, December 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

Chart XVII. 100-mb. Surface, 1200 GMT, December 1959. Average Height and Temperature, and Resultant Winds.



See Chart XII for explanation of map.

USCOMM-WB-Asheville - 2/25/60 - 1900

U. S. DEPARTMENT OF COMMERCE

FREDERICK H. MUELLER, Secretary

WEATHER BUREAU

F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

ANNUAL 1959

Volume 10 No. 13

ASHEVILLE: 1960

C O N T E N T S

TORNADO DATA AND WATERSPOUTS AND WATERSPOUT DAYS REPORTED - tabulations discontinued. Data concerning tornadoes carried in the monthly publication STORM DATA beginning with January 1959.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 10 No. 13 ANNUAL 1959

GENERAL SUMMARY OF WEATHER CONDITIONS

Compiled by L. H. Seamon
Domestic Area Section, Office of Climatology, U. S. Weather Bureau

The weather for 1959 was about normal in most of the United States, and quite favorable from an agricultural standpoint. No serious drought affected the Nation's crop production, but crops suffered in parts of the northern Great Plains where moisture was short during the summer and fall rains were too late for the 1959 crops. The greatest precipitation abnormality probably occurred in Florida where 1959 was one of the wettest years on record, with totals for the year ranging up to nearly 100 inches. New annual precipitation records were set at Apalachicola, Fla., 99.30 inches; Columbia, S. C., 66.00 inches; and Rockford, Ill., 47.99 inches. The lowest temperature of the year, -55°, was recorded at Summit, Mont., January 3, and the highest, 125°, occurred at Cow Creek, Calif., on July 12. This was the warmest year of record at San Diego, Calif., where the temperature averaged 65.7°. The year's worst tornado disaster occurred at St. Louis, Mo., on February 10, and the greatest hurricane damage occurred along the Georgia-South Carolina coast on September 29.

Severe cold waves, ice, snow, high winds, and floods east of the Rockies during January and February were part of a cold weather pattern which was in great contrast to the abnormally mild conditions in the Far West.

The year began on a cold note as the severest cold wave of the 1958-1959 winter season moved out of the Northwest on January 1. The temperature dropped to -55° at Summit, Mont., on the 3d, and lows of -40° or lower were recorded in Idaho, Wyoming, and Wisconsin on the 4th. During several other cold waves in January and February the mercury fell to -40° or lower in North Dakota, Minnesota, Michigan, and Wisconsin, and to -30° or lower in some other North Central States, New York, and the northern New England States.

The extreme and prolonged cold was responsible for unusually deep frost penetration in northern areas, ranging from 3 to 6 feet in Wisconsin, up to 7 feet at Wadena, Minn., and 40 to 60 inches in northern Connecticut. Ice was over 3 feet thick in some extreme northern streams, and hampered navigation in Chesapeake Bay where it was the heaviest in many years. Heavy snowfall from the central Great Plains to the Great Lakes frequently caused transportation difficulties. Local weather highlights east of the Rockies during this 2-month period included destructive glaze in central Illinois and west-central Indiana, severe floods in Ohio and western Pennsylvania, and tornadoes in Kentucky and Tennessee, all on January 21; the year's worst tornado which killed 21 persons, injured 345 others, and caused property losses of several million dollars in St. Louis, Mo., on February 10; and severe flooding which began in the Wabash River in Indiana about February 10. A favorable aspect of the weather occurred in the Southeast where heavy rainfall replenished soil moisture in many sections.

In the Far West, beneficial rains fell in California during the first 2 weeks of January and again February 9 to 12. The storm on January 4 and 5 caused heavy wind damage over California, but also brought the first general precipitation to Arizona since November 1958.

Stormy weather continued east of the Rockies during March and April. A storm from the Southwest to the Great Lakes March 4 to 7 stirred up dust in the lower Great Plains and dumped up to 20 inches of snow in the upper Mississippi Valley, where many highways were blocked and high winds caused local damage. Snowfall in Wisconsin during this storm was the heaviest in many years. Another storm from the lower Mississippi Valley to the Northeast on March 11 to 13 produced heavy rains in the South and heavy snows in the Northeast where accumulations of 30 to 55 inches were measured in northern New England. Still another storm from the lower Great Plains to the Great Lakes on the 14th to 15th produced more heavy rains in the South and heavy snows from Nebraska to Michigan, closing roads in northern Iowa and southern Wisconsin and isolating some communities in Michigan. This storm also spawned tornadoes in Arkansas and produced damaging winds in Michigan, caused duststorms in the Southwest, and blew brush fires out of control in Oklahoma with the loss of property and some cattle. The next storm on the 19th to 22d stirred up more dust in the southwestern Great Plains, spawned tornadoes and hail in Texas, produced drifting snows in the Texas Panhandle, northeastern New Mexico, and eastern Colorado, and caused record-breaking rains on the Florida Peninsula. The last March storm moved from the Southwest to New Jersey and produced heavy snow from the central Great Plains to New England, with snow and ice damage in northwestern Iowa. The month ended with tornadoes and hail in Oklahoma and northeastern Texas.

The first week of April was abnormally warm over the entire country, with severe flooding in southern Iowa and northern Missouri, grassland fires in Minnesota and Kansas, tornadoes on the Florida Peninsula, and rapid ice- and snowmelt in northern areas east of the Rockies. The second week brought a return of winter to the midcontinent area with heavy snows in the northern Rockies, good rains in southwestern Oklahoma, and one of the worst duststorms in the northern Great Plains in several years. The third week brought a late freeze to the northern portion of the Southern States and heavy snows to eastern Montana and central Iowa. April ended with more duststorms in the northern and southwestern Great Plains.

May as usual brought numerous severe local storms to the midcontinent area, but good rains fell in

all areas of the Nation furnishing adequate moisture everywhere, except in the Far Southwest and spots in the northern Great Plains. Temperatures averaged well above normal east of the Rockies, and well below in most of the Far West. A tornado in Iowa and another in Wisconsin, each causing over a half million dollars damage, occurred on May 10; many hailstorms, several causing over a half million dollars damage each, were reported in the Great Plains the latter half of the month. On the 23d, tornadic winds in Chesterfield County, Virginia, caused damage estimated at several million dollars.

The summer of 1959 was warmer than normal in most areas. Rainfall was above normal along the Atlantic coast, from Mississippi to Arizona, and in the upper Mississippi Basin, and less than half normal in California, Nevada, and portions of the northwestern Great Plains. However, rainfall generally was fairly well distributed through the summer, furnishing adequate moisture for crops.

June temperatures averaged slightly below normal in New England and the South and well above elsewhere. Precipitation was unusually heavy in southern Florida and parts of Texas. On June 17, a tornado at Miami, Fla., injured 77 persons and caused approximately $1.5 million damage. On the 3d, a freak hailstorm at and near Seldon, Kans., covered the ground to a depth of 18 inches over several square miles. This was one of the most severe hailstorms of record in Kansas. One of the most severe hailstorms of record in central Nebraska occurred on the 27th, when stones ranged up to the size of grapefruit and damage to crops and property was estimated at several million dollars.

Cool, rainy weather in the central and lower portions of the Great Plains and Mississippi Valley and along the south Atlantic coast was the outstanding weather feature of July. Severe local storms were numerous in the midcontinent area. Hail and wind, with hailstones up to 3 inches in diameter, caused several million dollars damage in south-central Nebraska on the 3d of July, and another hailstorm on the 11th caused several million dollars damage to crops in northwestern Ohio. Hurricane Cindy which entered South Carolina on the 8th brought much of the month's heavy rainfall to the south Atlantic coast, and hurricane Debra, entering the Texas coast on the 24th, brought heavy rains to east Texas, Louisiana, and Oklahoma.

August was abnormally warm in most of the Nation and quite humid east of the Rockies. Some northeastern sections reported the warmest August of record. Rainfall was spotty over the Nation, relative to normal, but mostly adequate east of the Rockies.

Much-above-normal precipitation in most of the Nation was the outstanding weather feature of autumn. Temperatures averaged below normal everywhere, except in California, Arizona, and the Atlantic Coastal States. The heavy precipitation was very unfavorable for harvesting operations in many sections.

September was about normal temperaturewise, and precipitation was abnormally heavy over most of the South, the midcontinent area, and Pacific Northwest. The first 10 days were the warmest such period of record in New York City. The first major outbreak of cold air of the season, occurring the second week of September, displaced the hot, humid, summer air over most areas east of the Rockies. Temperatures dropped 20° to 40° in a few hours in northern areas, with freezing reported in Montana and the Dakotas. A disturbance which formed along the cold front in the northern Gulf of Mexico produced excessive rain in the East Gulf States, with almost 10 inches falling at Pensacola during a 24-hour period on the 12th and 13th. The month's most damaging storm, hurricane Gracie, moved into southeastern South Carolina on the 29th, and caused several million dollars damage along the South Carolina-Georgia coast. Gracie spawned a tornado on the 30th at Ivy, Va., where 12 persons were killed and 4 injured. On September 28 to 30, eastern Colorado had one of the heaviest September snowstorms of record.

October, normally the driest month, was featured by heavy precipitation east of the Rockies where many scattered stations reported the wettest October on record. This was probably the rainiest October in South Carolina since the records began there in 1887, and crop damage was estimated at several million dollars. The month was the coldest October in many years in the North Central Interior where several locations reported near-record amounts of snow for October. Tropical storm Irene moved inland near Pensacola, Fla., on the 8th, bringing heavy rains to Florida and nearby States, and hurricane Judith, which crossed southern Florida as a tropical storm on the 18th, brought 4 to 7 inches or more of rain to the Florida Peninsula.

November was unusually cold in most of the Nation, and was among the coldest Novembers on record in the midcontinent and upper Rocky Mountain regions. Freezes were more frequent and earlier than usual in south-central areas, and freezing extended to the Florida Everglades on the 30th. Precipitation was below normal in most of the Nation, and severe local storms were infrequent. Dry, sunny weather prolonged the fire season longer than usual in California. Record snowfalls and record low temperatures occurred in Montana. On the 16th, Lincoln (14 NE), Mont., reported -53°, the lowest temperature ever recorded in the contiguous United States during November.

December was unusually mild over most of the contiguous United States. Precipitation was abnormally heavy in the Mississippi Valley, the lower Great Plains, and Far Southwest. This was the first warmer than normal weather in 6 to 10 weeks in north-central areas. Precipitation, relative to normal, was abundant in much of the midcontinent area, Arizona and some adjacent areas, in the Northeast, and along the west coast of Florida. The month was remarkably mild in the North Central Interior. At Bismarck, N. Dak., it was the first time since 1877 that the minimum temperature in December remained above zero. On the 29th, high tides and northeast gales hit the New England coast; many families evacuated their homes, and damage was in the millions of dollars.

ALASKA.--High winds January 6 to 10 in southern Alaska reached 40 to 50 m.p.h., from Cape Newenham to King Salmon, with peak gusts of 60 m.p.h., recorded in the Kodiak area and 60 to probably as much as 90 m.p.h., in the Anchorage area. In the upper Cook Inlet area damages to aircraft, buildings, parked vehicles, and utilities were estimated around $1 million.

Extreme cold was a pronounced feature of the

weather of March. Mean temperatures for the month were the lowest on record for several stations including Barrow, -26.6°; Fairbanks, -6.7°; Barter Island, -25.2°; King Salmon, 5.7°; Kotzebue, -12.4°; McGrath, -5.9°; and Nome, -5.3°. At Yakutat, total snowfall of 111 inches during March and 96 inches on the ground March 23 and 24 set new records for any month.

HAWAII.--A severe storm on January 17 and 18 caused widespread damage which was estimated at half a million dollars on the island of Hawaii alone. New low-pressure records were set at several stations. March and June were extremely dry months. On August 6, hurricane Dot crossed the island of Kauai with sustained wind speeds in excess of 80 m.p.h., and gusts up to 103 m.p.h. Damage on the islands of Hawaii and Oahu was estimated as high as $150,000. On Kauai, damage to sugar cane alone was estimated at $1,500,000, and other damages at hundreds of thousands of dollars.

EXCESSIVE PRECIPITATION

(Excessive Short Duration Rainfall)

YEAR 1959

This table contains statistics of maximum amounts of rainfall during the calendar year 1959. Data presented in this table are generally from stations equipped with recording gages. Stations are at City Office locations unless otherwise shown.

Excessive precipitation data for the years 1896-1935 inclusive, generally present the accumulated amounts of precipitation for each 5, 10, or 20 minute intervals during storms in which the rate of fall equaled or exceeded .25 inch in any 5 minute period, or .30 in any 10 minute period, or .35 in any 15 minute period, etc., the tabulation beginning with the 5 minute period where the rate of .05 inch in 5 minutes began and continuing by 10 or 20 minute intervals up to 120 minutes. A detailed explanation of the method used may be found in the publications listed in the last paragraph of this explanation.

The present method, adopted with data for the calendar year 1936, gives the maximum fall of precipitation for the periods 5 to 180 minutes, the maximum amounts being taken for the periods in which the fall is greatest for the given time, and is tabulated to show maximum amounts for 5, 10, 15, 20, 30, 45, 60, 80, 100, 120, 150 and 180 minutes, even if the fall does not equal the excessive rate for some of the periods. (The 15 minute amount was not computed for 1936-43 and the 150 minute amount was not computed for 1944 through 1948).

The following Table A shows limits at which precipitation was considered excessive in this publication:

TABLE A

Duration (minutes)	Depth of precipitation (inches)	Duration (minutes)	Depth of precipitation (inches)
5	.25	60	.80
10	.30	80	1.00
15	.35	100	1.20
20	.40	120	1.40
30	.50	150	1.70
45	.65	180	2.00

This table is made up from the formula, A = t + 20 where A is the accumulated depth in hundredths of inches and t is the time in minutes.

For the years 1936 through 1948 stations in North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas, Louisiana, Texas, Oklahoma, and San Juan, P. R. used the limits shown in the following Table B:

TABLE B

Duration (minutes)	Depth of precipitation (inches)	Duration (minutes)	Depth of precipitation (inches)
5	.40	60	1.50
10	.50	80	1.90
15	.60	100	2.30
20	.70	120	2.70
30	.90	150	3.30
45	1.20	180	3.90

This table is made up from the formula A = 2t + 30. Its use, however, was discontinued at the end of 1948 and Table A is used by all sections for 1949 and the following years.

Publication of Data. A summary of maximum precipitation data for the years prior to 1896 is published in the annual report of the Chief of the Weather Bureau for 1895-1896. Excessive precipitation data for the period 1881-1896 are published in the annual report of the Chief of the Weather Bureau 1896-1897. Data for the years 1897 through 1934 have been published in the appropriate annual reports of the Chief of the Weather Bureau. For the years 1935 through 1949 these data are published in the appropriate issue of the United States Meteorological Yearbook. For 1950 and succeeding years excessive precipitation are presented in the annual issues of the Climatological Data, National Summary.

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
ALABAMA												
Birmingham Airport												
Jan. 21	0.24	0.32	0.36	0.39	0.43	0.50	0.55	0.60	0.68	0.77	0.86	0.91
Feb. 14	.24	.40	.47	.52	.62	.63	.63	.63	.63	.63	.64	.65
May 22	.44	.46	.52	.52	.53	.75	.86	.92	.94	.96	.97	.98
May 30	.24	.39	.46	.51	.54	.81	1.01	1.20	1.42	1.55	1.69	1.81
June 11	.27	.37	.59	.65	.65	.66	.67	.67	.67	.67	.67	.67
July 5	.25	.45	.51	.61	.80	.88	.92	.92	.92	.92	.92	.92
July 12	.30	.50	.70	.83	1.04	1.39	1.46	1.46	1.46	1.46	1.46	1.46
Aug. 5	.21	.41	.53	.62	.68	.75	1.04	1.13	1.13	1.13	1.13	1.13
Aug. 19	.30	.56	.70	.87	1.27	1.32	1.32	1.32	1.32	[illegible]	1.32	1.32
Sept. 4	.24	.45	.60	.62	.64	.65	.65	.65	.65	.65	.65	.65
Sept. 5	.31	.50	.75	.75	.75	.75	.76	.82	.85	.85	.85	.85
Sept. 9	.19	.36	.44	.48	.63	.95	1.27	1.37	1.67	1.75	1.80	1.84
Nov. 5	----	----	----	----	----	----	----	1.18	1.22	1.22	1.44	1.47
Huntsville Airport												
Jan. 21	.42	.56	.60	.62	.66	.71	.74	.75	.84	.90	1.18	1.34
Mar. 26	.30	.33	.33	.33	.33	.33	.34	.36	.36	.36	.64	.64
May 22	.44	.74	.89	.89	.89	.90	.90	.92	.94	.94	.97	.97
June 23	.35	.36	.56	.57	.57	.78	.90	1.10	1.48	1.50	1.50	1.70
July 1	.29	.32	.32	.32	.32	.34	.35	.36	.36	.36	.38	.42
July 11	.21	.28	.42	.51	.55	.55	.55	.55	.55	.55	.55	.55
July 20	.30	.42	.50	.52	.84	.93	.93	.93	.93	.93	.93	.93
Aug. 19	.37	.73	1.10	1.28	1.29	1.42	1.43	1.43	1.44	1.44	1.44	1.44
Sept. 5	.27	.28	.28	.28	.28	.28	.28	.30	.51	.52	.56	.56
Sept. 27	.20	.36	.42	.46	.54	.57	.62	.66	.68	.69	.70	.70
Oct. 13	.38	.72	.88	.98	1.18	1.38	1.56	1.74	1.82	1.88	1.90	1.90
Montgomery Airport												
Mar. 11	.20	.30	.38	.39	.43	.47	.51	.53	.56	.56	.61	.67
Apr. 1	.28	.50	.60	.62	.67	.74	.79	.88	.98	1.03	1.12	1.17
Apr. 28	.35	.52	.59	.67	.74	.76	.77	.77	.84	.97	.98	.98
May 24	.32	.52	.62	.72	.82	.84	.84	.84	.84	.84	.84	.84
May 29	.17	.31	.38	.42	.50	.65	.84	1.09	1.10	1.16	1.44	1.49
June 23	.22	.32	.33	.33	.43	.50	.64	.66	.66	.66	.66	.66
July 3	.25	.45	.67	.80	.98	1.11	1.11	1.11	1.11	1.11	1.11	1.11
July 16	.23	.41	.63	.79	.92	.97	1.00	1.10	1.11	1.13	1.13	1.13
Aug. 6	.23	.41	.43	.48	.53	.54	.54	.54	.54	.54	.54	.54
Aug. 21	.25	.32	.32	.32	.32	.40	.45	.45	.45	.45	.45	.45
Sept. 8	.28	.44	.63	.70	.84	.86	.87	.87	.87	.87	.89	.89
Sept. 9	.24	.47	.58	.63	.68	.69	.70	.70	.70	.70	.70	.70
Oct. 8	.20	.31	.42	.48	.58	.67	.80	.95	.95	.98	1.06	1.08
Oct. 13	.19	.28	.42	.45	.49	.53	.55	.56	.69	.75	.82	.86
Oct. 31	.25	.40	.52	.59	.80	1.05	1.26	1.31	1.31	1.31	1.36	1.39
Dec. 12	.25	.30	.31	.32	.34	.35	.36	.36	.36	.38	.43	.45
ALASKA												
Anchorage Airport						None						
Annette Airport												
Nov. 5	.13	.24	.37	.47	.68	.78	.85	.98	1.11	1.20	1.35	1.44
Cordova Airport						None						
Fairbanks Airport												
July 2	.20	.30	.34	.35	.36	.39	.40	.40	.41	.42	.44	.45
Juneau Airport						None						
King Salmon Airport						None						
Yakutat Airport						None						
ARIZONA												
Phoenix Airport												
Aug. 24	.34	.43	.47	.49	.51	.52	.56	.57	.58	.58	.59	.59
Prescott Airport												
July 27	.19	.29	.37	.53	.63	.65	.65	.66	.66	.75	.75	.75
Aug. 24	.34	.44	.59	.70	.79	.83	.87	.99	1.02	1.02	1.06	1.08
Tucson Airport												
July 3	.47	.67	.77	.90	1.17	1.33	1.35	1.35	1.35	1.35	1.35	1.35
July 17	.31	.41	.46	.49	.52	.56	.61	.63	.63	.63	.63	.63
July 21	.23	.40	.53	.64	.76	.80	.81	.82	.82	.82	.82	.82
Aug. 20	.20	.30	.38	.39	.41	.42	.43	.48	.48	.49	.49	.49
Winslow Airport												
July 31	.18	.34	.42	.53	.55	.57	.59	.62	.65	.65	.65	.65
Yuma Airport						None						
ARKANSAS												
Fort Smith Airport												
Apr. 18	.36	.52	.67	.69	.71	.72	.73	.81	.82	.82	.82	.82
Apr. 18	.28	.35	.41	.44	.45	.46	.47	.51	.57	.59	.62	.65
May 9	.25	.39	.42	.45	.56	.58	.58	.58	.58	.58	.58	.58
May 10	.33	.45	.55	.62	.67	.71	.75	.80	.83	.84	.85	.87
May 10	.29	.52	.56	.58	.60	.67	.71	.75	.76	.77	.87	.93
June 1	.20	.32	.42	.52	.54	.55	.56	.57	.58	.60	.66	.69
June 11	.21	.30	.42	.58	.72	.74	.74	.74	.85	.90	.91	.91
June 23	Excessive occurred; but recorder inoperative.											
July 15	.21	.25	.31	.34	.48	.65	.80	.83	.83	.83	.85	.86
July 18	.28	.42	.56	.61	.65	.66	.66	.66	.66	.66	.66	.66
July 22	.32	.38	.43	.48	.49	.64	.71	.80	.81	.81	.84	1.07
July 22	.32	.49	.62	.65	.76	.76	.92	1.06	1.07	1.07	1.07	1.07
Aug. 27	.16	.30	.32	.32	.32	.32	.34	.34	.34	.41	.47	.50
Sept. 7	.32	.42	.45	.52	.54	.55	.55	.55	.55	.55	.55	.55
Sept. 25	.26	.43	.52	.56	.70	.77	.82	.99	1.10	1.36	1.47	1.52
Oct. 3	.26	.41	.59	.68	.80	.97	1.01	1.04	1.05	1.07	1.20	1.24
Oct. 13	.18	.30	.38	.41	.45	.45	.45	.45	.55	.60	.72	.77
Nov. 3	.38	.65	.76	.77	.78	.78	.78	.78	.78	.78	.78	.78
Nov. [illegible]	.20	.33	.45	.49	.58	.66	.86	.99	1.18	1.37	1.59	1.89
Little Rock Airport												
May 24	.22	.32	.38	.44	.48	.52	.54	.56	.60	.64	.64	.64
June 10	.32	.57	.63	.70	.81	.83	.89	1.03	1.09	1.12	1.19	1.26
June 30	.18	.32	.48	.57	.72	.76	.78	.79	.80	.81	.82	.87
July 11	.44	.74	.85	.98	1.06	1.12	1.12	1.12	1.12	1.12	1.12	1.12
July 16	.35	.67	.82	.95	1.16	1.52	1.87	1.90	1.90	1.90	1.90	1.90
July 17	.35	.68	.98	1.27	1.42	1.48	1.48	1.48	1.48	1.48	1.50	1.51
Aug. 18	.24	.48	.56	.58	.68	.78	.84	.85	.86	.89	.90	.94
ARKANSAS (Cont'd.)												
Little Rock Airport (Cont'd.)												
Sept. [illegible]	0.24	0.43	0.45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.76	[illegible]	[illegible]	0.76
Sept. [illegible]	.24	.34	.35	[illegible]	[illegible]	[illegible]	[illegible]	.73	.75	[illegible]	[illegible]	.79
Sept. 26	.20	.30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.73	.75	[illegible]	[illegible]	.78
Sept. 28	.32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.05	1.05	[illegible]	[illegible]	1.12
Texarkana Airport												
Mar. 4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.74	.80	1.05	1.11	1.16	1.20	1.24
May 22	[illegible]	[illegible]	[illegible]	[illegible]	.98	1.30	1.46	1.54	1.60	1.62	1.69	1.70
May 24	*[illegible]	*[illegible]	*[illegible]	*[illegible]	*.64	.69	[illegible]	[illegible]	.96	1.03	1.07	1.09
July 17	[illegible]	[illegible]	[illegible]	[illegible]	1.17	1.32	[illegible]	1.50	1.51	1.51	1.51	1.51
[illegible]	*[illegible]	*[illegible]	*[illegible]	*[illegible]	*[illegible]	*.89	[illegible]	*1.03	*1.05	*1.05	*1.05	*[illegible]
Aug. 27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.53	.53	[illegible]	.53	.53	.53	.53
Oct. 3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.52	[illegible]	[illegible]	[illegible]	.52	.52	.52
Nov. 4	[illegible]	[illegible]	[illegible]	[illegible]	.68	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.77	.77
CALIFORNIA												
Bakersfield Airport						None						
Blue Canyon Airport						None						
Burbank Airport												
Jan. 6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.55	[illegible]	[illegible]	[illegible]	[illegible]	1.35	1.46
Feb. 11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.53	[illegible]	[illegible]	[illegible]	[illegible]	.67	.69
Eureka						None						
Fresno Airport						None						
Los Angeles						None						
Mt. Shasta						None						
Red Bluff Airport						None						
Sacramento						None						
San Diego Airport						None						
San Francisco						None						
COLORADO												
Alamosa Airport												
July 31	[illegible]	[illegible]	[illegible]	[illegible]	.49	.49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Denver Airport						None						
Grand Junction AP						None						
Pueblo Airport												
May 31	.32	.37	.37	.37	.37	.37	.37	[illegible]	[illegible]	[illegible]	[illegible]	.38
July 15	.21	.36	.40	.40	.40	[illegible]	.42	[illegible]	[illegible]	[illegible]	[illegible]	.45
Aug. 14	.17	.27	.34	.46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.89
CONNECTICUT												
Bridgeport AP												
Apr. 2	.25	.26	.27	.28	.28	.29	.29	.29	.29	.31	[illegible]	1.02
June 29	.16	.29	.35	.37	.40	.40	.40	.40	.40	.40	.40	.40
Aug. 9	.25	.35	.45	.57	.76	.97	1.11	1.30	1.45	1.59	1.73	1.98
Aug. 29	.50	.92	1.40	1.53	1.60	1.68	1.72	1.72	1.72	1.72	1.72	1.72
Oct. 9	.25	.33	.33	.35	.38	.43	.44	.48	.50	.58	.76	.76
Oct. 11	.40	.65	.85	.88	.88	.88	.88	.88	.88	.88	.88	.89
Oct. 24	.25	.30	.32	.40	.55	.67	.77	[illegible]	.97	1.02	[illegible]	1.39
Hartford Airport												
Aug. 10	.22	.39	.52	.59	.65	.90	1.07	1.10	1.25	1.28	1.36	1.40
Oct. 24	.39	.52	.56	.62	.70	[illegible]	.95	1.50	1.68	1.84	2.04	2.42
New Haven Airport												
July 10-11	.18	.26	.34	.38	.51	.61	.66	.74	.88	.94	1.02	1.26
July 20	.17	.34	.39	.48	.53	.56	.59	.61	.65	.67	.68	.69
Oct. 11	.41	.58	.63	.68	.78	.78	.78	.78	.78	.78	.78	.78
Oct. 24	.40	.64	.91	1.20	1.30	1.39	1.45	2.06	2.49	[illegible]	2.88	2.99
DELAWARE												
Wilmington												
June 2	.19	[illegible]	.40	.44	.56	.69	.78	.94	1.12	1.29	1.48	1.72
June 30	[illegible]	[illegible]	.61	[illegible]	[illegible]	.95	[illegible]	.99	1.00	1.00	1.01	1.01
July 20	[illegible]	[illegible]	.42	[illegible]	[illegible]	.69	.72	.76	.76	[illegible]	[illegible]	[illegible]
July 30	[illegible]	[illegible]	.42	[illegible]	[illegible]	.51	[illegible]	.51	.51	.51	[illegible]	.51
Aug. 22	[illegible]	[illegible]	.32	[illegible]	.38	.38	[illegible]	.40	.40	.40	[illegible]	.40
Aug. [illegible]	.28	[illegible]	.55	.60	[illegible]	1.22	[illegible]	.67	1.69	.69	[illegible]	[illegible]
Aug. 31	[illegible]	[illegible]	.39	[illegible]	.54	.69	.84	.98	1.13	1.18	[illegible]	[illegible]
Sept. 2	.22	[illegible]	[illegible]	.44	.50	.54	[illegible]	.61	.62	.64	[illegible]	[illegible]
Sept. 2	[illegible]	[illegible]	[illegible]	.47	.55	.82	[illegible]	1.10	1.10	[illegible]	[illegible]	[illegible]
DIST. OF COLUMBIA												
FLORIDA												
Apalachicola												
June 4	[illegible]	[illegible]	[illegible]	.59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
June 16	[illegible]	[illegible]	[illegible]	.51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.60
July 12	[illegible]	[illegible]	[illegible]	.57	[illegible]	.78	.84	[illegible]	[illegible]	[illegible]	[illegible]	1.15
July 14	[illegible]	[illegible]	[illegible]	.67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
July 17	[illegible]	[illegible]	[illegible]	1.10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
July 19	[illegible]	[illegible]	.78	.95	1.20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
July 25	[illegible]	[illegible]	[illegible]	.45	[illegible]	.56	.56	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Aug. 12	[illegible]	[illegible]	.71	.86	.96	1.06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Aug. 23	[illegible]	[illegible]	---	---	---	1.22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Aug. 29	.32	[illegible]	.88	1.01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Aug. 31	[illegible]	.62	[illegible]	1.06	[illegible]	1.38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sept. 11	[illegible]	[illegible]	.93	1.29	1.56	[illegible]	[illegible]	[illegible]	2.22	[illegible]	[illegible]	2.51
Sept. 12	.45	.78	[illegible]	.98	1.03	1.07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sept. 13	---	---	---	.46	.55	.72	.90	.94	[illegible]	[illegible]	[illegible]	1.67
Oct. 11	.37	.57	.60	.60	.60	.60	.60	[illegible]	.60	[illegible]	[illegible]	.60
Nov. 6	.31	.60	.81	1.05	1.50	1.63	1.81	[illegible]	[illegible]	[illegible]	[illegible]	2.40
Daytona Beach AP												
Jan. 16	.27	[illegible]	.45	.50	[illegible]	[illegible]	.60	.60	.60	[illegible]	[illegible]	[illegible]
Mar. 15	.25	[illegible]	.44	[illegible]	[illegible]	[illegible]	[illegible]	1.04	1.07	1.15	1.22	1.28
May 20	.20	.25	[illegible]	[illegible]	.50	[illegible]	[illegible]	.52	.52	[illegible]	[illegible]	[illegible]
June 1	[illegible]	.30	.43	.46	.48	.49	.50	.50	.50	.50	.50	.50

* Data estimated

^ Record is incomplete because of frequent equipment failures.

‡ See data at end of table.

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
FLORIDA (Cont'd.)												
Daytona Beach AP (Cont'd.)												
June 6	0.25	0.33	0.45	0.49	0.63	0.87	0.88	1.00	1.14	1.23	1.31	1.34
June 18	.20	.30	.40	.55	.70	.90	1.15	1.50	1.75	1.95	2.25	2.55
June 21	.33	.43	.44	.45	.47	.48	.48	.48	.48	.48	.48	.48
June 22	.25	.34	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35
July 4	.55	1.00	1.25	1.50	1.90	2.20	2.25	2.27	2.30	2.35	2.40	2.43
July 12	.26	.40	.55	.70	.77	.80	.80	.83	.83	.84	.86	.87
July 13	.20	.31	.32	.33	.33	.33	.33	.33	.33	.33	.33	.33
Aug. 1	.21	.37	.50	.55	.58	.60	.60	.60	.60	.60	.60	.60
Aug. 9	.26	.31	.33	.35	.36	.36	.37	.38	.39	.40	.40	.41
Sept. 13	.18	.35	.52	.78	1.33	1.73	1.86	1.97	2.04	2.10	2.13	2.14
Oct. 16	.27	.52	.77	1.00	1.52	1.82	1.83	2.05	2.20	2.27	2.38	2.40
Oct. 17	.16	.31	.40	.49	.53	.53	.54	.54	.54	.54	.54	.54
Oct. 21	.40	.71	.97	1.16	1.31	1.45	1.56	1.61	1.98	2.15	2.23	2.40
Nov. 21	.20	.25	.40	.50	.55	.75	.84	.91	.92	.94	.97	.98
Fort Myers Airport												
Feb. 27	.18	.30	.35	.37	.41	.43	.44	.44	.52	.62	.64	.64
Mar. 17	.29	.42	.58	.70	.75	.81	.87	.92	1.01	1.03	1.03	1.03
Mar. 29	.40	.80	1.10	1.23	1.42	1.46	1.47	1.47	1.47	1.47	1.47	1.47
Apr. 22	.65	.87	.89	.91	1.02	1.06	1.13	1.33	1.48	1.49	1.50	1.50
May 18	.17	.28	.36	.45	.56	.72	.90	.93	.96	.96	.96	.96
June 15	.33	.45	.47	.48	.48	.48	.48	.48	.48	.48	.48	.48
June 17	.38	.76	.98	1.07	1.25	1.42	1.47	1.51	1.55	1.57	1.59	1.59
June 17	.40	.60	.75	.93	1.40	1.63	1.78	1.85	1.87	1.88	2.25	3.08
June 18	.24	.41	.48	.56	.63	.65	.68	.68	.74	.89	.93	.94
June 19	.25	.40	.53	.62	.73	1.24	1.67	1.75	1.85	1.94	2.03	2.04
June 20	.38	.52	.69	.80	.92	1.02	1.17	1.55	1.72	1.90	1.96	2.08
June 27	.20	.28	.30	.50	.57	.57	.62	.65	.65	.65	.65	.65
July 22	.20	.35	.39	.55	.75	.81	.85	.86	.89	.91	.99	1.06
Aug. 5	.29	.42	.50	.53	.53	.53	.53	.53	.53	.53	.53	.53
Aug. 7	.17	.30	.39	.44	.46	.52	.57	.64	.72	.75	.76	.80
Aug. 17	.23	.35	.42	.45	.49	.50	.50	.50	.50	.50	.50	.50
Sept. 1	.22	.42	.50	.60	.66	.66	.87	.94	.95	1.00	1.03	1.05
Sept. 4	.40	.75	.93	1.15	1.25	1.30	1.31	1.31	1.31	1.31	1.32	1.39
Sept. 16	.35	.50	.67	.71	.80	.94	.96	.97	.98	.99	1.00	1.00
Sept. 22	.20	.30	.36	.46	.55	.65	.75	.76	.78	.78	.78	.78
Oct. 7	.33	.43	.50	.54	.60	.60	.60	.60	.60	.60	.60	.61
Oct. 9	.21	.31	.52	.53	.55	.56	.56	.56	.57	.57	.61	.62
Oct. 17	.35	.55	.59	.59	.77	.80	1.00	1.04	1.08	1.09	1.10	1.12
Oct. 17	.43	.55	.60	.65	.85	1.00	1.25	1.30	1.33	1.37	1.46	2.26
Oct. 18	.30	.50	.80	.89	1.32	1.50	1.51	1.53	1.53	1.94	2.36	2.67
Oct. 20	.17	.30	.45	.55	.66	.67	.67	.67	.67	.67	.76	1.13
Jacksonville AP												
Mar. 5	.24	.33	.39	.46	.67	.68	.68	.69	.69	.69	.71	.71
Mar. 6	.28	.43	.55	.57	.60	.64	.66	.86	.98	1.04	1.16	1.21
Apr. 1	.28	.50	.53	.54	.55	.56	.60	.60	.60	.60	.60	.60
May 13	.21	.23	.32	.42	.44	.45	.45	.45	.46	.46	.47	.48
May 20	.13	.26	.39	.50	.66	.92	1.10	1.23	1.47	1.54	1.63	1.75
May 20	.20	.24	.30	.36	.48	.58	.80	.81	.81	.82	.83	.84
May 21	.27	.48	.70	.76	1.11	1.20	1.20	1.29	1.32	1.33	1.33	1.35
May 31	.32	.51	.71	.89	1.16	1.37	1.46	1.46	1.49	1.50	1.50	1.50
June 6	.19	.29	.37	.39	.42	.45	.50	.53	.53	.53	.53	.53
June 15	.32	.54	.65	.66	.68	.71	.71	.71	.71	.71	.72	.77
July 11	.22	.44	.46	.48	.52	.53	.54	.54	.55	.55	.56	.56
Aug. 9	.29	.50	.61	.66	.66	.66	.66	.66	.66	.66	.66	.66
Aug. 28	.33	.46	.49	.49	.49	.49	.50	.51	.51	.52	.52	.53
Sept. 19	.43	.69	.81	.98	1.09	1.86	2.13	2.20	2.20	2.20	2.20	2.20
Oct. 16	.15	.29	.40	.51	.67	.80	.80	.96	.97	.97	.97	.98
Key West Airport												
June 10	.14	.24	.34	.46	.52	.54	.56	.59	.61	.65	.74	.75
June 18	.16	.30	.34	.36	.43	.62	.75	.77	.87	1.04	1.17	1.29
July 13	.28	.48	.66	.81	.90	1.09	1.15	1.18	1.18	1.18	1.22	1.24
July 20	.16	.33	.37	.38	.40	.42	.42	.42	.42	.42	.42	.42
Aug. 24	.26	.39	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41
Sept. 5	.33	.56	.75	.95	1.20	1.53	2.04	2.25	2.30	2.41	2.48	2.51
Sept. 9	.21	.43	.54	.64	1.08	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Sept. 11	.29	.46	.50	.55	.58	.65	.80	1.20	1.33	1.41	1.50	1.50
Sept. 22	.25	.45	.64	.75	.95	1.03	1.06	1.07	1.08	1.08	1.08	1.08
Oct. 17	.25	.43	.52	.60	.64	.75	.83	.91	.96	.97	.98	.98
Nov. 20	.18	.24	.37	.46	.52	.65	.83	1.06	1.13	1.15	1.20	1.34
Nov. 20	.44	.68	.90	1.20	1.52	1.95	2.16	2.33	2.38	2.61	3.16	3.45
Nov. 25	.21	.32	.39	.46	.47	.47	.47	.47	.47	.47	.47	.47
Dec. 23	.26	.35	.42	.49	.71	1.03	1.25	1.50	1.96	2.46	2.83	2.93
Miami												
Jan. 27	.22	.34	.46	.54	.65	.71	.75	.75	.91	.91	.91	.97
Feb. 6	.31	.46	.53	.56	.68	.73	.74	.77	.77	.77	.77	.77
Mar. 18	.21	.37	.47	.56	.74	.85	.88	.89	.92	.94	.94	1.12
Mar. 20	.33	.42	.48	.50	.55	.59	.66	.71	.84	.91	.93	.94
Mar. 21	.19	.30	.33	.33	.45	.48	.61	.72	.78	.79	.82	.83
May 14	.22	.41	.54	.73	.86	.93	.94	.94	.94	.94	.94	.94
May 16	.23	.38	.47	.55	.62	.66	.74	.80	.82	.82	.83	.83
May 23	.40	.73	1.00	1.12	1.16	1.18	1.18	1.18	1.18	1.18	1.21	1.22
May 27	.27	.35	.48	.61	.70	.89	1.00	1.08	1.10	1.10	1.10	1.11
June 3	.45	.79	1.02	1.22	1.89	2.30	2.35	2.35	2.35	2.35	2.35	2.35
June 4	.50	.91	1.18	1.51	1.78	2.16	2.52	2.74	2.74	2.74	2.74	2.74
June 5	.31	.56	.71	.85	.98	1.13	1.16	1.17	1.17	1.17	1.17	1.17
June 14	.39	.62	.80	.84	.85	.87	.87	.87	.87	.87	.87	.87
June 17	.29	.56	.62	.73	.98	1.35	1.52	1.52	1.53	1.54	1.64	1.69
June 18	.35	.53	.69	1.34	1.39	2.01	2.54	3.38	3.97	4.64	5.33	5.41
June 20	.25	.30	.30	.30	.30	.32	.32	.32	.32	.32	.32	.32
June 20	.46	.66	.95	1.15	1.35	1.40	1.49	1.83	1.94	2.37	2.51	2.62
July 6	.25	.36	.44	.46	.50	.78	.86	1.03	1.25	1.26	1.26	1.26
July 7	.25	.39	.46	.78	.85	.90	.91	.91	.91	.91	.91	.91
Aug. 3	.17	.30	.43	.54	.58	.73	.78	.79	.80	.80	.80	.80
Aug. 15	.34	.57	.73	.86	.93	.99	1.01	1.02	1.02	1.02	1.03	1.03
Aug. 15	.24	.42	.52	.65	.69	.69	.69	.71	.71	.71	.71	.71
Aug. 25	.18	.33	.40	.50	.55	.56	.64	1.01	1.09	1.10	1.15	1.18
Sept. 3	.27	.53	.73	.82	1.05	1.48	1.75	1.85	2.11	2.25	2.25	2.25
Sept. 9	.44	.81	1.01	1.18	1.45	1.49	1.50	1.53	1.53	1.53	1.54	1.54
Sept. 19	.31	.54	.76	1.04	1.23	1.35	1.41	1.49	1.53	1.62	2.02	2.04
Sept. 25	.16	.28	.33	.49	.53	.53	.53	.53	.53	.53	.53	.53
Oct. 17	.33	.55	.74	.77	.88	.90	.91	1.48	1.50	1.51	1.60	1.68
Nov. 7	.23	.40	.45	.46	.46	.46	.51	.59	.59	.61	.61	.61
Nov. 11	.18	.22	.38	.44	.62	.75	.75	.78	.78	.79	.81	.81
Nov. 18	.35	.46	.62	.80	.92	1.18	1.22	1.52	1.81	2.13	2.21	2.27
Nov. 19	.27	.40	.57	.68	.91	1.18	1.56	1.60	1.77	2.21	2.47	2.56
Nov. 19	.25	.45	.65	.88	1.22	1.55	1.78	1.85	2.00	2.19	3.15	3.77
Miami Airport												
Jan. 27	.35	.39	.45	.50	.63	.65	.66	.98	1.00	1.00	1.05	1.19
Feb. 6	.25	.35	.45	.52	.62	.63	.63	.63	.63	.63	.63	.63

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
FLORIDA (Cont'd.)												
Miami Airport (Cont'd.)												
Feb. 20	0.30	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Mar. 18	.25	.40	.46	.51	.70	.85	.91	.91	.93	.93	.93	1.14
Apr. 20	.42	.70	.90	.98	.98	1.15	1.15	1.15	1.15	1.15	1.15	1.15
May 14	.30	.55	.78	.90	1.25	1.43	1.44	1.44	1.44	1.44	1.44	1.44
May 23	.15	.25	.37	.41	.45	.45	.45	.45	.45	.45	.45	.45
May 27	.23	.42	.58	.63	.75	.98	1.08	1.13	1.15	1.16	1.17	1.18
June 3	.42	.75	1.00	1.32	1.72	2.04	2.07	2.08	2.08	2.08	2.08	2.08
June 4	.55	1.00	1.30	1.50	2.07	2.18	2.24	2.24	2.24	2.26	2.27	2.27
June 5	.25	.48	.65	.82	.95	1.28	1.30	1.30	1.30	1.30	1.30	1.30
June 7	.17	.32	.43	.47	.48	.48	.48	.48	.48	.48	.48	.48
June 14	.35	.52	.65	.72	.79	.81	.81	.81	.81	.81	.81	.81
June 17	.30	.50	.63	.70	.93	1.20	1.35	1.37	1.38	1.40	1.45	1.48
June 18	.45	.77	1.10	1.35	1.70	2.55	3.15	3.70	4.45	4.90	5.25	5.38
June 20	.52	.75	.90	1.00	1.12	1.24	1.40	1.50	1.72	2.25	2.46	2.56
June 30	.17	.30	.42	.50	.50	.78	.82	.82	.82	.82	.82	.82
July 6	.25	.45	.53	.63	.73	1.10	1.25	1.70	1.74	1.80	1.82	1.83
July 8	.30	.48	.55	.58	.60	.60	.60	.60	.60	.60	.60	.60
July 10	.25	.30	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34
July 11	.29	.40	.46	.48	.48	.48	.48	.48	.48	.48	.48	.48
July 15	.30	.50	.68	.78	.88	.88	.88	.88	.88	.88	.88	.88
July 22	.25	.44	.46	.64	.74	.76	.76	.76	.76	.77	.77	.79
July 26	.42	.75	.87	.99	1.04	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Aug. 2	.25	.31	.32	.32	.33	.33	.33	.33	.33	.33	.33	.33
Aug. 3	.45	.57	.58	.59	.60	.69	.70	.70	.70	.70	.70	.70
Aug. 15	.25	.43	.53	.63	.68	.87	.88	.88	.88	.88	.88	.88
Aug. 15	.45	.80	1.00	1.20	1.43	1.50	1.52	1.52	1.52	1.52	1.52	1.52
Sept. 3	.65	1.25	1.70	2.15	3.02	3.33	3.41	3.42	3.43	3.43	3.43	3.43
Sept. 10	.28	.38	.53	.60	.69	.70	.71	.73	.73	.73	.73	.73
Sept. 12	.32	.60	.61	.62	.63	.63	.63	.63	.63	.63	.63	.63
Sept. 21	.28	.34	.36	.37	.38	.40	.42	.43	.43	.43	.43	.44
Sept. 25	.27	.50	.55	.59	.62	.62	.62	.62	.62	.62	.62	.62
Sept. 29	.30	.39	.42	.45	.58	.73	.83	1.20	1.35	1.43	1.46	1.48
Oct 17	.34	.60	.87	.88	1.01	1.04	1.04	1.56	1.62	1.65	1.73	1.79
Nov. 11	.25	.38	.50	.65	.86	1.13	1.16	1.24	1.26	1.28	1.28	1.28
Nov. 18	.15	.31	.42	.45	.52	.58	.64	.83	1.10	1.26	1.35	1.43
Nov. 19	.50	.85	.90	1.05	1.32	1.80	1.85	1.87	2.30	2.66	2.73	2.81
Nov. 19	.26	.45	.47	.47	.48	.52	.60	.74	.84	.85	.86	1.10
Orlando Airport												
Feb. 25	.50	.52	.52	.53	.55	.85	1.05	1.36	1.57	1.82	2.00	2.00
Apr. 2	.28	.31	.33	.34	.37	.40	.43	.46	.49	.60	.67	.74
Apr. 13	.27	.48	.70	.83	.88	.90	.90	.90	.90	.90	.90	.90
Apr. 21	.20	.30	.47	.51	.65	.95	1.07	1.12	1.35	1.45	1.55	1.66
May 13	.54	.63	.64	.65	.67	.74	.74	.74	.74	1.03	1.28	1.29
May 19	.36	.47	.48	.49	.50	.51	.51	.51	.51	.51	.51	.51
May 20	.34	.60	.74	.77	.80	1.05	1.05	1.05	1.22	1.30	1.30	1.30
June 6	.35	.57	.67	.68	.74	.78	.84	.97	.97	.97	.97	.97
June 19	.26	.33	.37	.54	.59	.62	.65	.65	.69	.70	.70	.70
June 28	.20	.33	.53	.58	.70	.72	.79	.81	.87	.91	.91	.91
July 2	.25	.44	.53	.59	.64	.80	.99	1.24	1.44	1.49	1.51	1.52
July 8	.45	.68	.83	1.00	1.40	2.07	2.37	2.45	2.47	2.49	2.49	2.49
July 15	.25	.44	.49	.51	.53	.53	.53	.53	.53	.53	.53	.53
Aug. 30	.55	.80	1.05	1.12	1.70	2.17	2.73	3.12	3.24	3.27	3.30	3.32
Sept. 4	.32	.38	.43	.46	.46	.46	.46	.46	.46	.46	.46	.46
Sept. 11	.60	1.00	1.25	1.40	1.45	1.46	1.46	1.46	1.46	1.46	1.46	1.46
Sept. 13	.32	.42	.45	.46	.46	.48	.52	.58	.64	.65	.68	.69
Sept. 14	.33	.53	.68	.70	.70	.72	1.05	1.07	1.07	1.08	1.08	1.08
Oct. 7	.48	.85	.93	.96	1.01	1.05	1.08	1.12	1.15	1.16	1.17	1.18
Oct. 16	.25	.28	.35	.42	.45	.47	.47	.47	.47	.47	.47	.47
Oct. 20-21	.21	.35	.43	.50	.56	.84	.93	.99	1.01	1.02	1.03	1.03
Oct. 21	.32	.60	.75	.79	.85	.86	.89	.89	.89	.89	.89	.89
Pensacola												
Jan. 30	.22	.35	.36	.36	.42	.51	.66	.72	.75	.88	.96	1.15
Apr. 1	.30	.43	.50	.59	.68	.72	.77	.91	.97	1.03	1.10	1.16
Apr. 10	.31	.54	.79	.95	1.04	1.17	1.28	1.37	1.39	1.59	2.07	2.62
Apr. 12	.21	.29	.36	.39	.44	.50	.53	.55	.55	.55	.55	.55
Apr. 20	.35	.57	.73	.83	.97	1.31	1.37	1.44	1.44	1.49	1.56	1.58
May 10	.26	.32	.35	.36	.37	.37	.37	.54	.58	.58	.58	.58
June 1	.26	.33	.39	.41	.42	.47	.54	.60	.61	.63	.67	.82
June 7	.27	.29	.29	.29	.30	.31	.32	.33	.37	.46	.48	.50
June 8	.22	.38	.43	.44	.44	.45	.48	.50	.54	.55	.58	.58
June 11	.36	.60	.86	1.11	1.47	1.72	1.80	1.98	2.08	2.12	2.22	2.27
July 11	.23	.36	.42	.47	.52	.53	.60	.84	.88	.93	.96	.98
July 16	.30	.42	.47	.47	.48	.49	.49	.49	.49	.49	.49	.49
July 23	.26	.44	.49	.57	.66	.67	.67	.67	.67	.67	.67	.67
Aug. 1	.28	.43	.50	.54	.59	.60	.60	.61	.64	.66	.67	.67
Aug. 7	.25	.38	.46	.50	.53	.56	.57	.63	.63	.63	.65	.67
Aug. 13	.40	.65	.93	1.10	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
Aug. 19	.25	.35	.37	.40	.40	.40	.40	.40	.40	.52	.59	.59
Sept. 11	.60	.95	1.12	1.21	1.21	1.26	1.34	1.37	1.38	1.41	2.37	2.48
Sept. 13	.27	.47	.67	.81	.99	1.08	1.28	1.71	2.00	2.40	2.89	3.06
Sept. 14	.23	.40	.57	.68	.87	.97	1.02	1.02	1.02	1.03	1.06	1.18
Sept. 26	.40	.57	.68	.70	.73	.77	.82	.84	.85	.85	.85	.85
Oct. 6	.31	.46	.56	.62	.66	.78	.78	.78	.78	.78	.79	.79
Oct. 7	.32	.48	.55	.60	.68	.75	.77	.81	.81	.81	.83	.85
Oct. 10	.24	.37	.48	.63	.77	1.02	1.39	1.70	1.78	1.88	1.96	2.49
Oct. 14	.28	.43	.52	.56	.67	.75	.84	.93	.97	.99	1.00	1.35
Oct. 29	.15	.27	.34	.42	.57	.75	.97	1.34	1.47	1.64	1.81	1.90
Nov. 5	.39	.69	.91	.93	1.02	1.10	1.12	1.13	1.13	1.13	1.13	1.13
Nov. 27	.27	.47	.65	.74	.88	.91	.93	.95	.96	.96	.96	.96
Dec. 12	.23	.36	.42	.47	.54	.55	.61	.64	.65	.69	.70	.70
Dec. 17	.24	.44	.50	.52	.54	.55	.56	.59	.62	.67	.68	.69
Tallahassee AP												
Jan. 15	.34	.43	.48	.50	.54	.59	.64	.75	.77	.83	.90	.93
Feb. 4	.33	.58	.90	1.02	1.15	1.21	1.29	1.39	1.51	1.65	1.76	1.81
Mar. 5	.17	.29	.37	.42	.55	.73	.81	1.08	1.32	1.49	1.66	1.92
Mar. 5	.23	.37	.40	.43	.46	.49	.55	.65	.90	1.10	1.20	1.38
Mar. 5	.27	.42	.50	.60	.76	.89	.93	1.01	1.08	1.14	1.22	1.28
Apr. 19	.12	.23	.35	.38	.40	.40	.40	.40	.41	.41	.41	.41
May 20	.26	.40	.60	.80	1.28	1.63	1.96	2.05	2.20	2.28	2.44	2.57
May 20	.40	.73	.83	.84	.84	.85	1.16	1.17	1.17	1.17	1.17	1.17
May 23	.20	.31	.42	.53	.69	.76	.79	.81	.84	.86	.88	.88
May 26	.20	.32	.38	.42	.48	.51	.51	.51	.51	.51	.51	.51
May 27	.30	.40	.43	.45	.45	.45	.45	.45	.45	.45	.45	.45
June 1	.50	.80	1.05	1.07	1.08	1.48	1.50	1.55	1.62	1.87	1.94	2.05
June 1	.20	.33	.47	.60	.77	.82	.84	.84	.84	.84	.84	.84
June 2	.27	.51	.60	.70	.86	1.25	1.38	1.50	1.65	1.75	1.77	1.80
June 14	.15	.25	.40	.41	.52	.57	.60	.62	.63	.66	.67	.70
June 21	.33	.66	.90	1.13	1.30	1.33	1.35	1.36	1.37	1.37	1.37	1.37
June 30	.27	.40	.50	.58	.64	.68	.69	.69	.69	.71	.72	.72
July 2	.32	.61	.81	.86	.96	.98	.99	1.04	1.04	1.04	1.04	1.04
July 25	.25	.32	.37	.40	.42	.43	.44	.45	.51	.62	.64	.65

EXCESSIVE SHORT DURATION RAINFALL

Station and date	5	10	15	20	30	45	60	80	100	120	150	180
	Maximum precipitation in inches (5 to 180 minutes)											
FLORIDA (Cont'd.)												
Tallahassee AP (Cont'd.)												
July 30	0.32	0.52	0.66	0.77	0.95	0.99	1.05	1.11	1.12	1.13	1.17	1.17
July 31	.15	.27	.35	.49	.58	.59	.60	.60	.60	.60	.62	.63
Aug. 3	.20	.37	.43	.47	.72	.85	.88	.88	.88	.88	.88	.88
Aug. 13	.30	.55	.60	.76	.84	1.15	1.51	1.53	1.60	1.60	1.62	1.75
Aug. 23	.30	.50	.60	.68	.72	.75	.75	.75	.77	1.10	1.50	1.50
Aug. 29	.39	.52	.66	.75	.83	.99	1.27	1.30	1.30	1.30	1.31	1.32
Aug. 30	.25	.43	.60	.77	1.05	1.40	1.56	1.61	1.86	1.95	2.01	2.04
Sept. 8	.24	.44	.61	.75	.96	1.14	1.18	1.21	1.23	1.25	1.27	1.27
Sept. 9	.45	.82	1.02	1.04	1.10	1.25	1.32	1.36	1.42	1.45	1.51	1.53
Oct. 8	.17	.32	.49	.60	.75	.87	.93	.98	1.07	1.36	1.55	1.73
Oct. 8	.17	.27	.45	.56	.72	.84	.92	1.03	1.14	1.25	1.32	1.52
Oct. 9	.19	.33	.43	.52	.57	.63	.65	.67	.68	.69	.80	.98
Oct. 9	.26	.43	.55	.68	.79	.83	.88	.90	.95	1.00	1.55	1.83
Oct. 29	.15	.30	.44	.56	.69	.77	.81	.84	.91	.96	1.10	1.20
Oct. 30	.19	.27	.36	.42	.46	.51	.52	.54	.55	.55	.55	.55
Tampa Airport												
Mar. 12	.30	.38	.45	.50	.55	.68	.70	.97	1.13	1.32	1.61	1.98
Mar. 29	.17	.32	.34	.38	.59	.70	.86	1.26	1.27	1.28	1.50	1.61
Apr. 2	.23	.35	.46	.55	.57	.60	.64	.68	.76	.85	.92	1.04
Apr. 20	.40	.55	.57	.58	.58	.60	.64	.66	.67	.67	.67	.67
Apr. 21	.35	.65	.95	1.10	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Apr. 21	.40	.64	.69	.72	.83	.88	.88	.93	.93	1.00	1.05	1.06
May 10	.30	.51	.52	.52	.52	.60	.61	.61	.65	.95	1.18	1.21
May 19	.20	.22	.30	.41	.43	.62	.66	.72	.81	.81	.82	.90
May 21	.25	.45	.60	.65	.67	.77	.90	1.10	1.13	1.14	1.15	1.15
May 22	.25	.50	1.05	1.25	1.75	2.15	2.25	2.27	2.28	2.32	2.34	2.34
June 7	.45	.65	.90	1.20	1.53	1.85	2.20	2.22	2.24	2.26	2.26	2.26
June 8	.33	.54	.55	.58	.69	.72	.72	.72	.72	.72	.72	.74
July 7	.23	.32	.49	.54	.54	.54	.54	.54	.54	.54	.54	.54
July 8	.70	.87	1.07	1.22	1.43	1.51	1.52	1.52	1.54	1.54	1.54	1.54
July 12	.23	.32	.35	.35	.35	.35	.35	.35	.35	.35	.35	.35
July 12	.32	.35	.37	.38	.39	.39	.39	.39	.39	.39	.39	.39
July 13	.19	.40	.43	.57	.59	.67	.74	.75	.80	.85	.88	.92
July 15	.50	.64	.66	.70	.76	.79	.79	.79	.79	.79	.79	.79
July 18	.30	.55	.61	.67	.73	.76	.78	.79	.80	.80	.80	.80
Aug. 3	.18	.34	.47	.51	.68	.92	1.20	1.45	1.49	1.50	1.50	1.50
Aug. 17	.25	.37	.42	.47	.48	.48	.48	.49	.55	.55	.58	.58
Aug. 18	.35	.50	.66	.84	.85	.85	.85	.86	.86	.86	.90	.92
Aug. 23	.28	.48	.55	.75	.83	.90	.91	.91	.91	.95	.99	1.00
Sept. 3	.25	.70	.72	.82	.95	.96	.96	.96	.96	.96	.96	.96
Sept. 7	.23	.36	.46	.48	.69	.92	.93	.97	.97	.97	1.25	1.29
Sept. 9	.26	.40	.55	.65	.70	1.10	1.15	1.17	1.20	1.29	1.37	1.40
Sept. 10	.25	.39	.48	.55	.67	.77	.80	.81	.81	.82	.82	.82
Sept. 13	.18	.45	.55	.57	.62	.66	.66	.66	.66	.66	.66	.66
Sept. 15	.15	.35	.60	.80	.95	1.13	1.20	1.33	1.48	1.58	1.65	1.68
Oct. 12	.32	.46	.50	.60	.87	1.13	1.39	1.52	1.55	1.55	1.55	1.55
Oct. 13	.17	.28	.45	.51	.58	.60	.60	.61	.61	.61	.61	.61
Oct. 16	.20	.30	.45	.50	.55	.58	.60	.60	.60	.60	.60	.60
Oct. 17	.18	.31	.42	.47	.58	.70	.71	.73	.73	.73	.73	.73
Oct. 20	.13	.20	.38	.41	.51	.66	.71	.71	.71	.81	1.00	1.17
West Palm Beach AP												
Feb. 5	.26	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33
Apr. 1	.25	.43	.53	.64	.89	1.04	1.07	1.17	1.18	1.18	1.18	1.18
Apr. 22	.25	.31	.39	.42	.50	.58	.64	.69	.72	.72	.72	.72
May 22	.17	.33	.33	.33	.34	.36	.37	.37	.37	.37	.37	.37
June 3	.28	.53	.93	1.03	1.25	1.27	1.27	1.27	1.27	1.27	1.27	1.27
June 6	.25	.35	.42	.44	.45	.45	.45	.45	.45	.45	.45	.45
June 14	.20	.40	.50	.55	.61	.67	.73	.77	.82	.85	.86	.91
June 17	.24	.30	.30	.32	.37	.40	.42	.42	.44	.44	.44	.44
June 17	.16	.26	.38	.56	.67	.78	.82	.96	1.14	1.22	1.34	1.44
June 18	.44	.47	.47	.47	.57	.73	1.00	1.25	1.34	1.49	1.80	1.98
June 20	.29	.40	.60	.85	1.19	1.67	1.85	2.46	2.50	2.80	3.09	3.28
July 8	.23	.37	.50	.55	.68	.86	.90	.92	.92	.92	.92	.92
July 16	.19	.37	.50	.69	.89	1.04	1.06	1.07	1.08	1.09	1.15	1.15
July 21	.25	.39	.46	.47	.47	.47	.47	.47	.47	.47	.47	.47
July 22	.15	.25	.35	.45	.53	.66	.69	.82	.85	.85	1.03	1.20
Aug. 6	.18	.30	.37	.39	.41	.41	.41	.48	.70	.75	.78	.82
Aug. 14	.24	.33	.37	.38	.39	.42	.47	.48	.48	.50	.53	.53
Aug. 16	.18	.34	.39	.40	.46	.70	.70	.70	.70	.70	.70	.70
Aug. 23	.25	.39	.40	.41	.42	.42	.47	.51	.51	.51	.51	.51
Sept. 11	.22	.33	.57	.59	.92	.98	1.00	1.02	1.02	1.02	1.02	1.02
Sept. 12	.20	.35	.52	.70	.79	.96	1.06	1.06	1.06	1.06	1.06	1.06
Sept. 14	.20	.31	.36	.38	.40	.40	.40	.40	.40	.40	.40	.40
Sept. 16	.45	.90	1.13	1.26	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
Sept. 28	.25	.35	.37	.39	.42	.50	.60	.64	.65	.65	.65	.65
Oct. 6	.28	.55	.80	1.00	1.45	1.66	1.71	1.80	1.88	2.40	2.59	2.67
Oct. 9	.25	.35	.36	.36	.46	.48	.48	.48	.48	.48	.48	.48
Oct. 15	.25	.31	.31	.31	.31	.31	.31	.33	.33	.33	.33	.33
Oct. 17	.30	.55	.70	.93	.99	1.01	1.05	1.09	1.10	1.13	1.16	1.18
Oct. 17	.20	.35	.37	.37	.41	.49	.49	.49	.49	.49	.49	.49
Oct. 18	.17	.26	.35	.45	.60	.76	.85	.88	.88	.88	.88	1.08
Oct. 19	.20	.35	.46	.55	.80	1.00	1.15	1.25	1.28	1.30	1.33	1.36
Oct. 20	.35	.70	1.01	1.25	1.39	1.42	1.44	1.50	1.54	1.57	1.63	1.79
Oct. 24	.20	.25	.38	.43	.47	.47	.47	.47	.47	.47	.47	.51
Nov. 6	.16	.31	.45	.49	.52	.58	.59	.59	.59	.59	.59	.59
Nov. 18	.23	.38	.57	.68	.79	.97	1.05	1.09	1.34	1.83	2.07	2.14
Nov. 20	.16	.24	.31	.37	.60	.64	.71	.74	.81	.97	.99	1.02
GEORGIA												
Atlanta Airport												
Jan. 15	.20	.30	.35	.36	.37	.38	.42	.48	.57	.58	.61	.70
Jan. 21	.50	.62	.65	.74	.75	.77	.83	.96	.98	.99	1.02	1.02
Mar. 11	.25	.28	.33	.35	.39	.42	.50	.50	.53	.62	.71	.81
June 23	.28	.34	.36	.37	.38	.38	.38	.53	.54	.54	.54	.55
July 15	.22	.32	.39	.49	.61	.76	.91	1.07	1.09	1.11	1.19	1.25
Aug. 20	.63	.96	.99	1.01	1.03	1.05	1.09	1.10	1.11	1.11	1.12	1.12
Sept. 7	.33	.59	.86	1.06	1.20	1.29	1.30	1.31	1.31	1.32	1.34	1.35
Augusta Airport												
Jan. 21	.28	.39	.45	.48	.53	.57	.61	.71	.76	.82	.91	.99
May 9	.31	.42	.48	.57	.78	1.07	1.20	1.24	1.63	1.64	1.65	1.65
June 3	.25	.46	.50	.57	.58	.60	.60	.60	.60	.60	.60	.60
June 24	.37	.45	.47	.72	.72	.72	.72	.72	.72	.72	.72	.72
July 17	.19	.22	.32	.49	.52	.52	.52	.60	.65	.65	.65	.65
Aug. 29	.62	1.05	1.48	1.95	2.39	2.67	2.68	2.69	2.70	2.70	2.71	2.71
Aug. 30	.18	.34	.48	.59	.60	.60	.60	.60	.60	.60	.60	.60
Sept. 1	.30	.55	.72	.80	.86	.87	.87	.87	.87	.87	.87	1.01
Sept. 8	.25	.41	.45	.49	.51	.52	.52	.58	.60	.60	.60	.60
Columbus Airport												
Jan. 15	.15	.23	.30	.40	.48	.60	.70	.75	.84	.92	1.00	1.11
Jan. 21	.21	.32	.37	.38	.60	.62	.63	.65	.67	.70	.72	.76
GEORGIA (Cont'd.)												
Columbus AP (Cont'd.)												
May 12	0.26	0.50	0.55	0.61	0.66	0.68	0.68	0.69	0.69	0.69	0.69	0.69
May 24	.28	.50	.60	.66	.71	.85	.89	.96	.99	1.02	1.10	1.13
May 26	.30	.50	.54	.59	.88	.95	.96	.96	.96	.96	.96	1.00
May 30	.15	.29	.42	.44	.48	.50	.52	.52	.53	.53	.53	.54
May 30	.20	.33	.45	.48	.52	.54	.55	.55	.56	.56	.56	.59
May 31	.26	.45	.47	.48	.48	.48	.48	.48	.48	.54	.74	.74
June 1	.30	.58	.82	1.06	1.33	2.05	2.45	2.99	3.20	3.31	3.38	3.50
June 5	.55	.80	.97	1.00	1.03	1.04	1.05	1.05	1.05	1.05	1.05	1.05
July 10	.16	.26	.36	.36	.40	.43	.43	.43	.43	.43	.43	.43
July 16	.50	.90	1.15	1.35	1.75	2.20	2.40	2.45	2.47	2.48	2.51	2.55
July 31	.26	.31	.40	.42	.47	.58	.58	.60	.60	.60	.60	.60
Aug. 14	.35	.46	.48	.58	.60	.64	.64	.64	.64	.64	.64	.64
Aug. 15	.26	.45	.50	.51	.52	.52	.52	.52	.52	.52	.52	.52
Aug. 19	.25	.35	.40	.41	.42	.58	.59	.59	.59	.59	.59	.59
Aug. 29	.35	.50	.82	.94	1.07	1.19	1.22	1.22	1.22	1.22	1.22	1.22
Sept. 14	.25	.35	.49	.51	.53	.58	.62	.65	.75	.82	.87	.92
Macon Airport												
Apr. 12	.15	.26	.41	.49	.62	.93	1.05	1.15	1.23	1.23	1.27	1.30
Apr. 19	.58	.67	.68	.69	.73	.75	.75	.75	.75	.75	.75	.75
May 25	.14	.28	.38	.50	.72	.88	1.08	1.18	1.26	1.35	1.43	1.45
May 31	.21	.39	.55	.74	.91	1.03	1.05	1.05	1.05	1.06	1.11	1.24
June 6	.49	.98	1.41	1.66	2.14	2.31	2.36	2.38	2.38	2.39	2.39	2.40
July 3	.10	.20	.30	.40	.60	.90	1.19	1.26	1.26	1.27	1.34	1.37
July 13	.58	.63	.65	.65	.67	.68	.69	.70	.70	.70	.71	.71
July 16	.28	.43	.47	.54	.63	.64	.65	.65	.65	.65	.65	.65
July 17	.30	.50	.63	.77	.91	1.03	1.08	1.15	1.19	1.24	1.31	1.38
Aug. 1	.50	1.00	1.44	1.86	2.55	2.78	2.94	2.96	2.96	2.96	2.96	2.96
Aug. 31	.25	.49	.65	.75	.95	1.04	1.05	1.05	1.05	1.05	1.05	1.05
Oct. 14	.15	.29	.37	.42	.60	.71	.72	.76	.78	.81	.84	.88
Oct. 16	.18	.30	.40	.46	.52	.58	.60	.60	.61	.62	.62	.62
Rome Airport												
May 12	.28	.32	.36	.38	.39	.39	.39	.39	.39	.39	.39	.39
May 19	.28	.39	.46	.46	.46	.47	.47	.71	.74	.75	.78	.79
May 22	.42	.83	1.08	1.09	1.22	1.29	1.38	1.44	1.45	1.45	1.45	1.46
May 24	.38	.75	.85	.90	.95	.99	1.01	1.07	1.07	1.08	1.08	1.08
June 1	.33	.44	.56	.57	.60	.60	.60	.60	.60	.60	.60	.60
June 23	.65	1.05	1.30	1.42	1.53	1.55	1.56	1.60	1.64	1.67	1.68	1.68
July 20	.38	.66	.78	.78	.78	.78	.78	.78	.78	.78	.79	.79
Aug. 21	.42	.79	.85	.90	1.11	1.20	1.24	1.24	1.24	1.25	1.25	1.25
Oct. 6	.27	.32	.38	.42	.44	.48	.50	.53	.57	.61	.65	.66
Dec. 18	.18	.26	.35	.37	.39	.41	.45	.49	.54	.55	.55	.56
Savannah Airport												
Mar. 5	.20	.29	.41	.50	.70	.94	1.05	1.20	1.29	1.45	1.75	1.80
Mar. 6	.44	.54	.57	.61	.67	.71	.76	.85	.91	1.02	1.12	1.17
Mar. 21	.43	.45	.46	.46	.46	.50	.57	.57	.57	.57	.57	.70
May 20	.21	.41	.60	.75	1.00	1.23	1.42	1.59	1.67	2.00	2.40	2.84
May 25	.38	.72	.97	1.13	1.25	1.33	1.35	1.35	1.35	1.35	1.35	1.36
May 26	.24	.41	.45	.50	.79	.88	.96	1.48	1.51	1.55	1.55	1.55
June 3	.45	.66	.72	.86	.93	.96	.96	.96	.96	.96	.96	.96
June 17	.27	.49	.59	.73	.87	.94	.96	.96	.96	.96	.96	.96
July 11	.48	.93	1.16	1.39	1.56	2.02	2.40	2.49	2.55	2.58	2.62	2.65
July 13	.38	.61	.72	.73	.74	.75	.75	.75	.83	.86	.86	.86
July 17	.18	.33	.35	.37	.38	.38	.38	.38	.38	.38	.38	.38
Aug. 6	.41	.77	1.05	1.28	1.48	1.58	1.82	2.02	2.04	2.10	2.20	2.20
Aug. 7	.39	.67	.90	1.10	1.19	1.28	1.30	1.33	1.35	1.35	1.35	1.35
Aug. 8	.29	.32	.36	.43	.57	.61	.66	.79	.81	.81	.81	.81
Aug. 14	.26	.44	.53	.57	.65	.70	.70	.72	.72	.72	.72	.72
Aug. 28	.25	.43	.57	.65	.84	1.25	1.46	1.47	1.48	1.48	1.48	1.48
Aug. 30	.37	.63	.82	1.06	1.46	1.78	2.14	2.36	2.50	2.60	2.60	2.60
Sept. 4	.31	.50	.57	.62	.79	.81	.82	.83	.84	.87	.88	.89
Sept. 7	.25	.36	.42	.45	.47	.49	.49	.49	.49	.49	.49	.49
Oct. 14	.40	.54	.62	.65	.74	.75	.76	.77	.77	.77	.77	.78
Oct. 29	.25	.49	.69	.87	1.15	1.37	1.42	1.47	1.52	1.59	1.65	1.74
Valdosta Airport												
May 19	.35	.53	.69	.74	.80	.86	.91	1.01	1.04	1.06	1.07	1.07
May 20	.30	.55	.73	.83	1.32	1.44	1.53	1.53	1.55	1.55	1.55	2.20
June 7	.18	.26	.33	.40	.53	.71	.84	1.08	1.19	1.20	1.49	1.59
June 14	.31	.47	.74	.79	.92	1.06	1.08	1.11	1.11	1.11	1.11	1.12
June 15	.25	.40	.50	.55	.73	.75	.76	.76	.78	.79	.79	.80
June 28	.23	.39	.54	.59	.62	.62	.63	.64	.65	.65	.65	.66
July 3	.17	.23	.30	.40	.52	.63	.69	.75	.94	.98	.99	1.01
July 15	.66	1.27	1.93	2.25	2.98	3.57	4.07	4.25	4.38	4.45	4.46	4.50
July 16	.52	.80	1.15	1.29	1.54	1.68	1.75	1.79	1.79	1.80	1.80	1.80
July 24	.22	.35	.43	.52	.60	.60	.60	.60	.60	.60	.60	.60
July 30	.33	.65	.67	.68	.68	.68	.68	.68	.68	.68	.68	.68
July 31	.27	.40	.60	.72	.97	1.07	1.10	1.10	1.12	1.18	1.22	1.22
Aug. 1	.65	1.13	1.35	1.70	2.20	2.80	3.08	3.25	3.40	3.43	3.43	3.43
Aug. 21	.19	.34	.46	.51	.56	.57	.57	.57	.57	.57	.57	.57
Oct. 14	.26	.30	.32	.34	.35	.40	.41	.41	.42	.45	.47	.48
HAWAII												
Hilo Airport												
Jan. 18	.21	.32	.37	.45	.60	.75	1.00	1.27	1.44	1.52	1.56	1.63
Feb. 21	.19	.27	.43	.50	.55	.58	.58	.58	.59	.60	.60	.62
Mar. 12	.26	.31	.53	.67	.73	.88	1.05	1.25	1.35	1.39	1.41	1.42
May 29	.25	.38	.44	.50	.56	.60	.80	1.07	1.19	1.22	1.28	1.28
Oct. 30	.13	.22	.37	.44	.51	.53	.68	.94	1.01	1.04	1.08	1.08
Oct. 31	.14	.26	.45	.56	.82	1.22	1.59	1.78	1.94	2.12	2.40	2.80
Nov. 1	.25	.40	.50	.53	.60	.73	1.00	1.17	1.33	1.51	1.82	1.98
Nov. 2	.21	.36	.54	.63	.92	1.26	1.58	2.00	2.59	3.22	4.03	4.44
Dec. 26	.11	.18	.27	.35	.46	.59	.82	.90	.94	.94	.94	.97
Dec. 27	.16	.30	.32	.33	.34	.35	.37	.38	.40	.40	.40	.40
Honolulu AP												
Jan. 17-18	.23	.29	.33	.38	.53	.59	.64	.71	.75	.75	.77	.77
Aug. 6	.28	.43	.57	.70	.85	.95	1.01	1.09	1.13	1.23	1.31	1.38
Nov. 2	.30	.39	.45	.51	.63	.81	.84	.92	.93	.98	.98	.99
Lihue Airport												
Jan. 12	.32	.46	.55	.60	.63	.69	.73	.75	.80	.81	.81	.81
Jan. 13	.26	.29	.29	.30	.30	.31	.31	.31	.35	.49	.63	.68
Jan. 17	.31	.43	.62	.66	.71	.77	.84	.87	.95	1.01	1.06	1.09
Jan. 18	.26	.33	.39	.40	.43	.57	.59	.74	.74	.74	.74	.78
May 25	.25	.34	.41	.60	.72	.94	1.29	1.42	1.43	1.43	1.44	1.44
Aug. 6	.29	.54	.70	.89	1.20	1.86	2.32	2.86	3.23	3.42	3.87	4.28
Aug. 8	.17	.30	.37	.41	.46	.48	.54	.57	.70	.73	.77	.89
Nov. 11	.34	.58	.74	.94	1.23	1.47	1.74	1.79	1.81	1.85	1.88	1.89

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes) 5	10	15	20	30	45	60	80	100	120	150	180
IDAHO												
Boise Airport						None						
Pocatello Airport						None						
ILLINOIS												
Cairo												
Jan. 21	0.17	0.28	0.43	0.49	0.68	0.86	0.96	1.19	1.29	[illegible]	1.64	1.68
[illegible]	.16	.23	.26	.37	.50	.56	.59	.59	.60	.65	.68	.68
Apr. 1	.45	.77	.87	1.00	1.29	1.36	1.37	1.40	1.70	1.81	1.84	1.85
May 4	[illegible]	.59	.67	.71	.74	.76	.76	.76	.76	.76	.76	.76
May 12	.24	.43	.59	.69	.76	.76	.76	.76	.76	.80	.80	.80
May 26	.25	.35	.42	.52	.54	.54	.54	.54	[illegible]	.54	.54	.55
May 27	.46	.76	.79	.85	.85	.87	.90	.91	.91	.91	.91	.91
June 10	.35	.51	.56	.58	.61	.62	.64	.69	.69	.70	.80	.82
June 22	.22	.38	.50	.54	.59	.59	.59	.64	.64	.64	.64	.64
July 9	.22	.37	.47	.48	.48	.48	.48	.48	.48	.48	.48	.48
July 11	.31	.49	.55	.59	.59	.59	.59	.59	.59	.59	.59	.59
July 17	.44	.63	.73	.89	.94	.95	.95	.95	.95	.95	.95	.95
[illegible]	.20	.34	.40	.46	.68	.84	.88	.89	.89	.90	.91	.91
[illegible]	.42	.65	.85	1.00	1.22	1.25	1.25	1.26	1.27	1.27	1.27	1.27
Aug. 27	.23	.35	.43	.53	.56	.56	.56	.56	.61	.61	.61	.61
[illegible]	.25	.34	.46	.52	.73	[illegible]	1.14	1.26	1.34	1.47	1.53	1.57
Oct. 10	.26	.35	.38	.38	.39	.39	.39	.39	.39	.39	.39	.39
[illegible]												
Apr. 27	.16	.25	.35	.40	.56	.69	.77	.94	1.02	1.12	1.30	1.41
May 20	.17	.28	.38	.44	.51	.57	.61	.67	.71	.74	.83	.97
June 25	.47	.78	.94	1.13	1.52	2.10	[illegible]	3.24	[illegible]	3.88	4.11	4.56
July 1	.32	[illegible]	.59	.69	.72	.86	.87	.88	.88	.88	.88	1.36
[illegible]	.14	.22	.30	.39	.53	.57	.67	.73	.74	.91	.91	.91
Sept. 26	.24	.38	.48	.52	.56	.57	.58	.60	[illegible]	.68	.76	.87
Moline Airport												
Apr. 27	.25	.42	.50	.59	.74	.86	.92	[illegible]	.95	1.00	1.34	1.50
May 18	.34	.56	.65	.70	.76	.89	.94	.96	.97	.98	.98	.98
May 20	.18	.34	.46	.53	.57	.65	.67	.68	.69	.71	.73	.73
May 28	.25	.47	.63	.79	.91	.93	.95	.98	1.03	1.05	1.08	1.16
June 10	.36	.48	.53	.55	.55	.56	.56	.56	.56	.56	.56	.56
June 21	.22	.42	.46	.50	.51	.56	.58	.60	.61	.63	.65	.65
June 29	.30	.46	.58	.76	.83	1.02	1.24	1.46	1.58	1.65	1.69	1.73
July 8	.11	.25	.32	.36	.58	.72	.78	.84	.85	.86	.87	.87
July 19	.30	.52	.68	.73	.77	.80	.81	.81	.81	.81	.81	.81
July 30	.14	.24	.34	.37	.56	.63	.63	.84	1.09	1.24	1.30	1.31
Aug. 6	.26	.48	.58	.70	1.08	1.22	1.30	1.34	1.34	1.35	1.37	1.37
Aug. 6	.26	.43	.45	.45	.54	.54	.54	.54	.54	.54	.54	.54
Sept. 22	.18	.31	.32	.36	.36	.36	.36	.37	.37	.37	.39	.39
Sept. 26	.40	.49	.54	.55	.58	.62	.71	.87	1.17	1.22	1.32	1.72
Peoria Airport												
Apr. 26	.38	.54	.58	.59	.59	.60	.60	.60	.62	.64	.64	.64
May 18	.32	.62	.74	.78	.82	.94	1.30	1.80	1.84	1.84	1.84	1.85
July 1	.20	.31	.32	.33	.43	.57	.75	.78	.91	.95	.98	1.02
July 21	.12	.24	.34	.40	.42	.42	.42	.42	.42	.42	.42	.42
Sept. 26	.26	.48	.49	.51	.57	.58	.58	.58	.58	.58	.58	.58
Sept. 26	.14	.24	.32	.40	.47	.49	.50	.52	.53	.59	.60	.61
Sept. 28	.30	.56	.60	.62	.63	.64	.65	.65	.65	.65	.67	1.00
Rockford Airport												
Apr. 27	.15	.25	.36	.40	.45	.52	.64	.72	.79	.84	.95	1.07
June 10	----	----	----	----	----	----	2.10	2.20	2.20	2.20	2.20	2.20
July 18	.65	1.03	1.25	1.52	2.10	2.50	2.95	3.13	3.55	3.66	3.71	3.78
Aug. 3	.35	.56	.66	.75	.83	.88	.89	.91	.93	.97	1.15	1.24
Aug. 16	.15	.26	.41	.45	.67	.77	.83	.89	.89	.89	.89	.89
Sept. 26	.32	.33	.40	.43	.45	.50	.64	.88	1.01	1.13	1.32	1.61
Sept. 27	.31	.54	.60	.69	.88	.94	.97	1.48	1.56	1.58	1.58	1.58
Springfield AP												
May 26	.20	.30	.36	.39	.39	.39	.39	.39	.39	.39	.39	.39
May 28	.28	.49	.54	.56	.57	.61	.64	.66	.67	.70	.71	.71
July 1	.15	.27	.37	.43	.48	.48	.48	.48	.48	.48	.48	.48
July 18	.24	.39	.54	.59	.60	.60	.60	.60	.60	.60	.60	.60
July 23	.14	.26	.31	.37	.56	.69	.78	.86	.90	.91	.99	1.00
Aug. 5	.18	.31	.40	.45	.48	.50	.53	.56	.58	.58	.58	.58
Aug. 6	.47	.70	.76	.81	.84	1.23	1.57	2.09	2.15	2.18	2.19	2.20
Sept. 26	.20	.30	.46	.60	.82	1.14	1.42	1.82	2.03	2.17	2.38	2.46
Sept. 26	.18	.35	.53	.68	.93	1.14	1.36	1.46	1.53	1.59	1.59	1.59
INDIANA												
Evansville AP												
Jan. 21	.26	.38	.47	.55	.60	.72	.88	.95	1.30	1.43	1.67	1.84
May 12	.42	.72	1.04	1.34	1.52	1.71	1.78	2.02	2.11	2.12	2.12	2.13
May 21	.24	.37	.55	.60	.63	.72	.73	.74	.74	.74	.92	.93
May 22	.20	.36	.42	.42	.42	.42	.42	.42	.42	.42	.45	.45
June 10	.30	.40	.42	.44	.45	.54	.56	.58	.60	.60	.60	.60
June 22	.29	.48	.51	.58	.60	.77	.85	.88	.96	.99	1.04	1.04
July 11	.22	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34
July 18	.25	.26	.27	.27	.27	.28	.28	.28	.28	.28	.28	.28
July 18	.28	.48	.61	.76	.93	.96	.96	.97	.97	1.26	1.26	1.26
July 25	.22	.37	.40	.42	.54	.56	.56	.56	.56	.56	.56	.56
July 27	.30	.50	.52	.52	.52	.52	.52	.52	.53	.54	.60	.60
July 30	.32	.40	.43	.47	.52	.54	.55	.55	.55	.55	.55	.55
Aug. 6	.22	.37	.50	.72	.73	.74	.75	.76	.77	.78	1.19	1.20
Aug. 17	.24	.46	.57	.63	.77	.89	.92	.98	1.04	1.09	1.16	1.27
Aug. 28	.40	.60	.82	1.10	1.26	1.35	1.40	1.48	1.55	1.62	1.68	1.68
Oct. 10	.26	.28	.33	.38	.42	.45	.46	.46	.46	.46	.46	.46
Fort Wayne AP												
May 22	.22	.42	.49	.53	.56	.59	.60	.60	.60	.60	.60	.60
May 29	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38
June 25	.14	.28	.36	.40	.56	.80	.96	1.15	1.44	1.58	1.94	2.14
June 29	.16	.31	.31	.31	.31	.31	.31	.31	.31	.32	.32	.32
July 18	.21	.30	.30	.30	.30	.31	.46	.52	.57	.57	.57	.57
Aug. 7	.18	[illegible]	.37	.38	.38	.39	.39	.39	.39	.39	.39	.39
Aug. 16	.30	.52	.66	.74	.74	.74	.74	.74	.75	.76	.76	.76
Aug. 29	.22	.34	.48	.53	.55	.56	.59	.59	.59	.59	.59	.59
Oct. 10	.26	.30	.32	.34	.37	.40	.46	.48	.50	.50	.56	.56
Indianapolis AP												
May 13	.20	.30	[illegible]	.34	.34	.34	.34	.34	.34	.34	.34	.34
June [illegible]	.20	.28	[illegible]	.40	.45	.59	.66	.69	.74	.80	.91	.98
July 1	.26	.38	[illegible]	.43	.43	.45	.46	.46	.46	.46	.48	.52
July 30	.21	.35	.39	.40	.42	.50	.50	.50	.50	.50	.50	.50
Aug. 4	.24	.38	.47	.54	.56	.74	.79	.84	.93	.96	.97	.98
Oct. 10	.42	.56	.59	.59	.65	1.09	1.13	1.23	1.80	1.80	1.85	2.37

Station and date	Maximum precipitation in inches (5 to 180 minutes) 5	10	15	20	30	45	60	80	100	120	150	180
INDIANA (Cont'd.)												
South Bend AP												
June 14	0.25	0.30	0.31	0.31	0.33	0.34	0.34	0.34	0.34	0.34	0.34	0.34
July 1	.20	.35	.39	.42	.45	.45	.45	.45	.46	.46	.46	.46
July 18	.18	.26	.37	.44	.50	.50	.51	.51	.51	.51	.51	.51
July 22	.27	.35	.38	.39	.41	.41	.41	.44	.50	.62	.75	.79
July 28	.25	.36	.45	.48	.48	.48	.48	.48	.48	.48	.48	.48
Aug. 16	.36	.41	.44	.45	.46	.48	.48	.48	.48	.48	.48	.48
Sept. 26	.18	.36	.45	.56	.64	.69	.77	.80	.84	.86	.92	.99
IOWA												
Burlington AP												
May 18	.35	.45	.65	.75	.75	.75	.83	.83	.86	.89	.89	.89
May 30	.25	.37	.40	.43	.45	.47	.49	.49	.49	.49	.49	.49
June 21	.17	.26	.35	.44	.68	.88	1.17	1.29	1.42	1.43	1.44	1.45
June 29	.20	.34	.39	.52	.81	1.04	1.15	1.27	1.36	1.41	1.43	1.43
June 30	.28	.54	.79	1.05	1.08	1.08	1.08	1.28	1.28	1.30	1.30	1.32
Aug. 6	.26	.31	.34	.35	.35	.35	.35	.35	.54	.60	.62	.73
Sept. 23	.28	.38	.44	.47	.50	.86	.89	.92	.99	1.01	1.08	1.12
Sept. 26	.29	.50	.67	.71	.77	.79	.83	.87	.88	.89	1.02	1.18
Des Moines AP												
Apr. 27	.23	.41	.50	.52	.55	.55	.56	.56	.60	.62	.74	.78
May 18	.26	.38	.42	.43	.44	.44	.45	.50	.58	.62	.66	.66
June 29	.30	.44	.55	.56	.79	1.16	1.55	1.76	2.00	2.17	2.24	2.39
June 30	.35	.54	.58	.61	.61	.62	.62	.63	.68	.70	.91	.91
July 8	.34	.38	.40	.40	.40	.40	.40	.40	.41	.41	.41	.41
Aug. 24	.32	.60	.88	.98	.99	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Nov. 4	.18	.30	.31	.31	.33	.42	.60	.61	.62	.69	.71	.72
Dubuque AP												
May 18	.25	.28	.31	.33	.35	.39	.42	.47	.54	.57	.62	.63
May 19	.32	.42	.45	.46	.58	.81	.84	.86	.86	.86	.86	.87
May 20	.23	.43	.57	.70	.75	.75	.75	.75	.75	.75	.75	.75
June 30	.27	.30	.35	.37	.40	.45	.52	[illegible]	.70	.78	.82	.84
July 8	.35	.47	.50	.52	.57	.58	.61	.62	.65	.65	.65	.65
July 10	.25	.30	.38	.39	.41	.41	.41	.41	.41	.41	.41	.41
Aug. 15	.20	.40	.45	.51	.55	.62	.65	.66	.69	.72	.75	1.04
Sept. 26	.30	.47	.51	.55	.58	.60	.60	.60	.60	.60	.64	.71
Oct. 23	.18	.32	.38	.42	.53	.77	.87	.93	1.10	1.27	1.45	1.62
Sioux City AP												
May 28	.24	.30	.36	.42	.52	.77	.85	.97	.98	1.01	1.21	1.22
May 30	.33	.35	.52	.63	.74	.82	.83	.88	1.23	1.25	1.28	1.28
July 17	.28	.54	.78	.96	1.15	1.35	1.43	1.49	1.55	1.63	1.70	1.71
Sept. 20	.21	.36	.41	.46	.52	.53	.53	.53	.53	.53	.53	.53
KANSAS												
Concordia												
May 4	.13	.24	.36	.41	.63	.78	.83	.86	.92	1.00	1.16	1.20
Oct. 2	.18	.23	.40	.43	.47	.55	.57	.62	.67	.68	.70	.70
Oct. 22	.18	.26	.34	.38	.50	.72	.84	.89	.90	.90	.90	.90
Dodge City AP												
May 4	.66	.73	.80	.84	.92	.96	1.04	1.18	1.23	1.24	1.25	1.49
May 8	.26	.34	.36	.40	.44	.48	.53	.55	.57	.59	.69	.71
June 28	.29	.54	.61	.66	.78	.81	.82	.82	.83	.89	1.07	1.09
Sept. 23	.26	.40	.46	.62	.68	.69	.69	.69	.69	.69	.69	.69
Sept. 24	.30	.43	.53	.60	.76	.98	1.04	1.20	1.48	1.59	1.72	2.14
Goodland AP												
July 13	.25	.30	.30	.30	.30	.30	.30	.32	.35	.55	.55	.55
July 16	.32	.35	.36	.36	.36	.36	.37	.37	.37	.37	.37	.37
July 22	.25	.37	.43	.45	.45	.45	.45	.45	.45	.45	.45	.45
Sept. 24	.20	.30	.35	.57	.70	.72	.73	.73	.73	.73	.73	.73
Topeka Airport												
May 4	.20	.32	.49	.53	.65	.68	.68	.75	.82	.85	.85	.85
May 29	.22	.37	.49	.54	.54	.56	.56	.56	.56	.56	.56	.56
May 31	.15	.26	.35	.40	.42	.55	.57	.67	.69	.72	.72	.72
June 30	.20	.40	.49	.50	.56	.80	.86	.97	1.18	1.24	1.25	1.25
July 8	.16	.31	.36	.40	.44	.52	.60	.69	.69	.69	.71	.73
Wichita Airport												
Apr. 18	.18	.26	.29	.45	.55	.60	.64	.66	.66	.66	.68	.72
May 4	.30	.45	.51	.55	.63	.64	.65	.65	.65	.72	.78	.86
July 15	.18	.24	.36	.50	.66	.82	.90	1.08	1.20	1.37	1.62	1.87
July 17	.26	.48	.64	.81	1.26	1.62	1.85	2.18	2.63	2.79	2.95	3.38
Aug. 15	.21	.37	.46	.54	.60	.63	.78	1.22	1.27	1.51	1.74	1.80
KENTUCKY												
Lexington AP												
May 30	.30	.44	.56	.72	1.06	1.24	1.30	1.31	1.32	1.32	1.33	1.33
June 1	.28	.46	.64	.76	.80	.82	.82	.82	.83	.83	.84	.84
June 23	.18	.30	.32	.34	.35	.41	.47	.48	.49	.49	.51	.56
June 24	.36	.50	.51	.52	.53	.53	.53	.53	.53	.53	.53	.53
July 23	.20	.32	.41	.46	.52	.68	.83	.84	1.02	1.23	1.30	1.35
July 23	.26	.50	.54	.54	.54	.55	.59	.60	.62	.62	.82	.82
Aug. 28	.26	.40	.47	.49	.50	.52	.52	.54	.60	.61	.61	.61
Oct. 8	.26	.33	.35	.37	.42	.47	.59	.76	.86	.95	.99	1.01
Louisville AP												
Jan. 21	.38	.44	.58	.63	.69	.75	.94	1.09	1.11	1.11	1.44	1.76
May 11	.25	.33	.34	.38	.43	.47	.50	.50	.50	.50	.50	.50
May 13	.32	.44	.50	.56	.61	.62	.63	.63	.63	.63	.63	.63
July 23	.52	.68	.84	.86	.88	.91	.91	.92	.92	.93	.94	.95
Aug. 15	.24	.41	.63	.67	.82	.85	.85	.85	.85	.85	.85	.85
Aug. 16	.16	.30	.42	.45	.52	.75	.92	.99	1.16	1.18	1.18	1.18
Aug. 16	.21	.41	.49	.50	.52	.54	.70	.74	.77	.78	.87	.91
Aug. 28	.46	.68	.75	.76	.77	.80	.85	.94	1.02	1.07	1.10	1.12
LOUISIANA												
Baton Rouge												
Jan. 15	.28	.52	.58	.59	.66	.70	.78	.83	.90	1.01	1.02	1.13
Jan. 21	.15	.30	.39	.40	.43	.50	.52	.55	.59	.59	.59	.59
Jan. 29	.35	.53	.54	.57	.63	.67	.71	.76	.78	.81	.85	.87
Feb. 2	.12	.22	.32	.45	.55	.70	.80	.90	1.08	1.15	1.35	1.45
Apr. 21	.55	.64	.66	.67	.69	.70	.70	.70	.70	.70	.70	.70
May 11	.45	.75	1.02	1.17	1.41	1.70	1.78	2.05	2.09	2.35	2.44	2.50
May 22	.25	.28	.28	.45	.45	.45	.45	.45	.46	.65	.72	.73
May 25	.40	.60	.70	.72	.75	.75	.75	.77	.79	.80	.80	.80
May 30	.16	.25	.37	.45	.57	.59	.60	.62	.70	.75	.77	.79
May 31	.20	.34	.39	.43	.44	.44	.44	.44	.44	.45	.55	.79

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
LOUISIANA (Cont'd.)												
Baton Rouge (Cont'd.)												
June 7	0.29	0.57	0.69	0.77	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
June 8	.21	.30	.35	.39	.45	.54	.60	.68	.85	.86	.86	.86
June 11	.20	.35	.46	.47	.47	.47	.47	.47	.47	.47	.47	.47
June 23	.25	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
July 1	.35	.65	.95	1.20	1.55	1.67	2.15	2.28	2.30	2.32	2.40	2.50
July 7	.43	.72	1.05	1.20	1.46	1.53	1.55	1.55	1.55	1.58	2.18	2.25
July 14	.20	.28	.36	.45	.53	.58	.59	.59	.59	.59	.59	.60
July 31	.35	.50	.70	.91	1.14	1.33	1.41	1.43	1.50	1.50	1.54	
Aug. [illegible]	.53	1.06	1.57	1.62	2.02	2.30	2.41	2.42	2.52	2.54	2.57	2.59
Aug. 18	.35	.54	.60	.63	.63	.63	.63	.63	.63	.63	.63	.63
Aug. 20	.50	.77	[illegible]	.82	.83	.83	.83	.84	.85	.85	[illegible]	.85
Aug. 21	.32	.50	.52	.52	.52	.52	.52	.52	.52	.52	.52	[illegible]
Sept. 3	.20	.30	.36	.37	.42	.48	.50	.50	.51	.52	.52	.52
Sept. 30	.17	.30	.46	.63	.78	.92	1.04	1.13	1.21	1.21	[illegible]	1.21
Oct. 11	.35	.65	.75	.80	.80	.80	.80	.80	.80	.80	.80	.80
Dec. 16	.25	[illegible]	.62	.76	1.00	1.30	1.37	1.51	1.54	1.65	1.72	1.77
Dec. [illegible]	[illegible]	[illegible]	.55	.65	.95	1.42	1.45	1.50	1.55	1.58	1.60	1.62
Lake Charles AP												
Jan. 30	.23	.42	.52	.65	.80	1.05	1.32	1.42	1.49	1.50	1.54	1.60
Feb. [illegible]	.33	.38	.51	.54	.55	.67	.69	.70	.76	.81	.90	.95
Apr. 1	.15	.25	.36	.43	.50	.52	.53	.55	.57	.57	.57	.57
Apr. 8	.20	.30	.45	.53	.64	.73	.76	.78	.80	.82	.83	.83
May 11	.37	.49	.64	.75	.90	[illegible]	1.28	1.42	1.44	1.45	1.51	1.52
May 25	.19	.34	.39	.43	.45	.46	.47	.48	[illegible]	.48	.49	.49
June 7	.25	.37	.45	.48	.55	.61	.62	.62	.62	.62	.66	.70
June 9	.25	.42	.54	.70	.85	1.05	1.06	1.06	1.06	1.06	1.06	1.06
June 12	.23	.42	.57	.62	.82	.87	.87	.87	.87	.87	.87	.87
July 2	.30	.55	.80	1.00	1.10	1.17	1.22	1.30	1.33	1.34	1.34	1.34
July 8	.40	.75	.77	.80	.82	.82	.82	.82	.82	.82	.82	.82
July 11	.52	.76	.96	.97	.97	1.04	1.06	1.06	1.06	1.06	1.06	1.06
July 20	---	---	---	----	---	---	1.68	----	1.93	1.93	1.93	1.93
July 22	.30	.43	.57	.72	.89	.96	.96	.96	1.01	1.01	1.01	1.01
July 24	.17	.27	.30	.40	.53	.68	.95	1.12	1.17	1.27	1.43	1.54
July 25	.30	.60	.77	.96	1.20	1.58	1.87	2.80	2.98	3.27	3.42	3.46
July 27	.17	.26	.35	.44	.60	.85	1.08	1.22	1.28	1.32	1.43	1.43
Aug. 3	.15	.30	.38	.40	.63	.73	.77	.83	.87	.88	.98	1.16
[illegible]	.42	.57	.57	.57	.57	.57	.58	.58	.59	.61	.62	.62
Sept. 19	.42	.48	.50	.52	.66	.69	.69	.69	.69	.69	.69	.69
[illegible]	.28	.55	.56	.56	.56	.57	.57	.57	.58	.58	.58	.58
Oct. 12	.25	.44	.48	.57	.58	.58	.58	.58	.58	.58	.58	.58
Nov. 4	.38	.60	.75	.90	1.05	1.60	1.72	1.72	1.72	1.72	1.77	1.79
Dec. 16	.35	.40	.44	.46	.64	.78	.96	1.10	1.20	1.25	1.33	1.39
New Orleans												
Jan. 15	.30	.60	.76	.81	.90	1.03	1.05	1.13	1.27	1.29	1.29	1.30
Feb. 14	.19	.22	.29	.38	.48	.72	.91	1.09	1.11	1.11	1.11	1.11
Feb. 23	.28	.48	.57	.63	.72	.72	.72	.72	.72	.72	.72	.81
Mar. 5	.33	.60	.85	1.08	1.22	1.34	1.48	1.55	1.55	1.62	1.90	2.06
Apr. 8	.16	.30	.32	.44	.45	.45	.45	.45	.45	.45	.45	.45
Apr. 9	.28	.56	.74	.82	.99	1.04	1.14	1.25	1.46	1.57	1.58	1.58
May 11	.26	.37	.43	.47	.48	.52	.57	.63	.66	.69	.72	.75
May 20	.51	.88	1.19	1.45	1.78	1.90	2.37	2.77	2.96	3.25	3.28	3.63
May 26	.34	.66	.76	.82	.84	.97	1.04	1.08	1.08	1.08	1.08	1.08
May 29	.26	.37	.43	.45	.47	.48	.48	.53	.53	.53	.54	.57
May 31	.15	.21	.27	.35	.48	.66	.71	.93	1.03	1.27	1.51	1.73
June 8	.17	.27	.35	.40	.51	.66	.73	.79	.90	1.23	1.37	1.51
July 1	.53	.74	.80	.81	.81	.81	.81	.81	.81	.82	.82	.82
July 2	.35	.65	.85	1.11	1.33	1.35	1.56	1.67	1.70	1.85	1.85	1.85
July 4	.40	.76	1.05	1.30	1.55	1.79	1.88	1.88	1.88	1.88	1.88	1.88
July 7	.33	.56	.61	.68	.73	.79	.83	.84	.84	.84	.86	.87
July 9	.18	.27	.33	.43	.55	.77	.79	.86	.90	.92	1.00	1.11
July 10	.17	.33	.46	.60	.74	.85	.85	.85	.85	.87	.88	.91
July 13	.25	.43	.55	.71	.82	.90	.93	.94	.94	.94	.94	.94
July 17	.27	.52	.67	.77	.98	1.02	1.02	1.02	1.07	1.14	1.16	1.16
July 18	.31	.49	.63	.79	.96	1.05	1.05	1.05	1.05	1.05	1.05	1.05
July 24	.31	.44	.58	.76	.81	.81	1.06	1.06	1.06	1.06	1.06	1.06
July 25	.38	.65	.84	.99	1.40	1.67	1.83	2.08	2.37	2.58	2.68	2.83
July 26	.26	.45	.59	.68	.71	.71	.71	.71	.71	.71	.71	.71
Aug. 10	.23	.41	.58	.76	.79	.79	.79	.79	.79	.79	.79	.79
Aug. 21	.22	.32	.42	.54	.55	.55	.55	.55	.55	.55	.55	.55
Sept. 8	.17	.33	.49	.54	.54	.54	.54	.54	.54	.54	.54	.54
Sept. 9	.17	.32	.35	.37	.39	.40	.40	.40	.40	.40	.40	.40
Sept. 10	.32	.47	.52	.65	.68	.68	.68	.68	.68	.68	.68	.68
Sept. 24	.42	.70	.80	.85	.90	1.06	1.07	1.21	1.41	1.41	1.41	1.41
Oct. 4	.21	.33	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38
Oct. 5	.18	.28	.37	.38	.48	.51	.57	.65	.70	.73	.77	.79
Oct. 11	.34	.54	.67	.93	1.13	1.22	1.25	1.26	1.54	1.64	1.65	1.66
Oct. 14	.17	.28	.35	.43	.49	.55	.72	.89	.96	1.01	1.06	1.27
Oct. 31	.29	.49	.68	.86	.93	.94	.95	.95	.95	.95	.95	.95
Nov. 23	.17	.24	.31	.45	.52	.56	.57	.58	.59	.59	.59	.59
Dec. 17	.43	.60	.72	.75	.76	.81	.84	.89	.96	1.07	1.12	1.16
MAINE												
Caribou Airport												
July 24	.30	.55	.77	.78	.79	.79	.82	.83	.83	.83	.83	.83
Portland Airport												
May 12	.26	.45	.60	.62	.63	.66	.67	.67	.67	.67	.67	.70
Aug. 16	.17	.32	.45	.52	.55	.55	.55	.56	.57	.58	.66	.67
Sept. 3-4	.16	.30	.43	.58	.65	.74	.75	.83	.93	.97	1.01	1.21
MARYLAND												
Baltimore												
May 13	.26	.50	.51	.54	.62	.63	.64	.65	.66	.74	.79	.84
June 2	.24	.39	.46	.50	.54	.63	.73	.96	1.09	1.19	1.30	1.40
June 12	.30	.31	.32	.32	.34	.36	.40	.41	.41	.42	.42	.42
July 19	.28	.34	.36	.37	.38	.39	.39	.39	.39	.39	.39	.39
July 20	.54	.79	.98	1.04	1.44	1.75	1.78	1.80	1.80	1.80	1.80	1.80
July 29	.13	.25	.31	.40	.49	.49	.49	.49	.49	.49	.49	.49
Aug. 8	.29	.52	.64	.66	.68	.69	.69	.69	.69	.69	.69	.69
Aug. 22	.33	.42	.49	.54	.69	.87	.89	.89	.89	.89	.89	.89
Baltimore Airport												
May 13	.34	.58	.63	.70	.74	.79	.80	.82	.94	1.06	1.13	1.16
May [illegible]	.15	.29	.35	.39	.45	.48	.49	.50	.52	.53	.54	.55
June 2	.17	.26	.30	.39	.49	.80	1.08	1.16	1.30	1.43	1.59	1.88
June 30	.25	.33	[illegible]	.35	.35	.35	.35	.35	.35	.35	.35	.35
July [illegible]	.29	.54	.64	.67	.68	.68	.68	.68	.68	.68	.68	.68
July 20	.48	.83	1.12	1.33	1.52	1.57	1.59	1.62	1.63	1.63	1.63	1.63
July 24	.30	.46	.48	.49	.50	[illegible]	.50	.50	.50	.50	.50	.52
Aug. 5	.50	.96	1.18	1.27	1.52	1.57	1.58	1.58	1.60	1.60	1.60	1.60

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
MARYLAND (Cont'd.)												
Baltimore AP (Cont'd.)												
Aug. 22	0.24	0.34	0.35	0.37	0.39	0.41	0.43	0.44	0.44	0.44	0.44	0.44
Aug. 30	.31	.40	.41	.42	.43	.43	.43	.43	.43	.43	.43	.43
Oct. 8	.18	.31	.35	.38	.47	.65	.78	.84	.89	.93	1.09	1.10
[illegible]												
May 12	.15	.20	.40	.43	.45	.45	.46	.46	.46	.46	.46	.46
June 30	.25	.45	.60	.65	.78	.88	.89	.90	.90	.90	.90	.90
July 14	.38	.50	.70	.80	1.03	1.11	1.28	1.37	1.38	1.38	1.38	1.38
[illegible]	.25	.42	.48	.53	.58	.58	.59	.60	.62	.63	.63	.63
July 24	.50	.72	.78	.83	.86	.88	.90	.92	.93	.97	.97	.99
Aug. 5	.25	.39	.42	.45	.47	.47	.47	[illegible]	.47	.47	.47	.47
Aug. 16	.35	.65	.87	.93	1.18	1.24	1.25	1.25	1.25	1.25	1.25	1.25
Aug. 17	.25	.37	.37	.37	.37	.37	.37	.37	.38	.63	.68	.93
Oct. 8	.27	.35	.35	.36	.36	.36	.38	.42	.43	.45	.46	.48
MASSACHUSETTS +												
Boston Airport												
June 6	.30	.37	[illegible]	.38	.39	.40	.75	[illegible]	.77	.77	.77	.78
June 13	.21	.41	[illegible]	[illegible]	1.00	1.10	1.24	1.35	1.40	1.44	1.50	1.53
July 11	.26	.32	[illegible]	.38	.50	.70	.88	1.00	1.10	1.40	1.60	1.85
July 19	.20	.40	.48	.52	.57	.83	1.08	1.15	1.21	1.23	1.30	1.33
July 20	.20	.33	.35	.40	.45	.52	.55	.60	.62	.63	.63	.65
July 21	.27	.47	.55	.62	.69	.73	.78	.79	.80	[illegible]	.83	.88
Aug. 30	.30	.50	.63	.66	.70	.75	.85	.90	.90	.90	.90	.90
Nantucket												
June 2	.21	.29	.32	.39	.56	.70	.76	.81	.83	.92	1.08	1.19
Aug. 1	.19	.29	.35	.35	.35	.35	.36	.38	.38	.39	.39	.39
MICHIGAN												
Alpena *												
Aug. 21	.13	.25	.35	.43	.56	.74	.75	.76	.78	.80	.81	.83
Aug. 26	.29	.41	.50	.51	.52	.52	.52	.52	.52	.52	.52	.52
Detroit Airport												
May 20	.22	.38	.46	.50	.58	.59	.64	.73	.87	1.02	1.12	1.51
Aug. 16	.26	.42	.49	.55	.75	1.10	1.11	1.16	1.20	1.24	1.27	1.27
Aug. 21	.25	.50	.64	.71	.74	.76	.77	.77	.77	.77	.77	.77
Aug. 23	.32	.56	.72	.82	.93	.99	1.11	1.12	1.15	1.16	1.17	1.18
Aug. 26	.18	.30	.39	.46	.48	.50	.52	.52	.52	.52	.52	.53
Aug. 30	.37	.59	.84	1.05	1.30	1.77	2.05	2.19	2.21	2.21	2.21	2.21
Sept. 28	.36	.62	.86	1.06	1.45	1.54	1.59	1.63	1.84	1.95	2.02	2.07
Escanaba												
May 5	.25	.26	.27	.27	.27	.27	.27	.27	.27	.27	.27	.27
May 6	.30	.34	.35	.36	.37	.38	.38	.38	.38	.38	.38	.38
May 19	.31	.37	.41	.42	.44	.44	.44	.47	.47	.47	.47	.47
July 11	.80	1.15	1.30	1.40	1.49	1.55	1.62	1.63	1.67	1.67	1.67	1.67
Aug. 4	.35	.58	.69	.70	.70	.70	.70	.70	.70	.70	.70	.70
Aug. 20	.21	.30	.33	.34	.35	.36	.37	.37	.37	.37	.37	.37
Aug. 21	.20	.31	.37	.41	.44	.46	.48	.50	.53	.56	.58	.59
Aug. 23	.25	.35	.41	.45	.47	.49	.52	.57	.59	.60	.62	.63
Aug. 26	.45	.59	.70	.76	.77	.77	.77	.78	.82	.84	.93	1.01
Aug. 27	.30	.58	.66	.68	.70	.70	.70	.71	.72	.75	.81	.87
Flint Airport												
May 20	.35	.57	.59	.59	.59	.59	.59	.59	.60	.60	.65	.68
July 23	.20	.35	.50	.58	.67	.77	1.07	1.10	1.13	1.28	1.32	1.33
July 29	.50	.85	1.05	1.12	1.32	1.52	1.52	1.83	1.89	1.91	1.91	1.91
Aug. 15	.22	.32	.38	.39	.40	.40	.40	.40	.40	.40	.40	.40
Aug. 15	.18	.27	.35	.37	.39	.40	.40	.40	.40	.40	.40	.40
Aug. 21	.17	.30	.40	.53	.73	.86	1.20	1.26	1.38	1.38	1.38	1.38
Aug. 27	.29	.44	.61	.73	.79	.83	.88	.90	.91	.93	.96	1.00
Grand Rapids AP												
May 19	.44	.57	.58	.59	.60	.60	.60	.60	.60	.60	.60	.60
July 28	.23	.31	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34
July 29	.30	.44	.45	.46	.46	.46	.46	.46	.46	.46	.46	.46
Aug. 7	.19	.32	.46	.54	.66	.73	.76	.87	.92	.94	.94	.96
Aug. 29	.57	.79	.81	.84	.88	.91	.91	.91	.91	.91	.91	.91
Sept. 9	.28	.30	.30	.30	.30	.30	.30	.30	.30	.38	.38	.38
Oct. 23	.19	.27	.35	.38	.40	.47	.54	.60	.61	.63	.66	.66
Lansing Airport												
July 30	.29	.45	.65	.90	.94	.95	.95	.95	.97	.97	1.28	1.46
July 30	.27	.42	.60	.66	.66	.67	.68	.68	.68	.68	.68	.68
Aug. [illegible]	.36	.61	.72	.72	.72	.72	.72	.72	.74	.74	.74	.74
Aug. 27	.35	.57	.58	.60	.61	.62	.62	.63	.63	.63	.63	.63
Marquette												
July 21	.41	.65	.77	.99	1.37	1.72	1.73	1.75	1.75	1.77	1.97	1.99
Aug. 26	.23	.34	.47	.53	.62	.81	.83	.84	.85	.85	.85	.85
Aug. 27	.45	.51	.53	.54	.57	.66	.70	.75	.78	.81	.84	.85
Muskegon AP												
July 18	.30	.60	.65	.90	1.25	1.40	1.42	1.44	1.55	1.60	1.65	2.35
Aug. 7	.16	.31	.37	.45	.70	.88	.89	.89	.89	.89	.95	1.02
Aug. 15	.26	.51	.75	.82	.88	.93	.97	1.02	1.03	1.05	1.05	1.05
Sault Ste.Marie AP												
May 6	.25	.34	.37	.41	.43	.46	.60	.64	.66	.69	.73	.75
June 27	.40	.60	.70	.74	.79	.92	.97	1.14	1.32	1.42	1.46	1.54
Aug. 20	.30	.47	.73	.79	.83	1.00	1.07	1.14	1.18	1.19	1.22	1.26
Sept. 23	.65	.71	.73	.75	.77	.80	.81	.81	.83	.83	.83	.83
Wayne Co. Airport												
May 20	.19	.30	.33	.35	.38	.49	.50	.58	.59	.60	.61	.63
June 11	.19	.31	.35	.37	.38	.38	.39	.40	.41	.41	.42	.42
Aug. 16	.17	.33	.44	.51	.58	.66	.73	.75	.76	.76	.77	.77
Aug. 21	.21	.34	.39	.42	.55	.61	.61	.65	.94	1.05	1.09	1.10
Aug. 29	.21	.37	.51	.66	.89	.95	.96	.96	.96	.96	.96	.96
Sept. 28	.31	.47	.50	.51	.64	.77	.88	1.10	1.18	1.20	1.26	1.29
Ypsilanti Airport												
May 20	.25	.37	.40	.42	.45	.48	.51	.54	.54	.55	.63	.70
June 11	.25	.44	.60	.68	.78	.82	.85	.89	.90	.90	1.01	1.21
July 23	.17	.25	.27	.35	.52	.55	.57	.58	.58	.58	.58	.58
Aug. 16	.25	.40	.55	.69	.70	.70	.71	.74	.76	.79	.79	.79
Aug. 17	.20	.40	.44	.46	.46	.46	.46	.46	.46	.46	.46	.46
Aug. 21	.30	.42	.44	.45	.48	.49	.49	.49	.49	.49	.49	.49
Aug. 29	.17	.32	.38	.50	.67	.70	.75	.76	.76	.76	.77	.77

* Station moved to Airport August 25.

\+ See end of table for Pittsfield data.

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
MINNESOTA												
Duluth Airport												
May 26	0.45	0.53	0.53	0.53	0.55	0.55	0.55	0.55	0.55	0.55	0.62	0.64
May 26	.26	.31	.32	.33	.41	.42	.42	.47	.49	.52	.55	.55
June 9	.41	.63	.80	.90	.93	1.05	1.06	1.07	1.07	1.07	1.10	1.11
June 26	.15	.28	.42	.46	.53	.80	1.01	1.17	1.26	1.26	1.26	1.26
June 27	.29	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38
July 7	.40	.64	.76	.94	1.10	1.17	1.18	1.30	1.34	1.37	1.40	1.43
July 8	.34	.50	.66	.72	.75	.81	.85	.88	.88	.88	.95	1.06
July 21	.28	.30	.30	.31	.40	.41	.42	.44	.44	.46	.46	.46
Aug. 30	.37	.52	.72	.88	.90	.93	1.01	1.16	1.64	1.72	1.88	1.98
Sept. 6	.34	.42	.52	.60	.63	.63	.63	.63	.63	.63	.63	.63
Sept. 20	.18	.26	.38	.44	.55	.63	.68	.71	.73	.79	.83	.83
International Falls AP												
May 26	.43	.50	.52	.52	.53	.53	.53	.53	.53	.53	.53	.53
June 4	.36	.51	.53	.54	.54	.54	.54	.54	.54	.58	.62	.63
July 7	.48	.70	.85	.94	1.00	1.08	1.09	1.12	1.13	1.13	1.25	1.25
Aug. 20	.34	.52	.59	.78	.87	.95	.98	.98	.98	.98	.98	.98
Aug. 27	.45	.60	.68	.72	.76	.77	.81	.83	.86	.87	.89	.89
Aug. 29	.49	.59	.64	.67	.70	.71	.74	.75	1.22	1.34	1.39	1.40
Sept. 1	.17	.30	.38	.43	.48	.59	.69	.78	.91	1.10	1.27	1.37
Minneapolis AP												
June 25	.22	.34	.39	.43	.69	.77	.81	1.01	1.10	1.28	1.54	1.80
July 8	.19	.33	.46	.55	.60	.69	.72	.79	.82	.89	.94	1.00
Aug. 13-14	.15	.22	.34	.38	.48	.69	.74	.76	.78	.78	.78	.78
Aug. 21	.16	.31	.43	.50	.54	.59	.59	.62	.62	.62	.62	.62
Aug. 30	.14	.26	.39	.44	.50	.58	.63	.65	.67	.67	.67	.67
Rochester Airport												
May 4	.38	.51	.53	.53	.53	.53	.53	.53	.53	.53	.53	.53
May 19	.31	.60	.74	.80	.91	.96	.96	.96	1.01	1.17	1.18	1.19
May 26	.40	.61	.72	.75	.87	.93	.93	.93	.93	.93	.93	.93
May 31	.35	.41	.46	.49	.54	.62	.71	.75	.77	.79	.85	.91
June 25	.38	.60	.78	.92	1.02	1.08	1.24	1.26	1.29	1.32	1.36	1.43
June 25	.28	.53	.61	.65	.80	.94	1.11	1.17	1.19	1.22	1.59	1.77
July 8	.23	.32	.36	.40	.44	.44	.44	.44	.46	.53	.55	.55
July 8	.16	.31	.37	.40	.41	.44	.47	.47	.47	.47	.59	.59
July 28	.32	.36	.42	.45	.47	.47	.47	.47	.47	.69	.81	.81
Aug. 16	.16	.30	.42	.48	.54	.55	.58	.68	.68	.68	.68	.68
Aug. 21	.42	.54	.66	.72	.82	1.06	1.12	1.15	1.16	1.16	1.16	1.16
Sept. 1	.18	.32	.44	.51	.70	.97	1.05	1.12	1.17	1.21	1.25	1.26
St. Cloud Airport												
May 4	.21	.32	.46	.51	.59	.66	.68	.74	.77	.82	.83	.83
June 11	.26	.31	.37	.43	.51	.59	.63	.63	.63	.63	.65	.65
July 7	.28	.31	.32	.33	.36	.38	.67	.69	.74	.74	.75	.76
July 22	.23	.35	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
Aug. 21	.30	.49	.51	.52	.53	.53	.53	.53	.53	.53	.53	.53
Aug. 30	.23	.42	.53	.73	.83	.99	1.00	1.00	1.00	1.00	1.00	1.00
Sept. 1	.20	.35	.50	.58	.72	.85	.93	.98	1.01	1.07	1.09	1.10
MISSISSIPPI												
Jackson Airport												
Jan. 15	.35	.53	.69	.80	.95	1.05	1.23	1.29	1.30	1.35	1.39	1.40
Jan. 21	.29	.39	.56	.68	.80	.96	1.02	1.06	1.13	1.21	1.21	1.21
Feb. 8	.29	.45	.47	.47	.48	.49	.50	.50	.50	.54	.54	.54
Mar. 5	.25	.34	.38	.49	.55	.66	.67	.68	.68	.73	.76	.76
Mar. 11	.30	.45	.57	.67	.72	.81	.81	.81	.81	.81	.81	.81
Mar. 14	.40	.74	.95	1.08	1.09	1.09	1.10	1.11	1.18	1.30	1.31	1.35
Mar. 21	.36	.54	.62	.71	.77	.82	.86	.93	1.00	1.10	1.14	1.17
Apr. 19	.28	.43	.45	.47	.52	.58	.62	.70	.70	.71	.72	.72
May 22	.36	.53	.67	.84	1.12	1.50	1.63	1.65	1.67	1.68	2.01	2.04
June 12	.32	.57	.76	.82	.87	.91	.94	.94	.97	1.00	1.01	1.05
July 1	.45	.80	1.18	1.50	1.72	2.07	2.18	2.20	2.21	2.22	2.22	2.22
July 2	.51	.65	.77	.96	1.10	1.52	1.67	1.70	1.73	2.03	2.78	2.86
July 5	.17	.32	.45	.49	.62	.82	.99	1.34	1.39	1.41	1.48	1.56
Aug. 22	.32	.41	.59	.76	.84	.84	.85	.85	.85	.85	.85	.85
Sept. 2	.21	.31	.39	.43	.46	.47	.49	.51	.52	.55	.56	.57
Oct. 7	.25	.37	.40	.45	.46	.51	.51	.51	.51	.51	.51	.51
Oct. 13	.24	.38	.42	.48	.55	.62	.69	1.05	1.22	1.28	1.37	1.49
Nov. 22	.25	.38	.43	.44	.50	.70	.70	.70	.70	.74	.76	.76
Nov. 22	.22	.38	.45	.51	.55	.63	.65	.66	.67	.68	.69	.69
Dec. 16	.19	.33	.38	.41	.48	.55	.67	.72	.76	.95	1.24	1.33
Dec. 17	.20	.37	.47	.58	.67	.73	.75	.76	.77	.78	.79	.85
Meridian Airport												
May 22	.30	.47	.49	.50	.50	.55	.65	.67	.67	.68	.68	.68
July 2	.62	.94	1.15	1.47	2.00	2.45	3.30	4.50	4.75	5.65	6.60	6.72
Aug. 31	.26	.46	.64	.66	.66	.66	.66	.66	.66	.66	.66	.66
Sept. 9	.57	1.02	1.50	1.75	2.25	2.80	3.20	3.43	3.45	3.47	3.52	3.60
Oct. 5	.24	.43	.61	.71	.74	.78	.83	.96	1.00	1.03	1.10	1.10
Vicksburg												
Mar. 11	.20	.30	.42	.45	.52	.57	.71	.75	.93	.99	1.00	1.02
Mar. 20	.21	.30	.34	.36	.37	.42	.46	.50	.52	.52	.52	.52
May 27	.26	.35	.38	.41	.46	.46	.46	.46	.46	.46	.46	.46
June 5	.17	.27	.39	.44	.54	.58	.74	.82	.89	.90	.97	.99
July 5	.18	.34	.40	.43	.46	.52	.54	.54	.55	.59	.64	.71
July 8	.33	.48	.78	.81	.83	.83	.83	.83	.83	.83	.83	.95
July 10	.32	.47	.60	.72	.84	.98	1.02	1.02	1.02	1.02	1.02	1.02
July 19	.20	.30	.31	.33	.42	.63	.70	.71	.71	.71	.71	.71
July 24	.14	.24	.28	.42	.53	.69	.74	.76	.84	.84	.84	.84
Aug. 24	.22	.32	.48	.54	.57	.58	.60	.90	1.05	1.05	1.06	1.06
Sept. 3	.49	.90	1.15	1.20	1.32	1.33	1.38	1.50	1.52	1.52	1.52	1.52
Sept. 9	.28	.47	.61	.68	1.01	1.28	1.37	1.38	1.39	1.39	1.40	1.42
Oct. 13	.19	.32	.38	.42	.46	.48	.58	.62	.63	.72	.85	.89
Dec. 16	.09	.15	.19	.22	.43	.62	.85	1.00	1.05	1.11	1.31	1.38
MISSOURI												
Kansas City AP												
Apr. 27	.24	.48	.62	.77	.96	1.06	1.06	1.06	1.06	1.06	1.06	1.06
May 29	.36	.52	.60	.64	.71	.77	.78	.78	.80	.80	.82	.82
July 8	.32	.56	.74	.91	1.10	1.28	1.51	1.70	1.70	1.70	1.70	1.70
July 17	.21	.39	.50	.56	.72	.75	.78	.81	.81	.81	.86	.92
July 31	.20	.40	.46	.47	.48	.48	.49	.50	.51	.51	.51	.51
Aug. 5	.24	.42	.46	.50	.68	.84	.89	.91	.92	.92	.92	.93
Aug. 6	.13	.26	.34	.39	.63	.79	1.08	1.16	1.16	1.17	1.18	1.20
Aug. 31	.36	.66	.76	.96	1.22	1.26	1.30	1.31	1.31	1.31	1.32	1.32
Oct. 4	.14	.25	.30	.38	.57	.76	.92	1.07	1.14	1.17	1.21	1.33
Oct. 22	.18	.24	.34	.41	.61	.84	.95	1.13	1.22	1.28	1.35	1.37

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
MISSOURI (Cont'd.)												
St. Joseph AP												
May 4	0.27	0.28	0.38	0.42	0.53	0.72	0.82	0.82	0.82	1.10	1.40	1.40
May 10	.40	.50	.57	.57	.58	.60	.66	.73	.77	.77	.77	.78
May 18	.30	.57	.70	.80	1.05	1.15	1.25	1.54	1.73	2.07	2.12	2.12
June 11	.30	.52	.75	.97	.99	.99	.99	.99	.99	.99	.99	.99
June 28	.60	1.10	1.45	1.75	1.90	2.70	2.90	3.13	3.15	3.15	3.15	3.15
July 4	.20	.30	.43	.54	.83	.93	1.03	1.33	1.35	1.37	1.43	1.53
July 30	.25	.40	.63	.75	1.03	1.15	1.20	1.20	1.20	1.20	1.20	1.20
Aug. 5	.50	.81	.95	1.07	1.35	1.55	1.63	1.70	1.75	1.81	2.07	2.30
Aug. 29	.30	.45	.61	.65	.78	.85	.88	.93	.96	1.02	1.09	1.10
Sept. 26	.29	.44	.49	.61	.69	.70	.70	.70	.70	.70	.70	.70
Oct. 22	.35	.60	.67	.70	.80	1.05	1.35	1.42	1.53	1.65	1.75	1.78
St. Louis AP												
Feb. 9	.22	.28	.33	.44	.50	.80	1.18	1.30	1.40	1.71	1.76	1.96
July 18	.30	.44	.50	.68	.80	.80	.80	.80	.80	.80	.80	.80
Sept. 26	.24	.30	.35	.40	.46	.50	.51	.51	.51	.51	.51	.51
Sept. 28	.24	.48	.60	.64	.73	.78	.78	.78	.79	.79	.80	.80
Oct. 5	.14	.28	.36	.44	.52	.62	.70	.90	1.07	1.12	1.14	1.16
Oct. 10	.18	.36	.38	.44	.54	.58	.63	.66	.68	.71	.72	.72
Nov. 4	.14	.28	.38	.46	.53	.60	.78	.82	.90	.96	1.14	1.21
Springfield AP												
Jan. 20	.14	.28	.40	.45	.53	.72	.82	.96	.99	1.00	1.01	1.02
Apr. 18	.12	.20	.32	.37	.52	.56	.58	.58	.58	.58	.58	.58
Apr. 27	.22	.36	.38	.39	.45	.49	.50	.50	.50	.50	.50	.50
May 21	.20	.32	.42	.50	.57	.65	.73	.75	.77	.77	.85	.88
May 31	.34	.58	.77	.94	1.48	1.85	1.91	1.94	2.16	2.22	2.23	2.23
June 11	.32	.48	.56	.63	.69	.72	.75	.80	.84	.88	.92	.94
June 19	.25	.48	.56	.60	.92	1.06	1.14	1.25	1.30	1.31	1.32	1.33
July 5	.30	.50	.70	.76	1.00	1.63	1.63	1.63	1.63	1.63	1.63	1.63
July 15	.22	.37	.42	.45	.51	.58	.63	.71	.76	.77	.78	.78
July 16	.36	.59	.72	.73	.75	.76	.76	.77	.77	.77	.78	.84
Sept. 3	.36	.70	.84	.90	.96	1.01	1.03	1.04	1.04	1.05	1.08	1.12
Nov. 3	.32	.40	.44	.47	.50	.54	.58	.60	.66	.68	.72	.72
MONTANA												
Billings AP												
Apr. 26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26
Glasgow Airport												
June 22	.32	.60	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65
Great Falls AP						None						
Havre						None						
Helena Airport						None						
Kalispell AP						None						
Missoula Airport						None						
NEBRASKA												
Grand Island AP												
May 4	.40	.60	.64	.67	.70	.77	.80	.81	.81	.81	.81	.81
May 28	.17	.28	.42	.49	.59	.65	.68	.69	.69	.70	.70	.70
May 30	.23	.34	.36	.38	.38	.38	.38	.38	.38	.38	.38	.38
June 27 *	----	----	----	----	----	1.09	1.09	1.09	1.09	1.09	1.09	1.09
June 28 *	----	----	----	.46	.46	.46	.46	.46	.46	.46	.46	.46
June 29	.26	.32	.34	.35	.35	.35	.35	.36	.40	.40	.40	.40
Aug. 5	.25	.47	.60	.65	.73	.76	.79	.82	.84	.84	.85	.87
Nov. 3	.42	.48	.50	.52	.52	.52	.52	.52	.52	.52	.52	.52
Lincoln												
May 4	.24	.40	.50	.57	.63	.73	.80	.85	.92	1.02	1.14	1.18
May 18	.27	.46	.64	.85	1.11	1.19	1.24	1.27	1.28	1.29	1.30	1.31
June 18	.16	.31	.42	.46	.55	.62	.68	.74	.79	.84	.94	1.01
June 20	.33	.56	.68	.79	.85	.85	.85	.86	1.19	1.42	1.43	1.43
Sept. 18	.16	.27	.40	.42	.44	.47	.49	.66	.73	.86	1.02	1.17
Norfolk Airport												
May 4	.17	.27	.32	.43	.57	.74	.82	.84	.84	.84	.84	.92
May 20	.25	.48	.62	.67	.69	.70	.70	.70	.70	.70	.70	.70
May 20	.20	.30	.40	.41	.44	.56	.68	.75	.80	.93	1.01	1.05
June 20	.28	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38
July 31	.20	.25	.35	.45	.70	.74	.78	.83	.89	.94	.94	.94
Aug. 1	.17	.30	.33	.34	.57	.78	.81	.82	.82	.83	.83	.83
North Platte AP												
May 19	.31	.35	.36	.39	.41	.46	.49	.49	.50	.51	.54	.58
June 18	.22	.32	.40	.42	.43	.44	.45	.46	.48	.49	.49	.49
Omaha Airport												
Apr. 27	.33	.49	.59	.60	.63	.66	.83	1.09	1.14	1.19	1.35	1.47
May 2	.27	.42	.55	.69	1.04	1.48	1.84	1.88	1.91	1.93	2.70	2.85
May 4	.39	.43	.48	.54	.61	.67	.75	.84	.98	1.04	1.20	1.28
May 18	.33	.52	.71	.76	.78	.79	.81	.86	.87	.87	.88	.88
June 11	.25	.43	.50	.58	.90	1.07	1.11	1.11	1.13	1.13	1.13	1.13
June 21	.41	.53	.63	.75	.96	1.10	1.28	1.28	1.29	1.29	1.40	1.40
Aug. 2	.32	.58	.71	.92	1.35	1.68	1.70	1.70	1.82	2.42	2.98	2.99
Aug. 22	.42	.73	.93	.97	1.15	1.30	1.51	1.61	1.67	1.75	1.79	1.79
Scottsbluff AP												
June 12	.34	.60	.86	.92	1.17	1.22	1.42	1.56	1.70	1.84	1.92	1.92
Valentine AP												
May 27	.25	.31	.50	.59	.77	.79	.94	.94	.97	1.10	1.16	1.23
Aug. 19	.24	.35	.42	.55	.85	1.00	1.06	1.11	1.17	2.10	2.20	2.26
Sept. 21	.25	.35	.40	.40	.40	.40	.53	.60	.60	.60	.60	.60
NEVADA												
Elko Airport						None						
Ely Airport						None						
Reno Airport						None						
Winnemucca AP						None						

* Gage inoperative due to heavy hail storm.

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes) 5	10	15	20	30	45	60	80	100	120	150	180
NEW HAMPSHIRE												
Concord												
July 19	0.21	0.32	0.38	0.44	0.45	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Aug. 29	.43	.77	1.08	1.40	2.03	2.31	2.35	2.37	2.40	2.40	2.40	2.40
Aug. 31	.23	.40	.53	.63	.77	.83	.85	.87	.87	.88	.89	.92
NEW JERSEY												
Atlantic City AP												
May 29	.38	.64	.78	1.10	1.51	1.94	2.36	----	----	----	----	----
July 10	.23	.35	.46	.52	.68	.85	.90	1.12	1.37	1.50	1.80	2.04
July 27	.22	.39	.49	.49	.49	.49	.49	.49	.49	.49	.50	.50
Sept. 28	.20	.33	.39	.39	.39	.39	.39	.43	.43	.43	.44	.44
Oct. 24	.20	.30	.33	.36	.43	.49	.56	.67	.70	.73	.75	.81
Nov. 24	.14	.28	.40	.50	.66	1.04	1.15	1.16	1.18	1.19	1.19	1.20
Newark Airport												
June 22	.20	.30	.34	.36	.40	.42	.42	.42	.42	.42	.45	.45
Aug. 8	.13	.25	.35	.41	.57	.75	.93	1.00	1.03	1.06	1.07	1.12
Aug. 9	.26	.43	.65	.71	1.03	1.34	1.73	2.05	2.14	2.35	2.47	2.56
Sept. 1	.45	.74	.95	1.10	1.32	1.33	1.33	1.33	1.42	2.07	2.17	2.19
Trenton												
May 13	.16	.27	.35	.42	.59	.67	.70	.71	.72	.79	.92	1.19
June 13	.27	.49	.53	.53	.53	.53	.55	.55	.55	.55	.55	.55
June 28	.34	.57	.79	.82	.84	.87	.88	.88	.88	.88	.88	.88
July 15	.17	.28	.37	.41	.49	.52	.53	.53	.53	.53	.53	.53
July 20	.24	.32	.33	.37	.49	.53	.53	.55	.56	.56	.57	.59
Aug. 8-9	.38	.50	.62	.68	.80	.89	.95	1.00	1.08	1.08	1.08	1.11
Aug. 29	.31	.51	.66	.75	1.01	1.25	1.62	2.24	2.52	2.54	2.56	2.58
Aug. 30	.24	.32	.38	.41	.44	.47	.52	.52	.52	.52	.52	.52
Sept. 2	.24	.42	.50	.54	.57	.58	.58	.58	.59	.59	.59	.59
Nov. 14	.15	.24	.31	.41	.54	.67	.72	.78	.84	.84	.84	.84
NEW MEXICO												
Albuquerque AP												
June 18	.23	.35	.45	.49	.52	.52	.52	.52	.52	.52	.52	.52
Raton Airport												
July 1	.18	.29	.39	.44	.59	.69	.80	.94	.99	1.03	1.05	1.06
Aug. 7	.31	.60	.79	.87	.88	.88	.88	.88	1.08	1.21	1.21	1.21
Aug. 15	.44	.72	.84	.90	.92	.93	.93	.93	.93	.93	.93	.93
Roswell Airport												
June 29	.16	.29	.39	.41	.42	.43	.47	.48	.49	.52	.52	.52
July 16	.22	.31	.40	.55	.68	.74	.78	.80	.84	.91	.97	1.04
Aug. 23	.48	.85	.93	.97	.98	.98	.98	.99	1.00	1.12	1.15	1.15
NEW YORK												
Albany Airport												
May 12	.30	.50	.80	.96	.98	.98	.98	.98	.98	.98	.98	.98
July 12	.20	.40	.48	.49	.50	.50	.51	.51	.51	.51	.51	.51
Binghamton AP												
May 11	.16	.32	.35	.36	.36	.36	.36	.36	.36	.36	.36	.36
May 27	.23	.43	.45	.65	.66	.68	.69	.76	.82	.82	.82	.82
June 5	.66	1.04	1.23	1.32	1.50	1.61	1.82	2.11	2.13	2.15	2.18	2.21
July 30	.18	.26	.40	.55	.74	.75	.76	.76	.76	.76	.76	.76
Aug. 4	.19	.29	.38	.46	.66	.71	.73	.77	.78	.79	.79	.82
Aug. 9	.18	.31	.36	.44	.47	.49	.52	.55	.55	.55	.55	.55
Aug. 26	.26	.40	.42	.48	.72	1.07	1.18	1.18	1.18	1.18	1.18	1.29
Aug. 31	.30	.46	.62	.69	.78	.82	.97	1.13	1.40	1.48	1.69	1.90
Oct. 5	.26	.40	.60	.70	1.00	1.09	1.10	1.11	1.11	1.11	1.11	1.11
Oct. 6	.31	.39	.48	.54	.62	.73	.91	1.23	1.23	1.23	1.24	1.24
Buffalo Airport												
July 1	.35	.50	.52	.53	.54	.54	.56	.58	.61	.63	.63	.63
Aug. 9	.25	.50	.70	.85	.95	1.05	1.16	1.30	1.40	1.46	1.48	1.52
Aug. 28	.27	.42	.55	.63	.76	.89	.95	1.15	1.17	1.18	1.58	1.62
Aug. 30	.30	.51	.70	.82	.85	.86	.86	.86	.86	.86	.86	.89
Sept. 30	.15	.27	.38	.48	.58	.75	.90	1.07	1.17	1.24	1.35	1.42
New York												
Aug. 9	.21	.29	.35	.38	.47	.65	.88	1.20	1.29	1.35	1.37	1.39
Oct. 7	.17	.32	.46	.46	.46	.46	.46	.46	.46	.47	.47	.59
Oct. 9	.24	.34	.38	.41	.46	.50	.51	.53	.55	.55	.55	.56
Oct. 24	.15	.25	.40	.55	.62	.65	.75	.91	.95	1.00	1.09	1.14
New York Airport												
May 22	.34	.49	.59	.59	.59	.59	.59	.59	.59	.59	.59	.59
June 13	.23	.40	.48	.57	.67	.82	.89	.93	.95	.96	.96	.96
July 21	.17	.32	.44	.54	.64	.68	.71	.73	.73	.73	.73	.75
July 24	.32	.41	.45	.46	.46	.46	.59	.64	.64	.64	.64	.64
Aug. 29	.14	.24	.32	.42	.51	.52	.52	.52	.52	.53	.54	.61
Sept. 3	.27	.32	.33	.34	.38	.39	.39	.39	.39	.39	.39	.39
Oct. 9	.29	.44	.57	.60	.64	.68	.70	.71	.71	.71	.82	.98
Oct. 24	.21	.25	.33	.51	.57	.62	.68	.77	.96	.99	.99	.99
Rochester Airport												
May 19	.25	.45	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66
May 21	.28	.32	.33	.34	.36	.40	.40	.41	.41	.41	.41	.41
June 1	.25	.46	.62	.78	.93	.96	1.01	1.03	1.03	1.03	1.03	1.03
Syracuse Airport												
June 1	.25	.29	.30	.31	.34	.39	.46	.53	.58	.59	.63	.64
June 26	.21	.31	.36	.42	.43	.44	.45	.45	.45	.45	.45	.45
July 2	.18	.28	.35	.37	.40	.43	.48	.50	.51	.51	.52	.53
Aug. 16	.32	.45	.48	.49	.49	.49	.49	.49	.49	.49	.49	.49
Aug. 30	.36	.54	.72	.89	1.10	1.62	1.94	2.11	2.17	2.24	2.29	2.29
Oct. 7	.11	.21	.27	.33	.50	.67	.78	.90	.94	1.03	1.07	1.21
NORTH CAROLINA												
Asheville												
Jan. 21	.13	.26	.34	.51	.63	.65	.68	.72	.74	.77	.89	.93
May 24	.42	.74	1.04	1.34	1.86	2.15	2.22	2.25	2.26	2.28	2.28	2.28
May 28	.25	.46	.60	.73	.96	1.20	1.31	1.34	1.36	1.37	1.39	1.40
June 12	.27	.43	.66	.88	1.08	1.52	1.62	1.63	1.64	1.64	1.64	1.64
Aug. 27	.36	.57	.67	.76	.85	.88	.90	.92	.96	.97	.97	.97
Sept. 1	.28	.53	.56	.56	.56	.56	.56	.56	.56	.65	.73	.73
Sept. 3	.40	.62	.83	1.04	1.51	1.88	1.99	2.04	2.05	2.06	2.16	2.31
Cape Hatteras												
May 24	.27	.42	.42	.42	.42	.42	.42	.45	.48	.48	.52	.53
NORTH CAROLINA (Cont'd.)												
Cape Hatteras (Cont'd.)												
June 13	0.20	0.25	0.34	0.37	0.57	0.60	0.60	0.60	0.61	0.61	0.61	0.61
July 6	.23	.28	.46	.52	.58	.68	.75	.93	1.01	1.04	1.07	1.08
July 6	.22	.28	.33	.40	.42	.54	.56	.58	.62	.83	.92	1.10
July 10	.25	.42	.50	.65	.72	.77	.80	.83	.84	.84	.84	.84
Aug. 13	.33	.62	.95	1.00	1.35	1.55	1.62	1.96	1.99	2.00	2.01	2.01
Sept. 4	.37	.70	.95	1.25	1.83	2.28	2.68	2.77	2.77	2.77	2.77	2.79
Oct. 14	.29	.32	.32	.35	.50	.50	.51	.51	.51	.51	.51	.51
Oct. 14	.17	.24	.32	.33	.55	.72	.82	.87	.90	.90	.90	.90
Nov. 28	.15	.30	.38	.44	.52	.57	.61	.65	.73	.76	.81	.81
Dec. 12	.18	.29	.33	.38	.53	.62	.67	.77	.89	.96	1.06	1.30
Charlotte AP												
Jan. 21	.18	.34	.38	.39	.41	.48	.52	.58	.66	.77	.84	.84
May 13	.14	.27	.36	.49	.63	.82	.91	.95	.97	1.02	1.03	1.03
June 4	.35	.50	.53	.56	.59	.63	.64	.64	.64	.64	.64	.64
July 10	.28	.42	.45	.45	.45	.46	.46	.46	.46	.46	.46	.56
July 20	.26	.48	.62	.67	.69	.69	.70	.75	.82	.87	.92	1.00
July 22	.30	.55	.71	.73	.73	.73	.73	.73	.73	.73	.73	.73
July 30	.34	.60	.81	.87	.91	.92	1.16	1.40	1.46	1.46	1.46	1.46
Aug. 5	.26	.30	.37	.52	.54	.54	.54	.54	.54	.54	.54	.54
Aug. 26	.40	.60	.94	1.01	1.32	1.52	1.61	1.63	1.63	1.64	1.66	1.66
Aug. 30	.13	.25	.38	.50	.74	1.05	1.41	1.69	1.79	1.80	1.81	1.81
Sept. 29	.15	.26	.38	.50	.62	.86	1.04	1.20	1.34	1.47	1.71	1.84
Oct. 9	.18	.33	.40	.46	.46	.46	.46	.46	.46	.46	.46	.46
Oct. 14	.36	.61	.65	.69	.78	.83	.87	1.00	1.21	1.32	1.47	1.55
Nov. 24	.31	.33	.37	.39	.41	.42	.47	.49	.70	.78	.87	1.02
Dec. 18	.16	.32	.38	.38	.38	.38	.62	.55	.55	.56	.57	.57
Greensboro AP												
Apr. 19	.20	.39	.48	.50	.52	.58	.58	.60	.61	.64	.65	.65
May 22	.17	.29	.42	.50	.53	.53	.53	.53	.53	.53	.53	.53
June 3	.35	.59	.76	.85	.97	1.10	1.18	1.23	1.28	1.33	1.38	1.40
July 9	.35	.55	.61	.62	.62	.62	.62	.62	.62	.62	.63	.66
July 14	.26	.37	.47	.59	.83	.96	1.00	1.01	1.05	1.07	1.31	1.32
July 21	.18	.31	.36	.43	.57	.69	.77	.86	.93	.99	1.06	1.06
July 25	.39	.70	.84	.89	.91	.92	.92	1.13	1.29	1.29	1.29	1.39
July 26	.19	.24	.26	.37	.50	.61	.68	.68	.70	.77	.80	.80
July 30	.33	.43	.44	.45	.56	.56	.57	.57	.57	.57	.57	.57
Oct. 9	.23	.43	.59	.70	.84	.95	.96	1.23	1.36	1.38	1.49	1.50
Oct. 10	.33	.49	.65	.92	1.28	1.65	1.82	2.14	2.52	2.77	2.83	3.03
Oct. 10	.11	.21	.29	.39	.55	.58	.59	.59	.59	.59	.59	.59
Oct. 11	.32	.37	.39	.39	.42	.44	.44	.44	.44	.44	.44	.44
Oct. 14	.14	.23	.30	.36	.47	.68	.80	.85	.92	.97	1.12	1.16
Raleigh Airport												
May 4	.16	.32	.37	.39	.41	.43	.43	.43	.43	.43	.43	.43
June 3-4	.15	.30	.35	.43	.58	.88	1.08	1.19	1.23	1.29	1.36	1.52
July 10	.25	.30	.35	.35	.36	.37	.37	.38	.38	.38	.38	.38
July 14	.25	.35	.43	.44	.44	.45	.47	.48	.49	.51	.51	.51
July 15	.18	.32	.37	.51	.60	.64	.66	.66	.66	.66	.66	.66
July 25	.15	.29	.38	.50	.70	.81	.92	.92	.93	.95	.95	.95
July 26	.30	.46	.50	.52	.60	.68	.80	.90	1.00	1.10	1.12	1.14
July 30	.30	.60	.80	.96	1.09	1.11	1.13	1.15	1.18	1.23	1.25	1.28
Aug. 29	.15	.28	.37	.45	.63	.85	.96	1.22	1.26	1.29	1.30	1.31
Aug. 30	.30	.42	.66	.70	1.08	1.41	2.06	2.31	2.31	2.32	2.34	2.48
Aug. 31	.22	.40	.52	.58	.61	.63	.64	.65	.65	.65	.65	.65
Sept. 4	.18	.32	.38	.40	.44	.46	.46	.48	.48	.49	.49	.49
Sept. 29	.25	.33	.36	.38	.39	.39	.40	.41	.60	.61	.71	.72
Sept. 30	.19	.33	.39	.47	.58	.64	.64	.64	.66	.66	.70	.70
Oct. 8	.18	.28	.33	.48	.58	.62	.72	.72	.73	.74	.76	.77
Oct. 23	.23	.40	.49	.53	.68	.80	.86	.98	1.03	1.10	1.15	1.44
Wilmington AP												
May 13	.21	.38	.38	.38	.38	.40	.40	.41	.41	.41	.46	.53
July 6	.18	.33	.48	.56	.63	.81	.85	.85	.90	.95	.97	.97
July 11	.27	.47	.70	.82	.99	1.38	1.49	1.65	1.72	1.72	1.72	1.78
July 14	.29	.42	.49	.54	.60	.60	.62	.63	.64	.66	.74	.77
July 15	.23	.42	.60	.68	.73	.74	.76	.79	.79	.79	.93	.93
July 28	.28	.53	.77	.80	1.09	1.27	1.35	1.41	1.74	1.75	1.75	1.75
Aug. 12	.24	.45	.61	.64	.64	.65	.65	.65	.65	.65	.65	.65
Aug. 14	.49	.84	1.12	1.40	1.56	1.59	1.59	1.59	1.63	1.63	1.64	1.64
Aug. 14	.36	.56	.68	.80	.96	.96	1.01	1.02	1.04	1.06	1.07	1.08
Aug. 24	.19	.33	.44	.54	.70	.82	.85	.85	.85	.85	.85	.85
Aug. 30	.27	.33	.40	.43	.54	.60	.60	.60	.61	.62	.62	.62
Sept. 9	.33	.65	.70	.70	.70	.71	.71	.71	.71	.71	.71	.71
Nov. 28	.30	.50	.52	.53	.54	.61	.69	.69	.70	.72	.84	.85
NORTH DAKOTA †												
Bismarck Airport												
June 26	.23	.43	.55	.63	.80	.95	1.01	1.04	1.08	1.10	1.13	1.13
Fargo Airport												
May 26	.16	.28	.40	.50	.64	.76	.82	.85	.88	.89	.89	.89
June 9	.50	.80	1.04	1.08	1.20	1.27	1.34	1.34	1.34	1.34	1.34	1.34
June 10	.14	.20	.32	.42	.52	.75	.84	1.13	1.34	1.46	1.51	1.51
July 7	.30	.54	.77	.90	1.32	1.72	1.89	1.96	1.97	2.18	2.18	2.18
Aug. 5	.44	.70	.94	1.05	1.10	1.11	1.11	1.12	1.13	1.14	1.16	1.16
Aug. 16	.16	.30	.40	.42	.45	.47	.47	.47	.49	.49	.49	.49
Williston												
June 20	.50	.71	.75	.78	.81	1.10	1.31	1.34	1.36	1.41	1.45	1.48
June 26	.40	.65	.84	.91	1.10	1.23	1.32	1.42	1.46	1.51	1.51	1.51
OHIO												
Akron Airport												
Jan. 21	.27	.30	.36	.37	.39	.44	.52	.57	.61	.64	.66	.68
May 27	.50	.83	.96	1.09	1.23	1.31	1.40	1.42	1.42	1.44	1.44	1.44
May 28	.26	.36	.40	.44	.49	.50	.58	.77	.83	.86	.91	.94
June 25	.25	.33	.37	.38	.39	.42	.42	.44	.46	.47	.47	.47
July 6	.30	.46	.49	.50	.53	.54	.54	.55	.55	.55	.55	.55
July 11	.24	.42	.47	.47	.49	.54	.55	.55	.55	.55	.58	.61
July 18	.33	.44	.46	.54	.56	.56	.56	.56	.56	.56	.56	.56
July 18	.22	.42	.51	.52	.56	.58	.59	.62	.72	1.12	1.17	1.20
July 28	.19	.37	.44	.58	.62	.62	.63	.65	.70	.70	.71	.71
Aug. 4	.28	.33	.43	.51	.67	1.14	1.32	1.34	1.34	1.60	1.63	1.63
Sept. 1	.27	.47	.48	.49	.49	.49	.49	.50	.50	.51	.51	.51
Sept. 2	.18	.28	.37	.38	.44	.47	.48	.48	.50	.51	.56	.59
Sept. 30	.20	.32	.42	.51	.58	.65	.71	.79	.83	.86	.90	.97
Cleveland AP												
May 28	.66	.86	1.00	1.11	1.17	1.28	1.32	1.34	1.34	1.34	1.34	1.34
June 1	.34	.46	.56	.66	.76	.78	.78	.81	.81	.81	.81	.81

† See end of table for Devils Lake data.

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
OHIO (Cont'd.)												
Cleveland AP (Cont'd.)												
July 5	0.26	0.31	0.37	0.44	0.54	0.70	0.86	0.86	1.08	1.08	1.09	1.30
July 23	.28	.46	.48	.48	.48	.48	.48	.48	.50	.50	.54	.54
Sept. [illegible]	.26	.46	.54	.76	.91	.99	1.23	1.30	1.33	1.36	1.39	1.44
Sept. 10	.20	.29	.35	.42	.46	.49	.49	.49	.49	.49	.49	.49
Columbus Airport												
Jan. 21	.34	.36	.48	.53	.65	.70	.76	.81	.86	.87	.90	.91
May 12	.18	.30	.42	.53	.64	.75	.88	1.06	1.14	1.18	1.20	1.20
May 27	.25	.34	.42	.43	.47	.47	.52	.54	.55	.55	.65	.65
June 22	.16	.25	.32	.40	.43	.44	.46	.49	.53	.55	.55	.55
July 1	.23	.30	.35	.36	.36	.36	.37	.37	.37	.37	.37	.37
July 23	.40	.60	.70	.82	.84	.84	.84	.84	.84	.84	.84	.84
July 24	.35	.45	.50	.57	.60	.60	.60	.60	.60	.60	.60	.60
Dayton Airport												
Jan. 21	.18	.28	.42	.55	.68	.82	.87	.90	1.01	1.10	1.52	1.66
Feb. 10	.28	.50	.62	.68	.72	.77	.80	.81	.82	.83	.93	1.04
Feb. 10	.26	.30	.32	.35	.38	.41	.43	.43	.43	.43	.46	.46
Apr. 27	.20	.34	.38	.41	.44	.47	.56	.58	.61	.70	.84	.89
May 18	.22	.36	.41	.48	.75	.85	.86	.88	.90	.92	.92	.92
May 29	.22	.28	.36	.38	.55	.56	.57	.57	.58	.58	.61	.64
June 25	.18	.36	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38
July 19	.33	.52	.65	.78	.85	.88	.88	.88	.88	.88	.88	.88
Aug. 4	.26	.50	.76	1.00	1.42	1.46	1.47	1.48	1.49	1.49	1.49	1.49
Mansfield AP *						None						
Sandusky												
May 22	.25	.30	.50	.53	.55	.61	.66	.70	.73	.74	.78	.78
May 29	.33	.54	.73	.91	1.06	1.06	1.07	1.07	1.07	1.07	1.07	1.07
July 23	.25	.35	.45	.48	.51	.58	.71	.77	.81	.82	.83	.91
July 29	.25	.45	.65	.80	1.10	1.37	1.70	1.90	2.00	2.78	2.85	2.85
Aug. 8	.23	.32	.37	.44	.53	.55	.66	.86	.90	.99	1.03	1.07
Aug. 16	.20	.30	.39	.50	.57	.64	.68	.75	.77	.79	.95	1.38
Aug. 18	.25	.31	.41	.41	.41	.49	.49	.49	.49	.49	.49	.49
Toledo Airport												
May 11	.18	.31	.32	.32	.33	.38	.41	.41	.43	.43	.43	.43
May 29	.35	.45	.60	.80	.87	.89	.89	.90	.90	.90	.90	.90
June 11	.25	.37	.41	.41	.47	.47	.47	.47	.62	.62	.62	.78
June 26	.16	.30	.33	.37	.51	.55	.55	.55	.61	.65	.65	.65
July 1	.33	.54	.66	.73	.74	.83	1.07	1.11	1.12	1.13	1.14	1.34
July 18	.15	.30	.30	.31	.31	.32	.32	.33	.35	.38	.40	.44
Aug. 16	.28	.32	.32	.32	.33	.40	.41	.43	.43	.44	.46	.47
Aug. 29	.31	.53	.76	1.04	1.48	1.71	1.74	1.74	1.75	1.75	1.77	1.77
Youngstown AP												
Jan. 21	.25	.30	.34	.35	.37	.40	.42	.45	.50	.52	.57	.58
June 1	.17	.31	.31	.32	.34	.35	.35	.35	.35	.35	.35	.35
June 12	.25	.35	.42	.45	.50	.60	.67	.73	.77	.78	1.11	1.15
June 25	.34	.55	.62	.71	.74	.74	.74	.74	.74	.74	.74	.74
July 11	.37	.73	.93	.95	.99	1.00	1.04	1.04	1.05	1.05	1.05	1.05
July 28	.23	.32	.39	.40	.41	.42	.42	.42	.42	.42	.42	.42
Aug. 23	.21	.31	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33
Oct. 6	.27	.31	.32	.32	.34	.40	.47	.50	.51	.51	.55	.63
OKLAHOMA												
Oklahoma City AP												
Mar. 25	.18	.29	.37	.43	.44	.44	.44	.44	.44	.44	.44	.44
Apr. 18	.52	.62	.62	.62	.62	.62	.62	.63	.64	.64	.64	.64
May 8	.26	.48	.59	.67	.92	1.11	1.24	1.28	1.39	1.62	2.11	2.23
May 26	.17	.32	.40	.42	.57	.69	.78	.90	1.01	1.10	1.14	1.24
June 26	.15	.24	.34	.44	.49	.56	.58	.64	.64	.64	.72	.74
July 5	.30	.44	.49	.50	.60	.66	.68	.69	.70	.71	.74	.75
July 9	.37	.55	.78	.92	1.20	1.57	1.67	1.72	1.74	1.81	1.84	1.89
July 17	.27	.36	.39	.48	.73	.76	.77	.81	.83	1.01	1.41	1.59
July 21	.17	.33	.39	.52	.66	.78	.89	.98	1.05	1.18	1.20	1.21
July 22	.52	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55
Aug. 6	.30	.53	.57	.58	.63	.68	.69	.71	.71	.71	.71	.71
Aug. 7	.26	.47	.52	.57	.87	1.01	1.15	1.23	1.33	1.40	1.42	1.44
Aug. 16	.30	.39	.43	.45	.46	.47	.48	.53	.57	.58	.59	.60
Aug. 28	.30	.45	.60	.70	1.00	1.20	1.28	1.28	1.28	1.28	1.28	1.28
Sept. 3	.21	.39	.53	.70	1.06	1.47	1.73	1.94	2.06	2.14	2.24	2.26
Sept. 24	.25	.50	.57	.70	.89	1.15	1.38	1.55	1.60	1.60	1.60	1.60
Sept. 24	.57	.87	.92	1.00	1.10	1.17	1.25	1.41	1.43	1.46	1.53	1.61
Oct. 1	.15	.26	.38	.48	.68	.90	1.11	1.16	1.17	1.20	1.24	1.25
Tulsa Airport												
Mar. 25	.35	.40	.50	.60	.60	.60	.60	.60	.60	.60	.60	.60
May 16	.23	.41	.50	.53	.56	.68	1.02	1.10	1.12	1.12	1.13	1.13
May 17-18	.18	.34	.44	.54	.54	.54	.54	.54	.61	.66	.66	.66
May 24	.18	.34	.44	.45	.58	.80	1.00	1.02	1.05	1.23	1.27	1.28
June 11	.14	.25	.35	.46	.57	.71	.76	.79	.79	.79	.79	.79
June 26	.16	.31	.33	.34	.36	.38	.40	.44	.47	.48	.59	.87
July 13	.30	.57	.78	.80	.86	.90	1.08	1.21	1.22	1.22	1.22	1.22
July 15	.27	.35	.53	.60	.73	.76	.80	.83	.87	.93	1.00	1.20
July 21	.25	.42	.61	.84	.93	1.10	1.23	1.25	1.38	1.58	1.74	1.75
Aug. 28	.35	.55	.75	.90	1.10	1.20	1.27	1.33	1.33	1.36	1.38	1.40
Sept. 21	.19	.32	.40	.43	.50	.56	.60	.67	.92	1.01	1.05	1.34
Sept. 25	.15	.25	.30	.35	.45	.67	.95	1.14	1.35	1.53	1.53	1.55
Oct. 2	.33	.55	.68	.88	1.27	1.82	2.24	2.72	2.84	2.90	3.00	3.15
Oct. 2	.35	.43	.65	.75	.86	.95	1.23	1.33	1.36	1.41	1.73	1.78
OREGON												
Astoria Airport												
Mar. 27	.13	.26	.35	.40	.43	.48	.51	.53	.54	.55	.55	.55
Burns												
Aug. 19	.20	.36	.43	.47	.58	.61	.71	.71	.71	.71	.71	.71
Eugene Airport												
Jan. 11	----	----	----	----	.52	----	----	----	----	----	----	----
Meacham Airport						None						
Medford Airport						None						
Pendleton AP						None						
Portland						None						
Portland Airport						None						

* From Nov. 10 - Dec. 31.

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
OREGON (Cont'd.)												
Roseburg AP						None						
Sexton Summit						None						
PACIFIC AREA												
Canton Island AP												
Jan. 27	0.21	0.39	0.47	0.48	0.50	0.53	0.56	0.58	0.63	0.69	0.76	0.77
Jan. 28	.39	.48	.59	.66	.70	.82	.87	.88	.88	.88	.88	.91
Jan. 29	.17	.34	.46	.54	.68	.79	.89	1.02	1.08	1.12	1.30	1.31
Jan. 29	.20	.31	.35	.37	.41	.51	.58	.78	.98	1.28	1.38	1.61
Jan. 30	.18	.33	.43	.49	.63	.66	.74	.82	1.10	1.35	1.52	1.59
Feb. 6	.24	.37	.41	.41	.41	.41	.41	.41	.52	.53	.53	.54
Feb. 10	.16	.26	.37	.52	.66	.67	.76	.76	.76	.76	.76	.76
Mar. 8	.15	.30	.38	.48	.57	.63	.68	.68	.70	.70	.70	.81
Apr. 19	.45	.73	.94	1.11	1.29	1.29	1.68	1.82	1.82	1.82	1.97	2.02
May 22	.29	.34	.38	.40	.40	.40	.40	.40	.40	.58	.58	.58
Aug. 17	.25	.39	.46	.53	.61	.80	.81	.82	.82	.82	.83	.84
Nov. 18	.16	.27	.40	.46	.50	.50	.50	.50	.50	.50	.50	.50
Johnston Is. AP												
Apr. 21	.17	.27	.35	.45	.61	.77	.98	1.13	1.23	1.32	1.40	1.50
Aug. 24	.14	.24	.33	.40	.54	.77	1.09	1.32	1.51	1.68	1.83	1.96
Aug. 28	.56	.99	1.38	1.75	2.28	2.70	2.93	3.48	4.64	4.76	4.88	4.96
Oct. 3	.19	.34	.42	.46	.46	.46	.46	.46	.46	.46	.46	.46
Dec. 8	.29	.46	.63	.66	.67	.67	.75	1.07	1.08	1.19	1.21	1.49
Dec. 9	.23	.34	.40	.48	.68	.78	.79	.92	.92	1.05	1.12	1.35
Koror												
Sept. 8	.19	.31	.40	.44	.53	.59	.59	.59	.59	.75	.76	.77
Sept. 19	.26	.43	.56	.62	.74	1.03	1.21	----	----	1.71	1.82	1.88
Sept. 20	.21	.42	.59	.76	1.05	1.54	1.94	2.31	2.65	2.82	3.00	3.19
Sept. 22	.26	.37	.42	.48	.50	.51	.51	.51	.51	.54	.64	.65
Sept. 30	.16	.27	.37	.49	.66	.85	1.09	1.34	1.35	1.39	1.66	1.68
Oct. 2	.16	.28	.33	.38	.58	.85	.98	1.20	1.40	1.46	1.53	1.56
Oct. 5	.16	.28	.34	.42	.51	.72	.89	.97	1.03	1.13	1.40	1.43
Oct. 7	.23	.40	.53	.60	.65	.66	.66	.77	.77	.77	.77	.77
Oct. 9	.31	.44	.54	.60	.96	1.13	1.14	1.20	1.23	1.39	2.02	2.38
Oct. 12	.33	.60	.88	1.10	1.45	1.54	1.58	1.59	1.59	1.59	1.59	1.59
Oct. 16	.30	.43	.44	.49	.52	.52	.52	.53	.59	.59	.59	.59
Oct. 20	.45	.90	1.18	1.35	1.43	1.73	2.02	2.19	2.25	2.25	2.26	2.26
Oct. 21	.23	.35	.46	.48	.49	.49	.49	.50	.50	.51	.73	.73
Nov. 2	.40	.70	.88	1.06	1.30	1.34	1.46	1.50	1.60	1.64	1.73	1.76
Nov. 13	.24	.42	.62	.72	.77	.81	.82	.82	.84	.86	.92	.94
Nov. 13	.20	.27	.30	.33	.44	.70	.88	1.08	1.16	1.21	1.31	1.46
Nov. 14	.26	.41	.47	.48	.49	.49	.49	.49	.49	.50	.53	.53
Nov. 14	.38	.72	1.00	1.09	1.13	1.15	1.18	1.29	1.35	1.42	1.44	1.45
Nov. 15	.20	.32	.37	.41	.51	.52	.52	.52	.52	.52	.52	.52
Nov. 18	.22	.35	.48	.54	.70	.77	.81	.81	.82	.89	.91	.91
Nov. 24	.20	.24	.29	.37	.42	.68	.71	.72	.72	.72	.73	.73
Nov. 25	.20	.37	.40	.42	.43	.43	.46	.49	.57	.71	.86	.86
Dec. 8	.19	.29	.38	.48	.65	.68	.68	.68	.69	.73	.76	.76
Dec. 8	.26	.49	.63	.79	1.00	1.26	1.40	1.51	1.70	1.82	2.00	2.24
Dec. 12	.21	.29	.35	.35	.35	.35	.35	.35	.35	.35	.36	.36
Dec. 30	.22	.30	.34	.37	.38	.38	.38	.38	.38	.38	.38	.38
Dec. 30	.18	.28	.39	.49	.56	.77	.84	.86	.86	.86	.86	.86
Majuro Airport												
Feb. 19	.21	.31	.39	.46	.54	.61	.73	.80	.95	1.21	1.45	1.56
Feb. 22	.14	.21	.29	.36	.47	.71	.91	1.01	1.12	1.26	1.40	1.51
Mar. 4	.26	.34	.41	.51	.60	.97	1.24	1.32	1.34	1.41	1.47	1.72
Apr. 11	.27	.39	.43	.45	.45	.52	.59	.77	.78	.84	.85	.85
Apr. 13	.21	.35	.49	.60	.86	.92	1.06	1.06	1.09	1.12	1.12	1.41
Apr. 25	.22	.38	.42	.43	.63	.68	.89	1.20	1.21	1.24	1.35	1.49
Apr. 25	.18	.31	.36	.37	.54	.60	.63	.65	.66	.67	.67	.67
May 13	.26	.35	.44	.56	.56	.56	.56	.57	.57	.57	.57	.57
May 16	.29	.54	.64	.87	1.33	1.56	1.60	1.64	2.00	2.10	2.16	2.31
June 8	.24	.41	.51	.54	.76	.98	1.06	1.11	1.12	1.17	1.62	1.69
June 8	.21	.35	.47	.53	.81	.97	1.12	1.27	1.39	1.47	1.87	2.05
June 16	.25	.45	.60	.66	.71	.88	.88	1.03	1.38	1.55	1.56	1.57
June 20	.14	.21	.32	.39	.52	.59	.60	.63	.63	.63	.63	.64
June 21	.27	.41	.44	.49	.50	.50	.50	.50	.50	.50	.50	.50
June 22	.26	.37	.44	.45	.46	.46	.47	.48	.49	.49	.49	.50
July 3	.25	.25	.25	.26	.26	.27	.28	.28	.28	.28	.28	.28
July 4	.17	.32	.43	.53	.61	.67	.70	.72	.72	.72	.72	1.18
July 5	.37	.62	.85	.96	1.06	1.21	1.23	1.25	1.27	1.28	1.30	1.36
Aug. 18	.33	.46	.58	.74	.91	.95	.97	.99	1.02	1.04	1.09	1.10
Aug. 22	.26	.32	.33	.33	.33	.40	.45	.52	.52	.52	.52	.52
Aug. 23	.31	.39	.43	.44	.47	.47	.47	.47	.61	.62	.62	.62
Sept. 1	.32	.53	.73	.94	1.18	1.52	2.17	2.71	3.07	3.29	3.36	3.46
Sept. 2	.18	.30	.37	.41	.53	.67	.69	.70	.70	.70	.70	.70
Sept. 2	.22	.34	.47	.57	.82	1.05	1.05	1.18	1.21	1.23	1.76	1.84
Sept. 3	.18	.37	.50	.59	.70	.82	.87	.95	1.03	1.11	1.21	1.30
Sept. 18	.13	.24	.34	.43	.59	.61	.61	.61	.61	.61	.61	.61
Sept. 19	.14	.27	.40	.53	.64	.74	.94	1.07	1.28	1.59	1.92	2.15
Sept. 20	.16	.28	.38	.50	.52	.54	.55	.55	.55	.55	.55	.55
Sept. 30	.22	.33	.35	.35	.36	.38	.38	.39	.40	.40	.40	.40
Oct. 1	.20	.38	.47	.56	.66	.81	1.05	1.20	1.20	1.20	1.20	1.20
Oct. 16	.22	.33	.37	.43	.44	.44	.44	.45	.45	.45	.45	.45
Oct. 19	.25	.36	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
Oct. 27	.21	.39	.53	.66	.97	1.17	1.19	1.20	1.20	1.20	1.20	1.20
Oct. 31	.34	.66	.78	.82	.88	.95	.96	.96	.96	.96	.96	.96
Nov. 2	.20	.27	.33	.40	.66	.69	.74	.80	.95	1.07	1.13	1.21
Nov. 2	.20	.37	.46	.52	.65	.68	.70	.79	.83	.88	1.02	1.24
Nov. 3	.21	.30	.39	.42	.45	.48	.54	.64	.71	.73	.75	.76
Nov. 7	.21	.38	.53	.59	.80	.84	.84	.84	.84	.84	.84	.84
Nov. 7	.37	.59	.73	.92	1.05	1.16	1.16	1.17	1.25	1.32	1.43	1.51
Nov. 8	.26	.35	.37	.39	.40	.41	.42	.43	.44	.44	.44	.45
Nov. 24	.20	.27	.34	.40	.52	.56	.59	.61	.64	.70	.81	.92
Nov. 24	.16	.27	.33	.39	.57	.75	.88	1.00	1.04	1.09	1.11	1.17
Nov. 24	.20	.28	.40	.55	.75	.97	1.23	1.67	1.68	1.69	1.73	1.77
Dec. 3	.43	.59	.61	.63	.64	.64	.65	.66	.66	.67	.68	.68
Dec. 12	.26	.36	.45	.60	.76	.82	1.02	1.10	1.10	1.11	1.11	1.52
Dec. 13	.20	.38	.42	.44	.44	.44	.44	.44	.54	.54	.54	.58
Ponape												
Feb. 24	.18	.30	.38	.45	.49	.65	.68	.72	.75	.75	.75	.76
Feb. 24	.27	.44	.56	.61	.66	.69	.69	.73	.73	.74	.75	.75
Feb. 25	.21	.34	.44	.45	.59	.73	.76	.82	.86	.89	.89	.89
Feb. 25	.35	.50	.73	.88	1.10	1.50	1.67	1.77	1.81	1.83	1.85	1.86
Feb. 26	.25	.38	.49	.57	.67	.68	.69	.69	.86	.94	.94	.94
Mar. 6	.24	.36	.48	.57	.70	.95	1.25	1.51	1.84	1.97	2.11	2.34
Mar. 6	.18	.24	.31	.44	.61	.88	1.00	1.10	1.14	1.21	1.22	1.22
Mar. 26	.21	.41	.61	.65	.88	1.03	1.09	1.10	1.13	1.13	1.13	1.13
Mar. 27	.26	.38	.49	.56	.71	.73	.85	1.14	1.14	1.15	1.68	1.88
Mar. 27	.21	.35	.37	.49	.71	.73	.74	.74	.74	.74	.74	.74
Apr. 1	.29	.46	.49	.50	.58	.65	.94	1.07	1.10	1.12	1.29	1.44

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
PACIFIC AREA (Cont'd.)												
Ponape (Cont'd.)												
Apr. 14	0.32	0.46	0.69	1.01	1.28	1.38	1.55	1.93	2.18	2.90	3.53	3.85
Apr. 16	.35	.67	.91	1.19	1.71	2.51	3.23	3.76	4.13	4.31	4.43	4.54
Apr. 18	.14	.24	.35	.49	.66	.75	1.06	1.29	1.33	1.38	1.44	1.73
Apr. 21	.15	.23	.34	.42	.55	.65	.67	.67	.78	.93	1.21	1.45
Apr. 29	.19	.26	.32	.41	.55	.66	.74	1.03	1.19	1.22	1.23	1.23
Apr. 29	.30	.53	.66	.86	1.00	1.26	1.46	1.69	1.81	1.98	2.27	2.84
Apr. 30	.35	.61	.86	1.15	1.70	2.28	2.70	3.15	3.40	3.64	3.81	3.84
May 2	.20	.32	.44	.45	.45	.45	.45	.57	.57	.57	.60	.72
May 2	.23	.40	.51	.65	.75	.77	.78	.92	1.15	1.15	1.20	1.26
May 6	.17	.29	.40	.48	.52	.53	.53	.53	.53	.53	.53	.53
May 7	.21	.35	.50	.59	.75	.80	.99	1.12	1.19	1.22	1.30	1.39
May 7	.31	.45	.60	.75	.95	1.03	1.10	1.18	1.21	1.23	1.26	1.28
May 8	.15	.29	.38	.42	.48	.52	.52	.53	.62	.90	.94	1.00
May 15	.30	.49	.63	.70	.74	.77	.78	.81	.83	.98	1.07	1.18
May 22	.24	.30	.49	.51	.51	.51	.65	.90	.98	.98	.98	.98
May 22	.27	.43	.65	.68	.70	.70	.70	.70	.70	.70	.72	.74
May 31	.14	.27	.39	.46	.59	.67	.90	1.12	1.13	1.18	1.25	1.34
June 6	.16	.31	.38	.51	.61	.78	.80	.80	.80	.80	.80	.90
June 13	.25	.39	.52	.61	.83	1.01	1.17	1.29	1.55	1.65	1.82	1.87
June 21	.35	.48	.52	.55	.57	.58	.58	.58	.63	.67	.71	.71
June 24	.16	.27	.41	.51	.56	.61	.63	.64	.90	1.06	1.10	1.10
June 30	.23	.38	.42	.42	.43	.43	.43	.43	.43	.43	.43	.54
July 6	.25	.43	.63	.74	.94	1.20	1.71	2.02	2.18	2.25	2.29	2.42
July 10	.33	.39	.39	.40	.41	.41	.41	.41	.41	.41	.41	.41
July 23	.32	.52	.64	.64	.73	.74	.76	.77	.77	.78	.78	.87
July 24	.22	.36	.41	.43	.59	.62	.64	.79	.97	1.07	1.10	1.11
July 31	.37	.70	.97	1.29	1.69	2.00	2.30	2.91	3.30	3.38	3.47	3.51
Aug. 6	.36	.57	.67	.69	.84	.86	.86	.86	.86	.86	.86	.86
Aug. 13	.25	.35	.45	.45	.45	.45	.45	.45	.45	.45	.45	.53
Aug. 14	.35	.55	.69	.76	.97	1.32	1.54	1.79	2.03	2.14	2.19	2.20
Aug. 19	.30	.55	.75	.92	1.11	1.19	1.19	1.19	1.21	1.33	1.33	1.33
Aug. 20	.22	.41	.59	.69	.83	.87	.87	.87	.87	.87	.87	.90
Sept. 1	.32	.47	.50	.51	.72	.79	.80	.80	.82	.82	.82	.82
Sept. 5	.22	.30	.47	.54	.70	.94	1.06	1.10	1.10	1.18	1.43	1.53
Sept. 5	.16	.26	.39	.56	.76	1.04	1.24	1.42	1.58	1.64	1.65	1.80
Sept. 16	.23	.32	.38	.41	.50	.55	.56	.60	.61	.63	.63	.63
Sept. 21	.32	.41	.45	.56	.63	.88	1.13	1.13	1.14	1.16	1.62	1.62
Sept. 27	.24	.37	.39	.45	.56	.67	.84	.91	.91	.91	.92	1.08
Sept. 28	.19	.34	.42	.50	.59	.81	.87	1.26	1.34	1.41	1.67	1.74
Oct. 7	.36	.68	.92	1.12	1.41	1.66	1.92	2.04	2.14	2.22	2.39	2.56
Oct. 10	.35	.61	.64	.65	.73	.98	1.10	1.12	1.12	1.12	1.12	1.12
Oct. 12	.30	.48	.63	.84	1.02	1.20	1.33	1.36	1.40	1.45	1.52	1.53
Oct. 18	.17	.29	.41	.50	.65	.71	.80	.80	.80	.80	.80	.80
Oct. 21	.17	.32	.42	.57	.77	.92	1.00	1.02	1.03	1.03	1.03	1.03
Nov. 24	.26	.32	.37	.37	.37	.37	.37	.38	.39	.39	.39	.39
Dec. 4	.19	.30	.36	.37	.41	.50	.50	.50	.58	.58	.58	.58
Dec. 15	.13	.22	.33	.41	.51	.64	.83	.88	.92	1.03	1.16	1.66
Dec. 17	.17	.32	.34	.34	.36	.36	.39	.44	.44	.44	.44	.44
Dec. 17	.17	.31	.41	.52	.71	.89	.93	.97	.97	.97	1.19	1.24
Dec. 18	.16	.25	.34	.38	.54	.60	.68	.73	.78	.83	.92	.93
Dec. 19	.19	.34	.43	.56	.70	.95	1.05	1.15	1.27	1.36	1.63	1.82
Dec. 22	.36	.52	.57	.58	.58	.61	.63	.63	.68	.70	.70	.70
Dec. 23	.37	.39	.39	.46	.47	.53	.53	.53	.53	.54	.55	.56
Dec. 23	.17	.26	.39	.49	.55	.60	.61	.61	.61	.61	.61	.64
Dec. 24	.23	.32	.35	.36	.39	.43	.56	.71	.76	.80	.81	.82
Dec. 26	.35	.53	.67	.80	.84	.84	.85	.88	.89	.89	.89	.89
Dec. 28	.28	.47	.50	.60	.77	.96	.99	1.00	1.02	1.03	1.05	1.05
Wake Island AP												
June 20	.26	.44	.48	.51	.54	.59	.67	.70	.73	.75	.83	.86
Aug. 14	.27	.36	.39	.40	.40	.41	.43	.49	.52	.52	.52	.52
Oct. 31	.18	.33	.36	.36	.36	.38	.39	.41	.44	.46	.47	.50
Nov. 9	.30	.52	.61	.68	.71	.72	.72	.72	.72	.72	.72	.72
Dec. 14	.15	.29	.40	.51	.67	.91	1.07	1.14	1.32	1.35	1.36	1.37
PENNSYLVANIA												
Allentown AP												
May 29	.25	.32	.38	.43	.50	.53	.53	.53	.53	.53	.53	.53
July 19	.28	.31	.32	.32	.32	.32	.32	.32	.34	.34	.34	.35
July 23	.30	.53	.65	.91	.93	.94	.94	1.20	1.24	1.38	1.45	1.62
Aug. 9-10	.45	.60	.70	.72	.72	.74	.77	.79	.79	.79	.79	.79
Sept. 1	.30	.39	.42	.43	.44	.44	.44	.44	.44	.44	.44	.44
Sept. 1	.25	.35	.39	.39	.39	.39	.40	.40	.40	.40	.40	.40
Sept. 10-11	.22	.36	.43	.47	.48	.57	.59	.69	1.06	1.09	1.11	1.12
Sept. 29	.22	.30	.45	.58	.72	.80	1.08	1.19	1.28	1.29	1.30	1.32
Oct. 7	.23	.40	.48	.48	.49	.50	.50	.50	.50	.50	.50	.50
Erie Airport												
June 25	.28	.42	.46	.59	.79	.94	.99	1.02	1.08	1.10	1.10	1.10
July 7	.28	.41	.49	.49	.49	.49	.49	.49	.49	.49	.49	.49
Sept. 1	.26	.38	.44	.46	.51	.54	.56	.59	.62	.64	.70	.72
Oct. 5	.23	.26	.37	.38	.39	.39	.39	.39	.39	.39	.39	.40
Harrisburg AP												
June 2	.15	.27	.31	.35	.50	.77	.94	1.09	1.21	1.32	1.39	1.43
June 25	.18	.31	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32
July 2	.25	.40	.41	.42	.42	.46	.48	.49	.50	.51	.52	.52
July 6	.28	.45	.50	.54	.56	.57	.57	.57	.57	.57	.57	.57
July 10	.13	.19	.30	.37	.51	.58	.59	.61	.62	.62	.63	.63
Aug. 16	.20	.30	.34	.37	.38	.40	.41	.41	.41	.41	.41	.41
Aug. 27	.26	.31	.32	.34	.36	.36	.36	.36	.36	.36	.36	.36
Oct. 8	.20	.33	.54	.62	.64	.69	.72	.76	.76	.76	.77	.77
Philadelphia AP												
June 2	.17	.31	.33	.39	.50	.59	.62	.82	1.02	1.25	1.47	1.72
June 30	.20	.36	.39	.39	.40	.40	.40	.50	.50	.53	.54	.54
July 14	.18	.27	.35	.47	.68	.73	.92	1.30	1.53	1.61	1.70	1.74
July 19	.26	.31	.33	.35	.36	.36	.38	.42	.49	.51	.52	.52
July 20	.26	.39	.47	.48	.50	.51	.55	.57	.59	.60	.60	.60
July 31	.35	.70	.93	1.13	1.23	1.52	1.69	1.70	1.72	1.72	1.72	1.72
Aug. 8	.29	.54	.74	.77	.77	.77	.77	.77	.77	.77	.82	.82
Oct. 8	.27	.30	.33	.38	.50	.50	.50	.50	.50	.50	.50	.50
Pittsburgh												
Apr. 20	.17	.28	.33	.45	.62	.72	.75	.76	.76	.76	.76	.76
July 28	.24	.37	.42	.45	.45	.45	.45	.45	.45	.45	.45	.45
July 30	.18	.35	.42	.47	.47	.47	.47	.47	.47	.47	.48	.62
Aug. 22	.22	.30	.40	.49	.60	.61	.61	.61	.61	.61	.61	.61
Aug. 23	.25	.42	.47	.56	.60	.60	.60	.60	.60	.60	.60	.60
Oct. 6	.25	.27	.32	.37	.40	.46	.48	.48	.48	.48	.48	.48

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
PENNSYLVANIA (Cont'd												
[illegible]												
June 12							0.88					
July 1	0.20	0.32	0.40	0.44	0.52	0.59	.62	0.81	0.82	0.83	0.83	0.84
Aug. 4	.21	.31	.51	.69	.91	.94	.96	.98	.98	.98	.99	1.00
Aug. 22	.38	.62	.98	1.13	1.30	1.30	1.30	1.30	1.30	1.30	1.32	1.32
Oct. 4	.30	.45	.57	.65	.68	.74	.76	.79	.86	.89	.91	.91
Oct. 6	.19	.30	.36	.45	.70	.76	.78	.81	.81	.81	.82	.82
Oct. 8	.20	.27	.34	.40	.46	.61	.68	.74	.83	.92	1.13	1.13
Reading												
June 12	.25	.41	.54	.62	.65	.67	.69	.69	.71	.71	.71	.71
July 19	.23	.40	.61	.66	.68	.68	.69	.70	.78	.88	.88	.89
July 23	.23	.38	.41	.43	.43	.44	.44	.44	.44	.44	.44	.44
Aug. 29	.28	.46	.65	.86	1.13	1.23	1.26	1.27	1.29	1.30	1.30	1.30
Sept. 2	.18	.31	.43	.51	.70	.75	.89	.98	1.03	1.06	1.06	1.06
Scranton AP												
Jan. 22	.25	.35	.37	.37	.38	.38	.40	.41	.43	.45	.46	.48
June 25	.17	.30	.31	.32	.32	.34	.34	.35	.44	.45	.50	.50
June 26	.38	.53	.56	.58	.58	.58	.58	.58	.58	.58	.58	.58
July 2	.32	.60	.80	.86	.94	.95	1.01	1.02	1.03	1.04	1.04	1.04
July 10	.40	.63	.77	.83	1.00	1.11	1.15	1.19	1.22	1.25	1.27	1.32
July 20	.35	.55	.61	.65	.70	.71	.71	.71	.71	.71	.71	.72
Aug. 5	.18	.29	.35	.43	.53	.55	.59	.61	.61	.65	.69	.72
PUERTO RICO												
San Juan												
Jan. 15	.25	.50	.56	.59	.64	.64	.65	.65	.65	.66	.66	.75
Apr. 26	.25	.42	.57	.67	1.00	1.06	1.33	2.01	2.22	2.49	3.53	3.97
Apr. 28	.22	.37	.48	.58	.85	1.17	1.39	1.50	1.57	1.57	1.58	1.58
May 1	.18	.31	.40	.52	.53	.53	.53	.54	.54	.54	.54	.54
May 7-8	.20	.32	.43	.50	.53	.59	.60	.60	.63	.63	.68	.69
Aug. 3	.25	.35	.46	.50	.62	.70	.72	1.00	1.03	1.25	1.29	1.32
Aug. 11	.25	.46	.53	.61	.84	.95	.99	1.08	1.15	1.20	1.20	1.20
Sept. 16	.20	.40	.55	.68	.72	.83	.89	.89	.89	.89	.90	.90
Nov. 1	.23	.35	.44	.50	.72	1.14	1.57	1.73	1.97	2.05	2.08	2.10
San Juan Airport												
Jan. 15	.20	.30	.35	.38	.40	.48	.52	.60	.64	.64	.72	.87
Apr. 26	.25	.42	.57	.67	1.00	1.06	1.33	2.00	2.23	2.53	3.51	3.97
May 8	.27	.41	.50	.56	.62	.65	.65	.82	.93	.94	.97	.97
May 25	.30	.54	.68	.82	.90	.93	.93	.93	.93	.93	.93	.93
June 1	.28	.42	.46	.52	.62	.87	.92	1.01	1.02	1.02	1.01	1.01
Aug. 17	.22	.38	.50	.58	.68	.82	1.08	1.20	1.21	1.21	1.25	1.32
Sept. 24	.28	.53	.58	.70	1.19	1.52	1.54	1.54	1.54	1.54	1.55	1.65
Oct. 6	.45	.65	.70	.76	.92	1.19	1.35	1.43	1.43	1.43	1.43	1.43
Oct. 14	.36	.57	.77	.77	.77	.78	.84	.90	.91	.92	1.04	1.05
Nov. 1	.34	.61	.78	.85	.93	.97	.99	1.00	1.03	1.05	1.08	1.09
Nov. 17	.28	.44	.49	.54	.62	.65	1.05	1.21	1.21	1.21	1.21	1.21
RHODE ISLAND												
Providence AP												
June 13	.22	.32	.36	.42	.46	.47	.50	.54	.55	.57	.62	.65
Aug. 29	.38	.72	1.02	1.26	1.70	1.85	1.86	1.88	1.88	1.88	1.88	1.88
SOUTH CAROLINA												
Charleston												
Feb. 13	.36	.43	.48	.50	.52	.55	.69	.77	.80	.89	.94	.98
Mar. 5	.21	.38	.47	.50	.65	.91	1.02	1.30	1.62	1.69	1.76	1.84
Apr. 2	.20	.35	.42	.44	.48	.57	.59	.60	.60	.60	.60	.60
May 25 *	.40	.71	.80	.83	.90	1.02	1.13	1.39	1.63	1.68	1.75	1.76
June 1	.43	.59	.59	.59	.60	.61	.61	.62	.62	.65	.65	.65
July	Probably some excessive during 1st half-month, recorder inoperative											
Aug. 1	.22	.37	.45	.49	.55	.61	.63	.63	.64	.64	.68	.74
Sept. 4	.29	.46	.55	.58	.59	.62	.62	.62	.26	.62	.63	.63
Sept. 5	.12	.17	.23	.31	.44	.66	.76	.87	.90	.97	1.05	1.08
Sept. 16	.25	.41	.48	.55	.63	.66	.67	.68	.68	.68	.68	.68
Sept. 29	.28	.38	.49	.53	.65	.71	.88	1.10	1.14	1.14	1.20	1.27
Sept. 29	Probably other excessive periods, record missing, hurricane.											
Oct. 9	.21	.31	.31	.32	.32	.32	.33	.35	.35	.43	.44	.44
Oct. 14	.40	.69	.91	1.00	1.11	1.19	1.22	1.26	1.28	1.28	1.28	1.31
Columbia Airport												
Jan. 22	.30	.40	.45	.50	.58	.65	.73	.81	.90	.99	1.05	1.05
Apr. 19	.23	.34	.45	.50	.50	.50	.50	.50	.50	.50	.50	.50
May 10	.25	.45	.55	.58	.62	.71	.77	.78	.84	.89	.96	.99
May 11	.33	.62	.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
May 31	.29	.35	.45	.55	.65	.73	.74	.77	.77	.77	.77	.77
June 2	.18	.33	.42	.60	.85	.90	.93	1.00	1.02	1.04	1.06	1.06
June 24	.40	.72	.84	.87	.93	.94	.94	.94	.94	.94	.95	1.02
July 9	.24	.35	.50	.65	.83	1.10	1.35	1.36	1.47	1.60	1.85	2.07
July 14	.15	.24	.31	.35	.50	.65	.70	.78	.80	.80	.80	.80
July 16	.35	.60	.80	.91	1.05	1.31	1.36	1.39	1.39	1.40	1.40	1.40
July 31	.33	.60	.77	.95	1.14	1.27	1.87	1.95	1.99	2.01	2.03	2.05
Aug. 6	.12	.20	.30	.40	.53	.60	.62	.69	.79	.83	.84	.88
Aug. 29	.37	.65	.85	1.00	1.16	1.28	1.40	1.60	1.77	1.84	1.90	1.93
Sept. 6	.14	.27	.38	.39	.40	.42	.44	.46	.47	.50	.56	.60
Oct. 8	.28	.54	.70	.75	.79	.80	.81	.89	.97	1.03	1.05	1.08
Oct. 10	.38	.59	.83	1.16	1.60	1.95	2.30	2.30	2.33	2.35	2.40	2.45
Oct. 14	.15	.25	.37	.47	.64	.76	.82	.92	.98	1.02	1.09	1.15
Oct. 23	.25	.35	.42	.44	.51	.54	.55	.55	.55	.55	.55	.55
Florence												
Jan. 22	.16	.27	.37	.42	.50	.51	.65	.68	.70	.84	.91	.96
Feb. 18	.32	.34	.50	.58	.61	.61	.61	.61	.61	.62	.62	.62
Apr. 2	.22	.36	.43	.49	.56	.75	.97	1.01	1.07	1.13	1.17	1.18
Apr. 21	.57	.71	.83	1.00	1.11	1.13	1.32	1.62	1.66	1.74	1.75	1.78
Apr. 29	.33	.45	.50	.55	.61	.69	.69	.69	.80	.86	.90	.90
Apr. 29	.78	1.05	1.40	1.65	1.66	1.67	1.67	1.67	1.67	1.67	1.67	1.67
May 3	.20	.33	.38	.49	.55	.56	.57	.58	.59	.59	.60	.60
May 21	.24	.38	.47	.49	.50	.54	.56	.56	.60	.64	.64	.64
May 25	.23	.37	.42	.45	.50	.54	.56	.64	.65	.70	.70	.70
June 3	.30	.53	.74	.95	1.45	1.65	1.65	1.68	1.70	1.71	1.76	1.79
June 16	.45	.68	.86	.91	.92	.93	.99	1.04	1.05	1.05	1.05	1.05
June 27	.30	.35	.37	.40	.40	.40	.40	.40	.40	.40	.40	.40
July 11	.31	.59	.80	1.00	1.25	1.50	1.72	1.80	1.81	1.85	1.90	1.94
July 12	.23	.35	.44	.53	.75	.81	.84	.84	.84	.84	.93	1.00
July 13	.34	.52	.66	.80	1.16	1.24	1.27	1.27	1.28	1.30	1.32	1.32
July 15	.43	.78	1.05	1.30	1.64	1.94	2.11	2.14	2.15	2.19	2.20	2.20

* All periods estimated.

EXCESSIVE SHORT DURATION RAINFALL

Station and date	5	10	15	20	30	45	60	80	100	120	150	180
	Maximum precipitation in inches (5 to 180 minutes)											
SOUTH CAROLINA (Cont'd.)												
Florence (Cont'd.)												
July 29	0.49	0.76	0.95	1.18	1.40	1.50	1.95	3.11	3.29	3.30	3.47	3.54
July 31	.20	.29	.40	.44	.45	.45	.45	.45	.45	.45	.46	.46
Aug. 20	.20	.27	.37	.42	.46	.47	.48	.51	.52	.53	.60	.65
Aug. 28	.39	.46	.48	.50	.59	.60	.60	.60	.60	.60	.60	.60
Aug. 29	.32	.53	.64	.73	1.12	1.44	1.46	1.46	1.46	1.46	1.47	1.50
Sept. 1	.26	.36	.50	.55	.55	.55	.55	.55	.55	.55	.55	.55
Sept. 7	.23	.30	.37	.42	.49	.49	.50	.51	.51	.51	.51	.51
Sept. 29	.27	.43	.54	.56	.60	.68	.83	1.02	1.28	1.51	1.79	1.98
Sept. 29	.17	.30	.35	.46	.66	.83	.92	1.07	1.27	1.31	1.49	1.50
Oct. 8	.28	.36	.42	.46	.52	.75	.84	.90	1.06	1.17	1.17	1.17
Oct. 24	.27	.29	.31	.32	.33	.34	.37	.40	.44	.44	.44	.44
Greenville Airport												
Apr. 1	.24	.35	.38	.41	.43	.54	.60	.64	.67	.68	.70	.70
June 3	.20	.30	.49	.59	.68	.82	.83	.86	.86	.86	.86	.86
July 1	.44	.68	1.00	1.24	1.66	2.01	2.11	2.13	2.13	2.14	2.14	2.14
July 11	.24	.30	.41	.55	.78	1.00	1.14	1.21	1.33	1.37	1.47	1.50
July 22	.23	.45	.65	.80	.80	.80	.80	.80	.80	.81	.84	.84
Aug. 2	.25	.50	.75	.95	1.07	1.07	1.07	1.10	1.10	1.10	1.10	1.10
Aug. 26	.19	.31	.40	.42	.50	.52	.52	.53	.53	.53	.53	.54
Sept. 7	.28	.50	.59	.67	.79	.86	.93	1.05	1.16	1.29	1.34	1.37
Oct. 14	.27	.48	.67	.85	.96	1.06	1.09	1.16	1.19	1.25	1.29	1.36
Spartanburg AP												
Jan. 21	.20	.34	.43	.50	.55	.58	.62	.70	.82	.89	.97	1.00
Apr. 28	.35	.45	.47	.50	.58	.62	.63	.66	.70	.70	.70	.70
June 1	.23	.44	.57	.73	.98	1.06	1.08	1.49	1.60	1.63	1.68	1.80
July 2	.19	.37	.49	.56	.67	.72	.74	.76	.78	.79	.79	.79
July 11	.26	.50	.67	.77	.83	.87	.89	.90	.90	.94	.98	1.01
July 13	.17	.24	.31	.37	.57	.66	.72	.78	.81	.84	.85	.90
Aug. 1	.32	.54	.65	.70	.97	1.12	1.14	1.14	1.15	1.15	1.15	1.15
Aug. 4	.40	.65	.88	1.07	1.22	1.26	1.27	1.28	1.28	1.28	1.28	1.28
Sept. 5	.30	.42	.47	.51	.53	.54	.54	.54	.54	.57	.59	.60
Sept. 6	.40	.70	.85	1.05	1.35	1.40	1.46	1.51	1.55	1.58	1.62	1.65
Oct. 10	.42	.67	.98	1.20	1.65	1.81	1.99	2.39	2.59	2.77	3.00	3.06
Oct. 11	.43	.67	.98	1.02	1.12	1.31	1.36	1.38	1.38	1.38	1.38	1.38
Nov. 24	.17	.28	.37	.43	.55	.64	.79	.92	.97	1.04	1.12	1.20
SOUTH DAKOTA												
Huron Airport												
June 4	.29	.39	.50	.62	.75	.76	.77	.77	.77	.77	.77	.83
June 10	.37	.67	.79	.91	1.07	1.27	1.30	1.32	1.32	1.35	1.35	1.35
Aug. 1-2	.83	1.19	1.53	1.71	2.06	2.13	2.14	2.17	2.17	2.17	2.17	2.17
Oct. 7	.22	.33	.40	.42	.47	.53	.57	.63	.73	.78	.84	.87
Rapid City AP												
May 30	.55	.73	.83	.87	.96	1.00	1.02	1.02	1.03	1.03	1.04	1.04
June 7	.18	.30	.35	.36	.36	.36	.36	.36	.36	.36	.36	.36
Sioux Falls AP												
May 20	.24	.40	.44	.58	.68	.69	.74	.85	.96	1.02	1.13	1.17
May 28	.34	.60	.88	1.00	1.28	1.38	1.44	1.52	1.56	1.64	1.70	1.80
May 30	.15	.25	.33	.36	.58	.75	.85	.86	.87	.87	.87	.87
June 17	.20	.27	.36	.39	.43	.44	.46	.46	.46	.46	.46	.46
Aug. 2	.40	.76	1.00	1.15	1.54	2.02	2.34	2.42	2.91	2.94	2.99	3.09
Aug. 14	.24	.34	.42	.55	.67	.72	.73	.74	.77	.80	.84	.86
Sept. 22	.42	.58	.76	1.14	1.44	1.66	1.80	1.98	2.01	2.04	2.11	2.51
TENNESSEE												
Bristol Airport												
Jan. 21	.28	.30	.34	.36	.40	.47	.55	.60	.68	.75	.85	.95
Aug. 7	.15	.30	.40	.50	.57	.60	.60	.60	.61	.70	.71	.71
Aug. 19	.15	.27	.37	.40	.42	.42	.42	.42	.42	.42	.42	.42
Aug. 23	.35	.47	.55	.76	1.22	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Aug. 26	.28	.55	.72	.80	.94	.95	.95	.95	.95	.95	.95	.95
Sept. 6	.30	.40	.52	.55	.57	.60	.60	.60	.75	.75	.87	.90
Chattanooga AP												
Jan. 21	.30	.38	.52	.65	.97	1.16	1.25	1.34	1.61	1.66	1.72	1.78
May 19-20	.19	.28	.40	.49	.50	.76	.86	.88	.90	.92	.94	.94
June 12	.24	.44	.62	.79	.94	.95	.96	.96	.96	.96	.96	.96
Aug. 25	.43	.84	1.15	1.20	1.37	1.85	2.37	2.50	2.53	2.53	2.53	2.53
Sept. 5	.34	.66	.87	1.01	1.23	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Knoxville Airport												
Jan. 21	.20	.30	.36	.41	.47	.49	.51	.59	.68	.73	.88	.96
Feb. 14	.18	.31	.35	.37	.40	.46	.52	.57	.61	.62	.67	.70
Mar. 26	.25	.30	.34	.37	.43	.50	.60	.73	.81	.85	.92	1.20
May 20	.24	.34	.53	.61	.78	.80	.80	.80	.80	.80	.80	.80
June 1	.20	.35	.40	.43	.45	.45	.45	.45	.45	.45	.45	.55
July 17	.17	.30	.35	.44	.52	.53	.54	.57	.58	.58	.58	.58
July 27	.20	.33	.37	.40	.42	.45	.47	.47	.47	.47	.47	.47
Aug. 24	.42	.66	.79	.99	1.32	1.82	2.29	2.79	2.96	3.07	3.23	3.25
Memphis Airport												
May 22	.22	.33	.38	.43	.51	.55	.59	.66	.71	.72	.75	.75
June 1	.27	.36	.38	.39	.40	.41	.41	.41	.41	.41	.42	.42
June 11	.27	.52	.73	.91	1.26	1.37	1.58	1.74	1.74	1.75	1.75	1.75
June 24	*.35	*.55	*.65	*.75	*.80	*.87	*.88	*.90	*.98	*.99	*.99	*1.00
July 1	.38	.66	.94	1.09	1.11	1.11	1.12	1.12	1.12	1.15	1.15	1.16
July 5	.25	.41	.52	.57	.66	.70	.73	.77	.79	.80	.80	.81
July 22	.13	.24	.35	.45	.49	.53	.56	.58	.62	.62	.62	.63
July 24	.35	.67	.85	1.02	1.23	1.28	1.33	1.66	1.74	1.74	1.76	1.76
July 25	.13	.24	.36	.47	.54	.60	.65	.74	.80	.84	.94	1.16
July 27	.20	.36	.49	.55	.60	.60	.60	.60	.60	.60	.60	.60
Aug. 15	.19	.37	.40	.42	.43	.46	.69	.76	.79	.80	.80	.82
Aug. 19	.17	.30	.43	.51	.58	.60	.61	.62	.67	.70	.71	.71
Aug. 31	.22	.35	.42	.46	.48	.50	.54	.55	.59	.60	.62	.64
Sept. 9	.30	.59	.78	.94	1.32	1.54	1.62	1.64	1.65	1.65	1.65	1.65
Sept. 30	.15	.23	.33	.38	.52	.67	.75	.80	.84	.88	.93	.94
Nashville AP												
Jan. 21	.40	.46	.48	.52	.56	.59	.65	.68	.73	.77	.79	.80
May 26	*.20	*.34	*.52	*.77	1.03	1.08	1.10	1.10	1.10	1.10	1.10	1.10
May 27	.25	.30	.40	.44	.66	.72	.76	.76	.76	.76	.76	.76
May 28	.28	.42	.70	.76	.78	.80	.80	.80	.80	.80	.80	.80
June 1	.22	.24	.34	.46	.54	.78	.90	1.10	1.16	1.19	1.19	1.21
July 1	.20	.32	.44	.58	.61	.65	1.05	1.12	1.24	1.28	1.32	1.34
July 21-22	.10	.17	.28	.30	.53	.77	.85	.88	.92	.96	.97	.97
Sept. 5	.16	.30	.38	.44	.55	.60	.60	.60	.61	.61	.61	.61
Sept. 9	.20	.24	.32	.37	.54	.63	.65	.65	.65	.65	.65	.65
Oct. 7	.06	.16	.22	.29	.65	.73	.81	.83	.83	.83	.83	.83

* Estimated.

Station and date	5	10	15	20	30	45	60	80	100	120	150	180
	Maximum precipitation in inches (5 to 180 minutes)											
TENNESSEE (Cont'd.)												
Nashville AP (Cont'd.)												
Oct. 8	0.18	0.30	0.40	0.46	0.54	0.70	0.86	0.98	1.44	1.68	2.08	2.41
Dec. 27	.30	.33	.47	.49	.53	.63	.67	.72	.78	.84	.90	1.00
TEXAS												
Abilene												
Apr. 17	.32	.50	.55	.60	.61	.67	.67	.68	.75	.85	.90	.91
Apr. 18	.25	.41	.47	.49	.49	.49	.49	.49	.49	.49	.49	.49
June 3	.40	.58	.82	.96	1.00	1.03	1.06	1.06	1.06	1.06	1.06	1.08
June 5	.45	.65	.73	.86	.89	1.01	1.03	1.03	1.03	1.03	1.03	1.03
June 23	.62	.92	1.20	1.82	2.06	2.08	2.08	2.29	2.42	2.53	2.98	2.98
July 17	.52	.90	1.36	1.58	2.00	2.31	2.34	2.34	2.35	2.36	2.40	2.45
July 27	.21	.38	.46	.51	.56	.58	.59	.61	.65	.67	.67	.67
July 27	.38	.45	.47	.49	.49	.49	.50	.51	.51	.52	.52	.52
Oct. 3	.26	.36	.55	.60	.88	1.06	1.50	1.82	1.93	2.11	2.37	2.44
Amarillo AP												
May 4	.58	.90	.92	.93	.95	1.20	1.26	1.31	1.31	1.32	1.32	1.70
May 7	.15	.30	.36	.46	.51	.81	1.15	1.26	1.35	1.44	1.57	1.60
July 14	.24	.48	.68	.76	.88	1.01	1.14	1.37	1.42	1.45	1.45	1.45
Aug. 18	.22	.40	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42
Aug. 30	.38	.38	.44	.44	.44	.44	.44	.44	.44	.71	.88	.96
Sept. 24	.36	.50	.56	.58	.60	.60	.90	1.02	1.04	1.07	1.09	1.09
Sept. 24	.15	.28	.40	.44	.50	.51	.52	.52	.52	.52	.52	.52
Austin Airport												
Feb. 14	.18	.33	.48	.52	.55	.60	.64	.67	.68	.72	.83	.90
Apr. 8	.24	.35	.48	.58	.83	1.22	1.43	1.57	1.76	1.82	1.91	1.92
May 22	.40	.65	.86	.94	.98	1.02	1.02	1.03	1.03	1.03	1.03	1.03
June 4	.25	.48	.68	.74	.83	.87	.88	.88	.88	.88	.88	.88
June 25	.31	.38	.48	.56	.66	.79	.84	.89	.95	1.04	1.04	1.15
July 20	.54	.85	1.16	1.22	1.26	1.33	1.39	1.40	1.40	1.40	1.40	1.40
July 21	.30	.50	.72	.90	1.03	1.10	1.11	1.12	1.12	1.12	1.12	1.12
Aug. 23	.21	.31	.39	.40	.44	.52	.54	.54	.54	.54	.54	.54
Aug. 23	.23	.31	.33	.35	.35	.35	.35	.35	.35	.35	.35	.35
Aug. 27	.21	.38	.47	.57	.87	.97	1.00	1.00	1.00	1.00	1.01	1.01
Sept. 23	.81	1.22	1.58	1.89	2.19	2.39	2.45	2.48	2.52	2.53	2.54	2.54
Oct. 4	.21	.33	.33	.35	.42	.66	.81	1.07	1.13	1.20	1.30	1.56
Nov. 3	.29	.50	.69	.80	.88	.88	.91	.91	.91	.91	.91	.91
Brownsville AP												
Feb. 24	.28	.41	.50	.57	.66	.69	.70	.70	.70	.70	.70	.70
Apr. 8	.30	.53	.71	.86	1.16	1.46	1.60	1.65	1.76	1.78	1.79	1.79
June 15	.20	.39	.58	.64	.71	.91	1.12	1.14	1.14	1.33	1.35	1.35
June 16	.28	.36	.37	.38	.50	.55	.63	.63	.64	.64	.64	.64
June 25	.27	.39	.53	.67	.70	.70	.70	.70	.71	.73	.78	.78
July 25	.30	.53	.68	.76	.77	.77	.78	.78	.79	.79	.81	.83
Aug. 7	.18	.30	.38	.41	.41	.41	.41	.41	.45	.47	.47	.47
Nov. 5	.38	.68	.82	.98	1.21	1.32	1.37	1.42	1.60	1.68	1.68	1.68
Corpus Christi AP												
May 16	.26	.52	.72	.82	.85	.86	.86	.86	.86	1.02	1.02	1.02
May 21	.19	.29	.41	.53	.69	1.01	1.18	1.21	1.22	1.22	1.22	1.22
May 23	.50	.85	1.05	1.16	1.30	1.55	1.86	2.01	2.04	2.05	2.09	2.11
June 5	.38	.76	1.12	1.47	1.98	2.54	3.00	3.26	3.32	3.33	3.34	3.35
June 7	.23	.34	.41	.48	.60	.66	.66	.67	.68	.68	.68	.68
June 16	.18	.33	.47	.55	.56	.56	.56	.56	.67	.83	.83	.84
June 25	.35	.67	.87	1.07	1.65	2.14	2.21	2.22	2.22	2.22	2.22	2.22
Aug. 20	.22	.38	.47	.54	.57	.58	.58	.59	.59	.59	.64	.64
Aug. 23	.27	.40	.47	.48	.52	.59	.59	.59	.59	.59	.60	.60
Aug. 25	.21	.36	.51	.63	.78	.91	.99	1.24	1.38	1.48	1.56	1.60
Aug. 26	.19	.38	.50	.60	.70	.72	.74	.77	.81	.83	.84	.85
Sept. 7	.24	.32	.41	.42	.43	.44	.44	.44	.44	.44	.44	.44
Sept. 29	.30	.50	.67	.78	.95	1.01	1.01	1.03	1.04	1.04	1.04	1.04
Oct. 4	.44	.76	1.03	1.17	1.56	2.38	3.18	3.65	3.90	3.95	3.95	3.95
Oct. 12	.40	.60	.63	.64	.64	.64	.65	.65	.65	.65	.65	.65
Dallas Airport												
Feb. 14	.14	.23	.37	.44	.57	.75	.93	1.04	1.15	1.25	1.39	1.47
Mar. 25	.23	.40	.43	.45	.49	.57	.60	.60	.60	.60	.60	.60
May 10	.29	.38	.43	.46	.61	.68	.73	.87	.92	.97	.99	1.03
June 4	.24	.33	.34	.35	.36	.44	.47	.53	.63	.70	.80	.85
July 17	.37	.55	.56	.56	.56	.56	.56	.56	.56	.56	.56	.56
July 19	.20	.38	.49	.63	.84	1.23	1.25	1.26	1.27	1.34	1.35	1.35
Aug. 30	.37	.51	.65	.73	.92	.99	1.04	1.10	1.11	1.14	1.20	1.25
Sept. 22	.17	.30	.42	.47	.49	.49	.49	.49	.49	.49	.49	.49
Sept. 28	.60	.90	1.11	1.25	1.52	1.67	1.72	1.75	1.75	1.76	1.83	1.89
Oct. 1	.55	.79	1.10	1.25	1.30	2.00	2.40	3.40	3.89	3.93	4.09	4.15
Oct. 3	.30	.31	.32	.32	.34	.37	.41	.44	.47	.47	.47	.48
Oct. 4	.52	.80	1.03	1.13	1.25	1.43	1.57	1.68	1.79	1.90	2.00	2.13
Nov. 3	.28	.39	.48	.73	.88	1.20	1.50	1.61	1.63	1.70	1.72	1.73
Dec. 15	.17	.25	.32	.47	.53	.60	.77	.95	1.11	1.29	1.54	1.72
El Paso Airport												
Aug. 23	.37	.57	.66	.67	.68	.68	.68	.68	.68	.68	.68	.70
Fort Worth AP												
Mar. 10	.35	.50	.65	.76	.83	1.30	1.41	1.41	1.41	1.41	1.41	1.41
Mar. 31	.22	.30	.38	.40	.40	.40	.40	.40	.40	.40	.42	.42
May 10	.11	.22	.29	.36	.57	.78	.88	.93	1.05	1.10	1.14	1.15
June 20	.70	.95	1.27	1.51	1.88	2.09	2.14	2.16	2.17	2.45	2.55	2.56
July 15	.28	.31	.32	.33	.34	.35	.35	.35	.35	.35	.35	.35
July 16	.35	.42	.50	.52	.53	.58	.58	.58	.58	.58	.58	.58
July 17	.17	.25	.36	.38	.42	.44	.45	.55	.55	.55	.55	.55
July 18	.26	.38	.60	.75	1.06	1.17	1.18	1.18	1.18	1.18	1.18	1.18
Sept. 28	.25	.45	.65	.78	1.02	1.06	1.07	1.07	1.07	1.08	1.09	1.09
Oct. 1	.36	.65	.79	.90	1.37	1.80	2.43	3.08	3.55	3.82	3.85	3.85
Oct. 4	.23	.34	.45	.51	.85	1.19	1.53	1.73	1.81	1.86	1.97	2.03
Nov. 3	.25	.48	.69	.77	.84	1.12	1.50	1.53	1.53	1.53	1.53	1.53
Galveston												
Feb. 23	.24	.33	.42	.52	.66	.83	.97	1.23	1.34	1.38	1.42	1.42
Feb. 24	.13	.26	.34	.44	.62	.75	.83	.88	.89	.90	.92	.93
June 5	.21	.38	.53	.66	.88	.91	.92	.94	.94	.94	.94	.94
June 12	.28	.43	.58	.71	.92	1.06	1.07	1.07	1.07	1.07	1.07	1.07
July 8	.30	.42	.58	.67	.68	.68	.68	.68	.81	1.12	1.64	1.68
July 8	.18	.27	.34	.39	.63	.76	.91	.98	1.01	1.02	1.02	1.02
July 10	.46	.84	1.02	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
July 24	.22	.38	.43	.44	.48	.66	.68	.81	.99	1.06	1.22	1.42
Aug. 23	.26	.43	.50	.53	.55	.57	.57	.61	.63	.63	.64	.64
Aug. 26	.26	.35	.49	.58	.65	.88	.92	.96	1.01	1.21	1.26	1.30
Sept. 22	.41	.81	1.15	1.38	1.64	2.03	2.38	2.60	2.89	2.95	2.98	3.02

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
TEXAS (Cont'd.)												
Houston												
Feb. 11	0.14	0.25	0.36	0.44	0.56	0.67	0.77	0.92	1.00	1.08	1.21	1.32
Apr. 8	.23	.41	.50	.60	.65	.81	1.02	1.10	1.23	1.25	1.27	1.28
Apr. 9	.22	.31	.34	.42	.58	.72	.84	.91	.96	.99	1.18	1.32
May 10	.18	.32	.39	.46	.67	.73	.73	.73	.73	.74	.75	.75
May 11	.16	.22	.33	.43	.61	.84	1.11	1.30	1.67	1.88	1.96	1.99
May 23	.28	.51	.73	.96	1.32	1.60	1.93	2.22	2.38	2.43	2.59	2.72
June 3	.44	.84	1.15	1.44	1.95	2.25	2.25	2.33	2.79	3.16	3.26	3.27
June 25	.34	.45	.57	.79	.91	1.00	1.05	1.09	1.20	1.30	1.37	1.44
June 25	.21	.33	.42	.51	.54	.60	.62	.62	.63	.63	.64	.64
July 11	.29	.56	.76	.79	.85	.89	.89	.89	.89	.89	.89	.89
July 25	.18	.32	.45	.54	.66	.74	.77	.81	.83	.91	1.11	1.28
Aug. 1	.34	.64	.79	.84	.86	.89	.89	.89	.89	.89	.89	.89
Aug. 11	.14	.23	.36	.38	.40	.44	.49	.52	.59	.59	.61	.62
Aug. 13	.21	.35	.45	.47	.53	.59	.60	.60	.60	.60	.60	.60
Sept. 22	.18	.34	.49	.59	.68	.86	.94	.95	.96	.98	1.04	1.41
Oct. 13	.32	.39	.43	.48	.50	.53	.62	.81	1.02	1.04	1.12	1.13
Dec. 31	.21	.36	.45	.51	.56	.65	.77	.87	.93	1.01	1.13	1.23
Laredo Airport												
Feb. 13	.28	.40	.45	.48	.48	.49	.49	.51	.54	.56	.58	.58
June 25	.39	.75	1.09	1.27	1.50	1.58	1.60	2.48	2.75	2.80	2.80	2.80
July 11	.29	.39	.42	.42	.43	.43	.43	.43	.43	.43	.43	.43
July 19	.30	.54	.69	.71	.73	.73	.73	.73	.73	.73	.73	.73
July 20	.35	.58	.73	.95	1.15	1.19	1.19	1.19	1.19	1.19	1.19	1.20
Aug. 13	.32	.61	.89	1.04	1.41	1.64	1.65	1.65	1.65	1.65	1.65	1.65
Aug. 24	.23	.46	.49	.54	.65	.72	.75	.75	.75	.75	.75	.75
Aug. 24	.45	.63	.77	.89	1.06	1.20	1.36	1.41	1.41	1.41	1.41	1.41
Oct. 8	.16	.30	.34	.35	.37	.37	.37	.37	.37	.37	.37	.37
Nov. 3	.20	.34	.44	.53	.61	.67	.69	.69	.69	.69	.69	.69
Lubbock												
June 2	.59	.96	1.34	1.46	1.51	1.53	1.54	1.55	1.55	1.55	1.55	1.55
June 3	.31	.47	.68	.80	.95	1.02	1.05	1.09	1.14	1.19	1.25	1.36
June 3	.20	.38	.54	.68	.78	.89	.93	.94	.94	.94	.94	.94
June 20	.21	.30	.44	.64	.80	.88	.92	.93	.93	.93	.93	.93
Sept. 20	.19	.32	.39	.40	.40	.40	.40	.40	.40	.40	.40	.40
Midland Airport												
May 4	.20	.34	.44	.51	.72	.86	.91	.95	.95	.96	.96	.96
May 7	.30	.40	.46	.54	.72	.94	1.04	1.24	1.30	1.30	1.31	1.31
May 15	.18	.30	.38	.48	.59	.63	.65	.69	.71	.73	.73	.73
June 1	.20	.36	.48	.49	.54	.54	.65	.66	.66	.66	.66	.66
June 5	.16	.26	.40	.46	.49	.52	.53	.58	.64	.72	.72	.73
July 1	.08	.16	.24	.32	.48	.72	.96	1.16	1.36	1.49	1.62	1.74
July 2	.20	.38	.44	.59	.80	1.00	1.07	1.16	1.18	1.31	1.40	1.49
Aug. 23	.18	.34	.42	.46	.53	.53	.53	.53	.53	.53	.53	.53
Sept. 3	.32	.62	.78	.94	1.30	1.33	1.33	1.34	1.34	1.35	1.38	1.38
Sept. 30	.22	.38	.56	.69	.91	.93	.93	.95	.95	.95	.95	.95
Oct. 3	.36	.65	.70	.72	.82	.82	.82	.82	.82	.82	.82	.82
Port Arthur AP												
Jan. 15	.25	.30	.33	.34	.34	.36	.36	.37	.39	.40	.40	.40
Apr. 1	.30	.46	.59	.66	.69	.69	.70	.70	.70	.70	.70	.70
May 11	.28	.39	.48	.55	.80	1.07	1.27	1.41	1.70	1.80	1.85	2.15
June 3	.25	.40	.44	.44	.44	.44	.49	.59	.60	.60	.60	.60
June 5	.35	.56	.65	.85	.88	.89	.91	.94	.94	.94	.94	.94
June 12	.52	.73	.82	.86	.87	.87	.87	.87	.87	.87	.87	.87
June 14	.23	.39	.42	.43	.45	.45	.46	.47	.47	.48	.48	.48
July 2	.30	.50	.67	.76	.80	.81	.82	.82	.82	.82	.82	.82
July 5	.39	.68	.95	1.27	1.80	2.37	2.82	3.10	3.22	3.23	3.27	3.35
July 9	.50	.88	1.24	1.51	1.98	2.65	2.89	2.93	2.95	2.95	2.95	2.95
July 13	.37	.62	.80	.93	1.07	1.08	1.08	1.08	1.08	1.08	1.08	1.08
July 18	.20	.37	.42	.54	.66	.92	.99	1.06	1.06	1.06	1.06	1.06
July 25	.29	.48	.58	.78	1.02	1.28	1.46	1.68	1.73	1.75	1.96	2.05
Aug. 1	.27	.43	.55	.66	.83	.86	.87	.88	.88	.89	.91	.93
Aug. 14	.32	.36	.37	.38	.39	.42	.43	.45	.49	.51	.51	.51
Sept. 20	.19	.30	.40	.42	.43	.43	.43	.43	.43	.43	.43	.43
Oct. 13	.41	.62	.80	.83	.88	1.11	1.29	1.44	1.52	1.55	1.89	1.96
Oct. 31	.27	.52	.78	.96	1.09	1.51	1.58	1.79	1.88	1.93	2.05	2.19
Nov. 4	.24	.37	.46	.52	.68	1.04	1.25	1.62	1.86	1.90	2.03	2.06
Dec. 15	.30	.42	.45	.46	.46	.53	.56	.58	.62	.65	.74	.74
San Angelo												
June 3	.28	.52	.72	.94	1.44	1.62	1.68	1.68	1.68	1.68	1.68	1.68
July 15	.48	.72	.88	1.20	1.54	1.60	1.62	1.62	1.62	1.63	1.64	1.65
July 17	.21	.27	.45	.55	.69	.73	.75	.77	.79	.83	.85	.96
July 18	.26	.36	.56	.66	.84	1.08	1.25	1.38	1.55	1.57	1.61	1.66
July 20	.18	.26	.32	.38	.54	.80	.92	.99	1.00	1.01	1.02	1.03
Sept. 24	.28	.54	.70	.88	1.32	1.47	1.61	1.65	1.68	1.73	1.79	2.51
Sept. 29	.36	.57	.68	.84	1.22	1.50	1.51	1.62	1.62	1.62	1.62	1.62
Sept. 30	.40	.58	.92	1.02	1.52	1.94	1.95	1.95	1.96	2.38	3.14	3.46
Sept. 30	.18	.28	.41	.43	.44	.66	.69	.72	.72	.74	.75	.76
Oct. 3	.30	.40	.52	.66	.82	1.06	1.30	1.78	1.94	2.20	2.30	2.38
San Antonio AP												
Feb. 14	.16	.27	.32	.40	.46	.51	.62	.63	.71	.75	.78	.79
Apr. 11	.16	.30	.35	.39	.46	.61	.64	.69	.70	.75	.85	.88
May 16	.20	.29	.39	.46	.57	.72	.82	.82	.82	.82	.82	.82
July 11	.25	.41	.56	.59	.60	.60	.60	.60	.60	.60	.65	.81
Aug. 8	.41	.72	1.00	1.20	1.50	1.62	1.65	1.65	1.65	1.65	1.65	1.66
Oct. 3-4	.37	.61	.80	1.02	1.31	1.55	1.83	2.07	2.16	2.31	2.41	2.65
Nov. 23	.32	.50	.61	.68	.79	.87	.94	.98	.98	.98	.98	.98
Victoria												
May 15	.15	.25	.40	.43	.45	.45	.45	.45	.45	.45	.45	.45
May 23	.20	.38	.58	.77	1.15	1.25	1.40	1.55	1.62	1.77	1.80	1.82
June 24	.28	.46	.63	.64	.65	.66	.66	.78	.81	.81	.81	.83
June 25	.24	.35	.38	.41	.46	.59	.64	.72	.85	.90	.94	.95
Aug. 8	.35	.60	.84	.99	1.29	1.52	1.64	1.99	2.22	2.30	2.34	2.42
Sept. 22	.29	.52	.58	.58	.58	.58	.58	.58	.58	.58	.60	.76
Sept. 29	.29	.47	.56	.62	.82	1.15	1.24	1.29	1.31	1.32	1.34	1.34
Oct. 4	.25	.44	.61	.77	1.02	1.34	1.71	1.95	2.24	2.51	2.71	2.85
Oct. 13	.38	.73	.95	1.17	1.63	2.10	2.26	2.45	2.48	2.49	2.50	2.52
Nov. 1	.15	.30	.40	.41	.50	.53	.54	.54	.54	.54	.56	.57
Dec. 31	.37	.53	.90	1.05	1.20	1.30	1.45	1.50	1.58	1.60	1.60	1.60
Waco Airport												
June 4	.17	.33	.48	.60	.85	.92	.94	.99	1.01	1.05	1.09	1.13
June 12	.17	.28	.35	.50	.75	.86	.88	.89	.90	.92	.92	.92
June 24	.25	.40	.48	.53	.70	.70	.70	.70	.70	.70	.70	.70
June 25	.16	.31	.44	.50	.55	.55	.55	.55	.55	.55	.55	.56
Aug. 31	.32	.61	.90	.96	.98	1.03	1.05	1.11	1.15	1.19	1.25	1.27
Oct. 4	.25	.38	.47	.48	.53	.54	.56	.57	.68	.70	.78	.88
Oct. 13	.18	.32	.42	.55	.76	.90	1.07	1.17	1.30	1.50	1.70	1.78

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
TEXAS (Cont'd.)												
Waco AP (Cont'd.)												
Nov. 3	0.20	0.33	0.37	0.38	0.39	0.39	0.41	0.43	0.43	0.44	0.53	0.65
Dec. 11	.20	.36	.40	.41	.45	.50	.51	.51	.51	.53	.53	.54
Dec. 15	.25	.32	.32	.34	.37	.45	.52	.60	.80	1.05	1.15	1.27
Wichita Falls												
Apr. 17	.29	.35	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36
June 2	.25	.48	.66	.77	.88	.93	.96	1.01	1.11	1.27	1.28	1.29
June 21	.30	.52	.82	.92	1.26	1.46	1.54	1.70	1.78	1.84	1.90	1.97
July 1	.14	.26	.37	.44	.64	.67	.71	.80	1.02	1.13	1.20	1.31
July 15	.18	.32	.43	.60	.71	.74	.80	1.24	1.41	1.45	1.49	1.56
Sept. 3	.16	.32	.47	.58	.67	.78	.83	.85	.86	1.02	1.02	1.18
Oct. 2	.16	.30	.40	.50	.74	.93	1.20	1.50	1.52	1.55	1.60	1.88
Nov. 3	.16	.24	.31	.36	.56	.66	.74	.76	.88	1.02	1.02	1.03
UTAH												
Milford Airport						None						
Salt Lake City AP												
Aug. 20	.25	.26	.27	.28	.30	.30	.30	.30	.31	.31	.31	.34
VERMONT												
Burlington AP												
Aug. 17	.23	.33	.46	.50	.52	.52	.52	.52	.52	.52	.52	.52
Aug. 29	.26	.40	.46	.51	.57	.57	.57	.57	.57	.57	.57	.57
Sept. 10	.22	.32	.43	.47	.64	.75	.79	.80	.81	.81	.86	.93
VIRGINIA												
Lynchburg Airport												
Jan. 21	.32	.45	.51	.52	.53	.54	.56	.60	.68	.75	.82	.83
July 27	.36	.51	.71	.87	.90	.93	1.42	1.48	1.52	1.55	1.55	1.56
July 30	.31	.42	.46	.47	.50	.51	.54	.54	.54	.54	.54	.54
Aug. 8	.23	.43	.54	.57	.61	.63	.65	.66	.66	.66	.66	.66
Aug. 23	.18	.33	.41	.46	.49	.50	.50	.50	.50	.50	.50	.50
Aug. 23-24	.14	.25	.37	.48	.60	.81	.91	.93	.96	.96	.96	.96
Aug. 24	.15	.27	.36	.45	.61	.65	.84	.84	.84	.91	.92	.92
Aug. 31	.20	.27	.39	.41	.42	.43	.43	.43	.43	.43	.43	.43
Sept. 8	.19	.34	.52	.68	.78	1.01	1.06	1.10	1.10	1.10	1.10	1.10
Sept. 29	.19	.31	.37	.43	.46	.47	.51	.53	.56	.57	.66	.67
Norfolk Airport												
Jan. 22	.24	.33	.33	.44	.51	.53	.54	.58	.61	.61	.62	.62
June 2	.18	.29	.36	.39	.54	.69	.74	.94	1.06	1.11	1.14	1.17
June 13	.26	.38	.39	.39	.40	.40	.40	.40	.40	.40	.40	.40
July 2	.45	.83	1.06	1.12	1.14	1.14	1.14	1.15	1.15	1.15	1.15	1.15
July 9	.41	.48	.50	.50	.50	.50	.50	.63	.64	.64	.64	.64
July 12	.12	.20	.29	.35	.53	.64	.76	.81	.86	.88	.89	.89
July 14	.21	.40	.55	.65	.71	.92	1.02	1.19	1.24	1.27	1.57	1.80
Aug. 8	.30	.40	.46	.56	.72	.97	1.04	1.11	1.13	1.13	1.13	1.13
Aug. 31	.37	.58	.68	.70	.72	.72	.73	.73	.73	.73	.73	.73
Sept. 16	.42	.74	1.07	1.29	1.75	1.79	1.98	2.27	2.35	2.36	2.40	2.40
Sept. 28	.36	.64	.80	.99	1.31	1.71	2.19	2.34	2.85	3.42	4.52	4.93
Oct. 10	.30	.34	.49	.60	.89	1.08	1.14	1.27	1.31	1.35	1.42	1.42
Oct. 24	.43	.73	.87	1.27	1.69	2.03	2.19	2.27	2.43	2.56	2.88	3.05
Richmond AP												
May 31	.21	.30	.39	.45	.51	.54	.59	.61	.64	.66	.66	.66
June 2	.29	.46	.48	.49	.58	.65	.72	.84	.91	.92	.93	.93
June 13	.25	.47	.63	.76	1.09	1.36	1.47	1.53	1.87	1.98	2.12	2.12
July 1	.51	.87	1.17	1.39	1.57	1.73	1.99	2.18	2.28	3.20	4.10	4.19
July 20	.58	1.09	1.31	1.50	1.63	1.88	2.02	2.13	2.16	2.18	2.22	2.22
Aug. 23	.30	.48	.59	.63	.66	.68	.69	.69	.69	.69	.69	.69
Aug. 27	.26	.45	.59	.66	.71	.75	.76	.78	.79	.82	.84	.85
Aug. 29	.19	.31	.35	.38	.43	.52	.52	.53	.54	.54	.54	.54
Aug. 31	.29	.57	.73	.83	1.01	1.19	1.26	1.28	1.31	1.32	1.32	1.34
Sept. 29	.29	.44	.54	.55	.55	.55	.55	.55	.55	.55	.55	.55
Sept. 30	.43	.56	.59	.61	.93	1.24	1.46	1.76	1.80	1.82	1.83	1.84
Nov. 6	.20	.34	.47	.56	.70	.87	.92	1.01	1.28	1.39	1.51	1.77
Nov. 24	.18	.26	.38	.43	.48	.69	.78	1.10	1.23	1.31	1.41	1.47
Roanoke Airport												
May 5	.26	.45	.46	.46	.46	.46	.46	.46	.46	.46	.46	.46
June 2	.13	.23	.34	.42	.67	.99	1.27	1.53	1.67	1.79	1.96	2.01
July 26	.38	.58	.72	.85	.88	.94	.95	.97	.98	.99	.99	.99
Aug. 1	.20	.40	.57	.60	.68	.68	.90	1.00	1.08	1.09	1.09	1.16
Aug. 23	.35	.54	.70	.78	.83	.85	.85	.85	.85	.85	.85	.85
Aug. 30	.15	.25	.37	.40	.40	.40	.40	.40	.40	.40	.40	.40
Sept. 30	.16	.32	.37	.44	.50	.56	.60	.64	.70	.75	.84	1.00
WASHINGTON												
Spokane Airport						None						
Stampede Pass												
Sept. 26	.43	.45	.46	.47	.51	.61	.68	.80	.82	.95	1.19	1.28
Tatoosh Island						None						
Walla Walla						None						
Yakima Airport						None						
WEST VIRGINIA												
Charleston AP												
Feb. 10	.32	.33	.34	.44	.45	.47	.47	.47	.47	.47	.47	.47
July 6	.22	.33	.37	.38	.53	.72	.79	.86	.88	.92	.95	.96
July 18	.48	.65	.72	.73	.74	.74	.74	.74	.75	.75	.77	.77
July 19	.35	.62	.82	.83	.84	.84	.84	1.22	1.27	1.28	1.29	1.29
July 27	.45	.67	.82	1.00	1.22	1.62	1.72	1.77	1.83	1.86	1.87	1.87
Aug. 28	.23	.43	.51	.55	.61	.66	.69	.73	.74	.76	.81	.86
Huntington												
Jan. 21	.25	.27	.28	.29	.34	.38	.46	.52	.60	.69	.80	.84
Apr. 2	.20	.40	.50	.60	.71	.71	.71	.72	.73	.73	.75	.75
Apr. 27	.25	.35	.45	.55	.64	.71	.77	.79	.80	.80	.80	.80
May 25	.30	.55	.80	1.00	1.25	1.30	1.35	1.40	1.41	1.41	1.41	1.41
June 12	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28
June 26	.27	.40	.44	.45	.46	.46	.46	.46	.46	.46	.46	.46
July 5	.35	.45	.57	.60	----	----	--	1.39	1.39	1.40	1.41	1.75
July 5	.20	.35	.38	.41	.45	.48	.48	.48	.48	.53	.57	.57
July 5	.27	.28	.30	.31	.35	.47	.52	.52	.52	.54	.57	.62

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
WEST VIRGINIA (Cont'd.)												
Huntington (Cont'd.)												
July 27	0.45	0.75	1.10	1.16	1.25	1.43	1.52	1.59	1.63	1.67	1.75	1.78
July 28	.35	.42	.45	.47	.52	.55	.56	.56	.56	.56	.56	.56
July 30	.26	.35	.42	.45	.46	.47	.47	.50	.51	.51	.51	.51
July 31	.29	.45	.60	.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Aug. 15	.35	.36	.40	.42	.42	.42	.42	.42	.42	.42	.42	.42
Aug. 18	.25	.40	.48	.51	.53	.54	.54	.54	.54	.54	.54	.54
Aug. 28	.30	.38	.44	.50	.73	.75	.76	.76	.76	.76	.76	.76
Aug. 30	.26	.38	.41	.49	.53	.57	.58	.58	.58	.58	.58	.58
Sept. 10	.35	.46	.66	.76	.92	.99	1.01	1.03	1.09	1.18	1.29	1.32
Parkersburg												
Jan. 21	.20	.30	.40	.47	.55	.62	.65	.73	.80	.87	.97	1.01
Apr. 28	.30	.35	.36	.36	.38	.39	.39	.39	.41	.56	.56	.57
May 12	.13	.21	.28	.30	.51	.65	.67	.69	.69	.69	.70	.70
May 13	.32	.47	.63	.68	.73	.75	.78	.85	.87	.88	.88	.88
June 25	.55	.75	.88	1.00	1.11	1.15	1.15	1.17	1.17	1.17	1.17	1.17
Aug. 17	.25	.35	.53	.63	.75	.79	.81	.81	.81	.81	.81	.81
Oct. 23	.27	.31	.34	.36	.37	.38	.47	.56	.70	.78	.93	1.06
WISCONSIN												
Green Bay Airport												
May 10	.49	.53	.54	.56	.56	.61	.63	.63	.65	.73	.75	.76
May 28	.20	.32	.34	.36	.55	.68	.70	.73	.73	.73	.73	.73
May 31	.75	.78	.81	.83	.85	.91	.92	.92	.92	.94	.94	.95
July 23	.37	.58	.66	.76	.79	.79	.79	.79	.79	.79	.79	.79
July 28	.37	.69	.98	1.35	1.46	1.66	1.95	2.04	2.17	2.24	2.45	2.88
Sept. 22	.28	.43	.53	.58	.78	.99	1.01	1.07	1.45	1.71	1.86	1.90
La Crosse AP												
May 20	.31	.36	.42	.44	.58	.63	.63	.63	.63	.63	.79	.83
May 31	.24	.37	.39	.41	.43	.48	.55	.64	.74	.79	.86	.94
June 24	.29	.51	.61	.70	.73	.74	.74	.74	.74	.75	.76	.77
July 8	.32	.40	.52	.54	.60	.60	.60	.60	.60	.60	.61	.63
Aug. 3	.19	.30	.40	.47	.55	.59	.68	.79	.91	1.02	1.35	1.57
Aug. 16	.35	.60	.73	.78	.80	.80	.80	.80	.80	.80	.80	.80
Aug. 26	.24	.36	.51	.65	.84	1.02	1.38	1.69	1.85	1.93	2.00	2.04
Sept. 22	.32	.42	.52	.60	.67	.67	.67	.67	.67	.67	.95	1.10
Sept. 22	.29	.48	.53	.55	.56	.58	.78	.97	.98	1.03	1.03	1.03
Sept. 26	.18	.31	.35	.52	.65	.75	.85	.93	.97	.99	1.02	1.02
Madison Airport												
May 10	.28	.36	.41	.47	.51	.57	.62	.70	.77	.79	.81	.84
May 20	.23	.41	.66	.76	.84	.87	.88	.88	.88	.88	.88	.88
June 28	.41	.73	.86	1.01	1.09	1.17	1.17	1.17	1.17	1.17	1.17	1.17
June 28	.27	.30	.34	.35	.35	.35	.35	.35	.35	.35	.35	.35
July 23	.33	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
July 29	.45	.70	.84	1.06	1.42	1.57	1.76	1.78	1.94	1.95	1.95	1.96
Aug. 27	.16	.27	.33	.42	.51	.77	.81	.98	1.06	1.10	1.29	1.32
Sept. 23	.25	.36	.45	.51	.76	.86	1.01	1.09	1.11	1.11	1.11	1.13
Sept. 26	.20	.28	.35	.37	.39	.41	.43	.44	.49	.50	.67	.72
WISCONSIN (Cont'd.)												
Milwaukee AP												
June 30	0.21	0.30	0.31	0.36	0.48	0.52	0.53	0.54	0.54	0.54	0.54	0.54
July 17-18	.22	.32	.48	.62	.74	1.01	1.20	1.27	1.61	1.62	1.63	1.70
July 18	.28	.45	.45	.46	.46	.46	.46	.46	.46	.46	.46	.46
July 18	.12	.20	.28	.37	.46	.68	.85	1.03	1.13	1.19	1.29	1.42
Aug. 21	.44	.80	.94	1.00	1.17	1.22	1.24	1.25	1.25	1.25	1.26	1.27
Aug. 23	.32	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34	.34
Aug. 28	.18	.35	.39	.46	.56	.56	.56	.56	.56	.56	.56	.56
WYOMING												
Casper Airport						None						
Cheyenne Airport												
Aug. 13	.26	.42	.44	.46	.46	.46	.46	.46	.46	.46	.46	.46
Lander Airport						None						
Sheridan Airport												
June 21	.39	.60	.68	.72	.77	.78	.78	.78	.78	.78	.78	.78
DELAYED DATA												
DIST. OF COLUMBIA												
Washington												
May 23	0.35	0.60	0.63	0.66	0.67	0.72	0.98	1.02	1.02	1.02	1.02	1.02
June 2	.15	.23	.33	.43	.50	.65	.90	1.10	1.25	1.33	1.61	1.68
July 1	.18	.30	.40	.53	.63	.89	.96	.96	.96	.97	.97	.97
July 31	.16	.28	.36	.45	.57	.68	.70	.90	.95	.95	.95	.95
Aug. 8	.30	.60	.72	.92	1.17	1.87	2.29	2.65	2.72	2.75	2.75	2.75
Sept. 1	.35	.37	.38	.45	.45	.45	.45	.45	.45	.45	.45	.45
MASSACHUSETTS												
Pittsfield AP												
July 2	.25	.40	.53	.58	.63	.75	.75	.75	.75	.81	.82	.82
July 6	.15	.23	.30	.35	.52	.55	.55	.55	.55	.55	.55	.55
Aug. 17	.18	.28	.45	.57	.72	.84	.84	1.10	1.11	1.12	1.13	1.13
Sept. 3	.48	.80	1.05	1.05	1.05	1.33	1.47	1.52	1.53	1.56	1.57	1.57
Oct. 6	.13	.24	.33	.43	.59	.66	.69	.71	.72	.75	.75	.75
Oct. 7	.15	.25	.35	.47	.62	.75	.83	.95	1.05	1.13	1.16	1.17
Nov. 14	.25	.35	.49	.60	.75	.85	.85	1.00	1.07	1.10	1.11	1.12
NORTH DAKOTA												
Devils Lake												
June 27	.43	.72	.76	.78	.81	.83	.85	.94	1.06	1.19	1.31	1.32
Aug. 5	.14	.28	.42	.50	.60	.63	.65	.69	.71	.71	.71	.71

SUNSHINE, AMOUNT AND PERCENT

Station	January Hours	January Percent of possible	February Hours	February Percent of possible	March Hours	March Percent of possible	April Hours	April Percent of possible	May Hours	May Percent of possible	June Hours	June Percent of possible	July Hours	July Percent of possible	August Hours	August Percent of possible	September Hours	September Percent of possible	October Hours	October Percent of possible	November Hours	November Percent of possible	December Hours	December Percent of possible	Annual Hours	Annual Percent of possible
ALABAMA																										
Birmingham	182	58	136	44	260	70	265	68	318	74	306	71	304	69	307	74	230	62	167	48	196	62	135	44	2806	62
Montgomery	193	61	120	39	232	63	255	65	292	68	254	59	269	62	276	67	212	57	137	39	192	61	188	60	2620	58
ALASKA																										
Anchorage	60	29	80	31	262	71	210	48	296	54	—	60	—	23	194	40	163	42	137	44	35	16	25	14	—	13
Juneau	---	—	—	--	---	—	152	35	—	—	---	45	---	23	120	25	138	36	166	33	50	21	4	2	---	—
Nome	83	49	53	22	209	57	202	44	184	32	-	43	-	38	300	59	160	41	113	38	48	25	60	16	-	42
ARIZONA																										
Phoenix	302	95	268	87	364	98	365	94	420	97	399	93	409	93	375	91	356	96	322	91	289	92	232	75	4101	92
Prescott	261	83	206	67	327	88	329	84	363	84	361	83	306	70	239	57	301	81	282	80	265	85	199	65	3439	77
Tucson	297	93	256	83	361	97	334	86	419	98	374	87	350	81	297	72	331	89	312	89	246	78	211	67	3788	85
Yuma	305	96	276	89	363	98	370	95	423	99	416	[illegible]	371	85	384	93	344	93	341	97	288	91	235	75	4116	93
ARKANSAS																										
Ft. Smith	147	47	144	47	256	69	233	59	237	55	280	64	225	51	239	57	211	57	205	59	185	60	111	36	2473	56
Little Rock	145	46	168	55	284	77	262	67	297	69	324	75	309	70	298	72	219	59	249	71	196	63	132	43	2883	65
CALIFORNIA																										
Eureka (U)	136	45	166	56	231	62	211	53	323	72	252	56	274	60	236	55	227	61	175	51	174	59	174	60	2579	58
Fresno	152	49	213	70	346	93	357	91	405	93	438	100	436	98	389	93	337	90	345	99	303	99	261	87	3982	89
Los Angeles (U)	257	81	226	73	348	94	269	69	294	68	337	78	387	88	337	81	232	63	269	77	278	89	208	68	3442	77
Red Bluff	150	50	181	60	312	84	367	92	382	86	425	95	450	99	408	96	341	91	316	92	282	94	227	78	3841	86
Sacramento	136	45	188	63	318	86	370	93	423	96	444	100	449	100	416	98	354	95	318	92	286	94	242	82	3944	89
San Diego	254	80	220	71	326	88	218	56	243	57	276	65	316	73	303	73	219	59	239	68	239	76	201	64	3054	69
San Francisco (U)	189	62	208	69	323	87	345	87	359	81	394	89	366	82	319	76	295	79	284	82	200	81	210	70	3492	80
COLORADO																										
Denver	235	78	183	61	228	61	245	61	246	55	322	72	356	78	297	70	288	77	[illegible]	61	213	71	221	76	3045	68
Grand Junction	180	59	142	47	222	60	313	79	351	79	387	87	381	84	297	70	214	57	237	68	270	[illegible]	205	70	3199	72
Pueblo	238	78	209	69	270	73	259	65	223	73	355	80	375	83	312	74	283	76	251	72	269	89	222	75	3266	76
CONNECTICUT																										
Hartford	146	49	167	56	218	59	227	57	313	69	197	43	234	51	243	57	259	69	177	52	92	31	126	42	2393	53
New Haven	175	59	196	66	231	62	223	56	318	71	225	50	262	57	296	69	293	78	199	57	122	[illegible]	128	45	2668	[illegible]
FLORIDA																										
Apalachicola (U)	222	71	183	59	245	66	272	70	352	85	322	74	335	78	283	69	370	73	225	64	210	66	239	75	3258	71
Jacksonville	187	58	157	50	182	49	256	66	282	66	212	50	236	55	223	54	136	37	123	35	160	50	147	46	2301	51
Key West	221	66	262	83	238	64	300	79	294	71	245	60	238	57	247	61	251	68	247	69	191	58	214	65	2948	67
Lakeland (U)	162	49	143	46	191	51	226	59	264	63	248	60	253	60	223	55	227	61	197	55	166	51	200	62	2500	56
Miami (U)	190	57	222	70	181	48	245	64	216	52	233	57	155	37	202	49	150	41	166	46	167	51	188	57	2315	53
Pensacola (U)	163	50	72	23	184	50	222	57	273	60	248	59	251	58	251	61	252	68	129	36	179	56	167	53	2391	53
Tampa	190	58	160	51	209	56	266	69	255	61	189	45	231	54	165	41	208	56	182	51	170	52	174	54	2399	54
GEORGIA																										
Atlanta	175	55	115	37	219	59	238	60	251	58	295	68	260	59	275	66	218	59	139	40	194	62	148	48	2527	56
Macon	179	56	113	37	212	57	233	60	289	67	318	74	253	58	320	77	231	62	147	42	210	67	183	59	2688	60
Savannah	197	62	119	39	215	58	261	67	294	69	299	70	241	56	227	55	159	43	140	40	185	58	173	55	2510	56
HAWAII																										
Hilo	106	31	109	34	197	53	74	20	[illegible]	29	208	52	260	64	190	48	121	33	182	51	116	34	86	25	1765	40
Honolulu (U)	206	60	205	64	325	87	322	85	349	85	349	87	363	88	*280	70	259	70	269	74	*115	57	[illegible]	55	3228	75
Lihue	186	55	171	54	218	59	150	39	230	56	289	72	264	64	277	69	259	70	278	77	284	85	258	77	2864	65
IDAHO																										
Boise	122	42	123	43	246	67	315	78	328	72	363	79	431	92	372	86	264	70	258	76	220	76	211	76	3253	73
Pocatello	104	36	131	44	260	70	309	78	280	62	373	81	420	90	356	83	237	64	235	69	235	80	185	66	3025	70
ILLINOIS																										
Cairo (U)	167	54	156	52	283	76	256	65	246	56	304	69	291	65	311	74	279	75	[illegible]	61	151	50	112	37	2770	62
Chicago	143	48	154	52	196	53	199	50	255	57	294	65	282	61	249	58	218	58	171	50	146	50	100	35	2407	54
Moline	158	53	154	52	203	55	228	57	238	53	305	67	328	71	296	69	228	61	137	40	151	51	76	26	2502	56
Peoria	159	53	144	48	186	50	208	52	249	55	310	69	329	72	269	63	238	63	151	44	144	48	89	31	2476	56
Springfield	141	47	145	48	199	54	226	57	269	60	327	73	324	71	285	67	266	71	149	43	146	49	72	25	2549	57
INDIANA																										
Evansville	155	51	148	49	263	71	253	64	286	65	356	80	343	76	311	74	304	82	226	65	137	45	[illegible]	28	2864	64
Ft. Wayne	142	48	140	47	179	48	185	46	233	52	281	62	364	80	333	78	252	67	168	49	138	46	164	57	2579	58
Indianapolis	149	49	161	54	226	61	248	62	*278	63	334	75	339	75	280	66	270	72	186	54	154	51	123	42	2505	62
IOWA																										
Burlington	169	57	183	61	242	65	251	63	289	64	357	79	356	78	327	77	251	67	180	52	180	60	104	36	2889	65
Des Moines	164	55	172	58	199	54	238	60	228	51	335	74	335	73	279	65	220	59	194	56	179	60	100	35	2643	59
Sioux City	166	57	176	59	209	56	268	67	239	53	353	77	378	82	311	72	216	58	197	58	166	56	132	47	2811	63
KANSAS																										
Concordia (U)	185	61	185	62	252	68	257	65	340	57	361	81	389	86	355	84	260	70	246	71	255	85	197	68	3282	72
Dodge City	231	75	175	58	246	66	248	63	270	[illegible]	345	78	327	73	326	77	301	81	244	70	232	76	142	48	3087	69
Topeka	149	49	149	50	201	54	231	58	231	52	305	68	317	70	340	80	245	66	193	56	183	61	116	39	2660	60
Wichita	162	53	165	55	230	62	230	58	218	50	337	76	307	68	356	84	265	71	224	64	241	79	154	52	2889	65
KENTUCKY																										
Louisville	131	43	138	46	200	54	230	58	247	56	289	65	274	61	240	57	276	74	185	53	132	43	66	22	2408	53
LOUISIANA																										
New Orleans (U)	191	59	116	37	204	55	191	49	240	57	206	49	152	35	262	64	260	70	140	39	186	[illegible]	189	60	2337	53
Shreveport	142	45	144	47	272	73	203	52	300	70	291	68	317	73	307	74	244	66	239	68	[illegible]	64	174	56	2834	64
MAINE																										
Portland	149	51	143	49	230	62	202	50	279	61	168	36	315	67	357	59	246	65	167	49	91	[illegible]	138	49	2485	52
MARYLAND																										
Baltimore	181	60	172	57	247	67	206	52	276	62	333	74	284	63	287	68	282	75	200	58	126	42	106	36	2700	60
MASSACHUSETTS																										
Blue Hill Obs. (R)	149	52	146	51	207	58	184	48	278	64	161	37	231	52	251	61	231	64	166	50	88	31	114	41	2206	51
Boston	180	61	195	66	239	65	224	56	343	76	206	45	306	66	284	66	278	74	188	55	114	39	153	54	2710	60
Nantucket	164	55	154	52	237	[illegible]	218	55	328	73	268	59	254	55	213	50	251	67	169	49	85	29	[illegible]	43	2465	54
MICHIGAN																										
Alpena	117	41	171	59	234	63	227	56	266	58	311	67	347	74	231	53	229	61	39	11	62	22	86	31	2320	52
Detroit	92	31	145	49	183	49	177	44	273	60	332	73	326	70	273	64	242	65	112	33	82	28	108	38	2345	53
Escanaba (U)	136	48	182	62	236	64	237	58	226	49	289	61	307	65	201	46	184	49	62	18	77	27	80	30	2226	50
Grand Rapids	67	23	110	37	165	[illegible]	172	[illegible]	258	[illegible]	332	72	326	70	270	63	216	58	67	19	58	20	[illegible]	31	2128	48
Lansing	99	34	138	47	190	51	227	57	†300	66	*317	69	*303	65	268	62	271	72	109	32	49	17	106	38	2377	51
Marquette (U)	140	50	174	60	246	67	255	63	285	61	346	73	378	79	233	53	204	54	97	29	90	32	97	36	2545	57
Sault Ste. Marie	109	39	158	54	220	59	229	56	229	49	278	59	335	70	190	43	181	48	68	20	61	22	80	30	2138	48
MINNESOTA																										
Duluth	159	57	191	66	251	68	224	55	204	44	308	65	383	80	225	51	194	51	100	30	122	43	115	43	2476	55
Minneapolis	193	67	210	72	240	65	226	56	226	49	321	69	390	83	239	55	213	57	126	37	140	49	129	47	2653	59

See reference notes at end of table.

SUNSHINE, AMOUNT AND PERCENT

YEAR 1959

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
MISSISSIPPI																										
Jackson	162	51	122	39	260	70	235	60	275	64	275	64	286	66	268	65	228	62	145	41	169	54	139	44	2564	57
Vicksburg (U)	146	46	108	35	245	66	196	50	233	54	239	56	230	53	240	58	193	52	157	44	159	50	154	49	2300	51
MISSOURI																										
Columbia	150	49	153	51	206	56	224	56	202	45	246	55	312	69	281	66	239	64	158	46	158	52	106	36	2435	55
Kansas City	152	50	157	52	198	53	228	58	219	49	286	64	335	74	349	82	253	68	179	52	187	62	135	46	2678	60
St. Louis	137	45	142	47	234	63	262	66	297	67	299	67	291	64	253	60	228	61	152	44	135	45	73	25	2503	55
Springfield	157	51	161	53	251	68	251	64	282	64	337	77	316	71	322	77	248	66	198	57	191	62	116	39	2830	64
MONTANA																										
Billings	131	46	153	53	214	58	191	47	244	53	305	65	404	85	365	83	253	67	188	55	127	44	153	57	2728	61
Great Falls	205	74	241	84	292	79	334	82	373	80	350	73	440	91	329	75	202	54	158	47	108	39	181	69	3178	72
Havre (U)	132	48	179	63	241	65	273	67	338	72	338	70	446	92	334	75	222	59	163	49	126	46	146	56	2938	66
Helena	99	35	142	49	206	56	264	65	252	54	292	62	444	93	331	75	218	58	212	63	177	63	184	69	2821	63
Missoula	82	29	64	22	163	44	211	52	240	51	288	61	422	88	294	67	157	42	126	37	127	45	122	46	2296	51
NEBRASKA																										
Lincoln (U)	171	57	194	65	222	60	268	67	270	60	345	76	364	79	338	79	231	62	206	60	195	66	130	45	2934	66
North Platte	174	59	159	53	209	56	271	68	229	51	348	77	366	80	316	74	242	65	223	65	180	60	193	67	2910	65
Omaha	157	53	176	59	202	55	232	58	229	51	335	74	330	72	307	72	206	55	170	49	153	52	106	37	2603	58
Valentine	207	71	208	71	212	57	261	65	258	57	343	75	384	83	337	78	279	75	229	67	189	65	174	62	3081	69
NEVADA																										
Ely	200	66	221	73	316	85	343	86	375	85	425	95	422	93	395	93	273	73	305	88	286	95	232	79	3793	85
Las Vegas	254	81	241	79	337	94	350	89	390	89	408	93	396	89	372	89	323	87	305	88	281	91	250	83	3907	88
Reno	207	69	187	62	318	86	359	90	404	91	441	99	445	98	416	98	347	93	*318	91	293	97	205	70	3940	88
Winnemucca	109	37	125	42	185	51	281	70	229	51	335	74	351	77	310	72	193	51	251	73	260	87	180	63	2809	63
NEW HAMPSHIRE																										
Concord	160	55	166	56	233	63	193	48	313	69	178	39	304	65	250	58	249	66	150	44	93	32	145	52	2434	54
Mt. Washington Obs.	59	20	106	37	162	43	157	42	208	45	72	15	197	42	113	26	146	38	106	30	57	19	99	34	1482	33
NEW JERSEY																										
Atlantic City (U)	227	75	152	51	217	59	188	47	228	51	163	37	166	36	182	43	373	77	188	54	118	39	126	43	2328	51
Trenton (U)	173	58	178	59	222	60	223	56	324	73	267	59	252	55	267	63	311	83	212	61	128	43	143	49	2700	60
NEW MEXICO																										
Albuquerque	278	89	205	67	310	83	273	69	312	72	342	79	331	75	294	71	336	90	259	74	257	83	175	57	3372	76
NEW YORK																										
Albany	150	51	163	55	230	62	204	51	282	62	206	45	299	64	266	62	247	66	144	42	98	33	100	35	2389	52
Binghamton	123	42	110	39	199	54	190	47	296	66	274	60	318	69	263	61	245	65	120	35	80	27	88	31	2312	50
Buffalo	93	32	125	43	202	55	221	55	272	60	307	67	377	81	300	70	269	72	121	35	99	34	103	36	2489	53
New York (U)	173	58	176	59	237	64	180	45	314	70	252	56	255	56	242	57	285	76	194	56	113	38	142	49	2563	57
Rochester	95	33	133	45	204	55	205	51	293	64	302	66	378	81	327	76	287	77	131	38	106	36	113	40	2574	55
Syracuse	98	34	152	52	206	56	208	52	295	65	277	60	365	78	271	63	264	71	103	30	63	22	59	21	2361	50
NORTH CAROLINA																										
Asheville (U)	185	59	131	43	242	65	259	66	237	55	315	72	198	45	209	50	170	46	186	53	173	56	111	37	2416	54
Charlotte	205	65	140	46	253	68	264	67	258	59	336	77	259	59	309	74	214	58	167	48	197	63	163	54	2765	61
Greensboro	222	71	176	58	275	74	284	72	308	70	376	86	267	60	322	77	247	66	191	55	204	66	200	66	3072	68
Raleigh	222	71	168	55	237	64	220	56	188	43	257	59	160	36	252	60	179	48	180	52	185	60	182	60	2430	55
Wilmington	205	65	103	34	207	56	253	65	332	77	322	75	194	44	164	40	219	59	167	47	179	57	166	54	2511	56
NORTH DAKOTA																										
Bismarck	146	52	212	74	226	61	274	67	236	51	317	67	415	87	342	78	205	54	161	48	76	27	120	45	2730	61
Devils Lake (U)	198	72	236	83	255	69	304	74	242	51	321	67	389	80	281	64	217	58	150	44	91	33	129	49	2813	63
Fargo	128	46	183	63	238	64	281	69	217	47	266	56	408	85	319	72	225	60	130	38	56	20	126	47	2577	58
Williston (U)	159	58	209	73	237	64	265	65	268	57	325	68	391	81	313	71	159	42	126	38	57	21	111	42	2620	59
OHIO																										
Cincinnati Obs.	133	44	154	51	189	51	201	51	150	34	294	66	330	73	267	63	290	78	213	62	144	48	79	27	2444	54
Cleveland	99	33	98	33	182	49	203	51	235	52	277	61	322	70	268	63	226	60	128	37	68	23	52	18	2158	46
Columbus	143	48	161	54	208	56	224	56	267	60	257	57	289	64	278	65	262	70	182	53	151	50	85	29	2507	55
Dayton	144	48	153	51	205	55	202	51	290	65	348	78	317	70	277	65	270	72	199	57	137	46	87	30	2629	57
Sandusky (U)	129	44	135	46	248	67	257	64	353	78	366	81	403	87	315	74	254	68	160	47	119	40	129	45	2868	62
Toledo	135	46	141	47	243	66	256	64	317	70	301	66	348	76	309	72	267	71	146	43	174	59	123	43	2760	60
OKLAHOMA																										
Oklahoma City	168	54	165	54	255	69	208	53	236	54	255	59	299	68	341	82	294	79	233	66	218	70	147	48	2819	63
Tulsa	152	49	107	35	239	64	236	60	157	36	215	49	249	56	297	71	262	70	216	62	206	67	137	45	2473	56
OREGON																										
Portland	56	20	58	20	126	34	204	50	194	42	170	36	346	73	270	62	135	36	124	37	132	46	97	36	1912	43
Roseburg	78	27	86	29	145	39	233	58	221	49	266	58	404	87	357	83	176	47	128	38	86	29	54	19	2234	50
PACIFIC AREA																										
Guam (R)	297	84	293	90	331	89	309	83	358	90	328	85	328	82	240	61	191	52	211	58	168	49	99	28	3153	71
Majuro	260	71	169	51	209	56	158	43	261	68	194	52	226	58	252	66	206	57	216	58	197	56	207	57	2555	58
Ponape	250	68	137	41	137	37	110	20	128	33	152	40	209	54	201	52	165	45	175	47	129	36	97	27	1790	42
Johnston Island	271	--	293	-	207	55	137	36	246	61	324	82	---	--	---	--	---	--	231	63	277	81	251	--	----	--
Koror	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	211	50	221	59	209	59	188	52	----	--
Truk	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	183	50	----	--
Yap	---	-	---	--	---	--	---	-	---	--	---	--	---	--	---	--	- -	--	---	--	---	--	259	72	----	--
PENNSYLVANIA																										
Harrisburg	154	51	191	64	261	70	233	59	329	74	305	68	310	68	289	68	274	73	194	56	132	44	137	47	2809	62
Philadelphia	173	58	162	54	234	63	212	53	332	75	*311	69	270	59	*255	60	279	75	216	62	108	36	118	41	2670	59
Pittsburgh (U)	72	24	110	37	154	42	183	46	227	51	248	55	259	57	258	61	284	76	159	46	77	26	49	17	2080	45
Pittsburgh	103	34	132	44	187	50	235	59	275	61	318	71	337	74	335	79	330	88	196	57	154	51	147	51	2749	60
Reading (U)	137	46	162	54	231	62	221	55	287	64	255	57	239	52	218	51	267	71	198	57	107	36	121	42	2443	54
Scranton	109	37	148	48	202	55	199	50	255	57	232	51	271	59	193	45	266	71	189	55	107	36	81	28	2252	49
PUERTO RICO																										
San Juan	219	63	240	74	299	80	236	63	263	65	292	74	302	74	297	75	264	72	253	72	262	77	211	62	3138	71
RHODE ISLAND																										
Providence	172	58	180	61	239	65	222	55	297	66	198	44	251	55	289	67	289	77	198	57	123	42	136	48	2594	58
SOUTH CAROLINA																										
Charleston	206	65	134	43	257	69	288	74	337	78	349	81	351	80	297	72	247	67	184	52	150	52	260	84	3060	68
Columbia	209	66	140	45	242	65	296	76	297	69	338	78	314	71	320	77	212	57	105	30	184	59	206	67	2863	63
Greenville	191	62	135	44	274	74	238	61	225	52	268	62	242	55	307	74	180	49	147	42	199	64	151	49	2560	57
SOUTH DAKOTA																										
Huron	162	56	205	70	228	62	271	67	264	58	372	80	420	90	337	78	245	65	178	52	134	46	109	39	2925	66
Rapid City	139	48	186	63	223	60	243	60	242	53	317	68	375	80	336	78	221	59	200	59	108	37	153	55	2743	61
TENNESSEE																										
Chattanooga	170	54	131	43	229	62	247	59	255	59	290	67	300	68	238	57	233	63	161	46	170	55	124	41	2548	56

See reference notes at end of table.

SUNSHINE, AMOUNT AND PERCENT

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
TENNESSEE (Cont'd.)																										
Knoxville	115	37	112	37	203	55	167	43	267	61	245	56	155	35	203	49	191	51	143	41	150	49	108	36	2059	46
Memphis	142	45	136	44	281	76	249	63	270	62	312	72	250	57	285	68	258	69	227	65	177	57	134	44	2721	60
Nashville	122	39	110	36	237	64	206	52	207	47	300	69	272	61	267	64	---	--	185	53	157	51	108	36	----	--
TEXAS																										
Abilene	220	69	126	41	317	85	266	68	267	62	298	70	253	58	333	81	288	78	258	73	213	68	189	61	3028	68
Amarillo	256	82	215	70	314	85	292	74	342	79	359	82	351	79	337	81	324	87	265	76	255	82	207	68	3417	79
Austin	147	46	94	30	224	60	159	41	184	43	260	61	292	68	256	62	227	61	228	64	167	52	149	47	2387	54
Brownsville	129	39	87	27	147	40	201	52	312	75	268	65	353	84	334	83	309	84	191	53	190	58	151	46	2672	60
Corpus Christi	145	44	88	28	227	61	176	46	211	50	261	63	287	68	286	70	271	73	178	50	207	64	187	58	2524	57
Dallas	181	57	134	43	286	77	240	62	228	53	263	61	279	64	316	76	249	67	242	69	211	67	170	55	2799	63
El Paso	285	89	228	74	345	93	302	78	383	90	369	87	348	80	301	73	335	90	310	88	254	80	222	71	3682	83
Galveston (U)	137	42	83	26	235	63	226	58	280	66	316	75	284	66	271	66	263	71	196	55	226	71	170	53	2687	61
Houston (U)	173	53	116	37	244	66	194	50	297	70	358	85	310	72	270	66	264	71	221	62	205	64	164	51	2816	63
Port Arthur	120	37	82	26	245	66	229	59	296	70	291	69	258	60	241	59	224	61	169	48	174	54	131	41	2460	55
San Antonio	128	39	111	36	257	69	202	52	263	62	307	73	332	77	293	72	254	69	235	66	197	61	153	48	2732	62
UTAH																										
Salt Lake City	145	49	136	46	232	63	289	72	315	70	312	69	370	81	350	82	278	74	262	76	235	79	180	62	3104	70
VERMONT																										
Burlington	126	44	170	58	251	68	234	58	302	66	211	45	348	74	241	56	226	60	145	43	84	29	111	40	2449	53
VIRGINIA																										
Lynchburg	178	58	158	52	254	68	242	61	253	57	313	71	194	43	255	61	241	65	160	46	160	52	163	55	2571	57
Norfolk	187	61	145	48	253	68	271	69	343	78	353	80	265	59	306	73	224	60	141	40	161	53	177	59	2826	62
Richmond	164	54	148	49	238	64	220	56	287	65	331	75	229	51	299	71	239	64	176	50	135	45	165	55	2631	58
Washington Nat'l. Airport	176	58	162	54	226	61	222	56	269	61	304	68	233	51	251	59	268	72	181	52	131	43	135	46	2558	57
WASHINGTON																										
Seattle (U)	48	17	*74	26	140	38	159	39	224	48	195	41	324	67	200	45	81	22	79	24	77	28	34	13	1635	37
Spokane	54	19	104	36	230	62	288	70	260	55	314	66	423	88	350	79	155	41	134	40	104	38	51	19	2467	55
Tatoosh Island	56	20	88	31	130	35	212	52	262	55	220	46	285	59	175	39	162	43	115	34	116	43	79	30	1900	43
Walla Walla (U)	67	24	43	15	153	41	245	60	320	69	353	75	442	93	374	86	235	62	253	75	162	57	85	31	2732	61
WEST VIRGINIA																										
Parkersburg (U)	102	34	117	39	205	55	184	46	222	50	199	44	238	55	257	61	283	76	183	53	121	40	72	25	2183	48
WISCONSIN																										
Green Bay	125	43	175	60	209	56	191	47	253	55	300	65	343	73	228	52	234	62	66	19	102	36	103	37	2329	52
Madison	140	48	166	56	206	56	201	50	240	53	292	64	335	72	244	57	226	60	103	30	134	46	106	38	2393	54
Milwaukee	138	47	171	58	223	60	231	57	235	52	315	69	351	76	291	67	273	73	113	33	134	46	116	41	2591	58
WYOMING																										
Cheyenne	205	69	177	60	296	80	271	68	226	50	323	71	353	77	271	63	210	56	215	62	178	60	184	64	2909	65
Lander	193	66	173	59	295	80	292	73	334	74	396	86	417	90	337	78	218	58	225	66	201	68	235	83	3316	74
Sheridan	166	58	200	68	205	55	244	60	261	57	301	64	404	86	339	78	182	48	170	50	131	46	165	60	2768	62

Data from airport unless otherwise specified.
"U" indicates Urban, "R" indicates Rural, sites.
* Estimated.
† Changed from East Lansing City Office to Lansing Airport Station.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs	Date	Snow, Sleet: Total	Greatest in 24 hrs	Date	Relative humidity: 1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	Max temp: 32° and below	Min temp: 32° and below	Min temp: Zero and below
ALABAMA Birmingham	73.7	52.3	63.0	98	Jul. 31+	12	Jan. 5	2750	51.69	3.26	Oct. 20-21	T	T	Dec. 7+	82	87	58	64	8.8	N	52	SE	Jul. 12	62	6.5	74	121	170	135	0	57	7	69	1	53	0
Huntsville	73.0	50.8	61.9	99	Aug. 25	7	Jan. 5	3131	48.27	2.62	Dec. 11-12	T	T	Dec. 7+	80	85	57	63	7.4	SE	37	WSW	Jan. 21	--	6.4	85	115	165	124	0	66	3	82	4	67	0
Mobile	75.5	57.2	66.4	96	Jun. 29	24	Nov. 30+	1865	73.33	3.53	Sep. 12-13	T	T	Mar. 16+	85	87	61	72	10.4	N	44	NE	Jun. 29+	--	6.7	68	107	190	143	0	82	43	49	0	25	0
Montgomery	76.4	54.7	65.6	101	Jan. 30	18	Jan. 5	2205	46.80	2.41	May 29-30	T	T	Feb. 20+	81	87	55	63	6.8	NE	32	NE	Jul. 31+	58	6.5	81	108	176	112	0	65	17	103	0	33	0
ALASKA Anchorage	42.5	26.8	34.7	77	Jun. 18	-17	Jan. 1	10975	16.23	1.50	Jul. 11-12	105.0	14.5	Mar. 2-3	71	77	73	63	7.0	N	*42	ENE	Jan. 7	43	7.2	68	65	232	112	26	2	26	#15	132	205	40
Annette	50.3	40.6	45.5	76	Jul. 9	13	Jan. 3	7026	189.90	5.20	Dec. 4-5	49.3	6.8	Mar. 21-22	81	84	78	72	12.2	SE	*58	SSE	Dec. 26	--	8.3	31	55	279	235	16	0	15	#5	12	58	0
Barrow	13.1	1.8	7.5	62	Jun. 26	-45	Mar. 4	20961	6.73	.63	Aug. 8-9	33.8	3.6	Feb. 13-14	77	79	78	75	11.0	E	56	SW	Jul. 9	--	---	¢59	¢43	¢195	108	8	0	71	#0	260	326	178
Barter Island	13.2	1.8	7.5	63	Jul. 9	-44	Mar. 11	20964	5.44	.64	Jul. 9-10	22.8	3.0	Nov. 27	73	73	72	72	12.2	E	*48	WNW	Oct. 3	--	---	a67	a49	a197	71	6	1	63	#0	258	334	186
Bethel	34.8	19.3	27.1	86	Jun. 19	-32	Dec. 19	13817	16.08	1.21	Aug. 25-26	51.8	6.5	Feb. 16-17	75	81	81	69	14.4	NNE	*55	S	Feb. 1	--	7.0	78	75	212	122	17	0	40	#11	162	226	87
Cold Bay	42.0	32.3	37.2	63	Jul. 10	2	Mar. 15	10072	35.20	1.76	Sep. 28-29	49.6	5.4	Feb. 19-20	85	87	87	79	17.0	SSE	*63	SSE	Jun. 15+	--	8.7	18	43	304	205	14	0	34	#0	73	158	0
Cordova	46.5	30.7	38.6	79	Jun. 12	-10	Mar. 16	9547	82.69	3.59	Oct. 22-23	187.2	22.9	Mar. 7-8	84	87	81	72	4.9	ESE	*32	ESE	Oct. 28	--	7.9	50	58	257	215	46	3	19	#11	46	188	13
Fairbanks	34.8	13.4	24.1	86	Jun. 19+	-50	Jan. 7+	14928	10.82	.72	May 19	57.9	5.6	Jan. 2	68	76	71	60	5.4	N	*26	SW	Sep. 30	--	7.0	74	85	206	106	20	9	20	#40	169	235	138
Juneau	46.6	34.2	40.4	79	Jul. 10	-4	Jan. 8	8876	55.70	1.79	Jan.31 Feb.1	88.8	10.8	Feb. 11-12	82	87	81	71	9.6	ESE	c44	ESE	Nov. 27	--	8.5	38	34	293	242	30	1	14	#16	48	138	2
King Salmon	40.9	24.4	32.7	80	Aug. 26+	-25	Dec. 19	11750	9.77	.49	Nov. 6-7	29.3	3.0	Jan. 2-3	78	86	83	70	11.6	N	*63	ESE	Nov. 15	--	7.4	58	78	229	129	10	0	38	#14	95	200	57
Kotzebue	26.1	12.3	19.2	73	Aug. 13	-35	Mar. 9	16689	7.93	.70	Aug. 22	21.1	1.8	Dec. 28-29	77	80	80	73	11.4	E	*44	ESE	Nov. 14	--	5.9	120	63	182	97	3	0	23	#1	198	257	135
McGrath	35.1	13.8	24.5	84	Jun. 20	-43	Dec. 20+	14769	12.57	.77	Aug. 23-24	72.9	5.9	Feb. 6	66	79	73	56	4.9	N	*40	S	Sep. 30	--	6.9	83	69	213	130	28	12	10	#37	169	237	133
Nome	31.2	17.0	24.1	71	Aug. 2	-31	Mar. 14	14855	12.33	.84	Sep. 28-29	55.7	4.2	Nov. 22-23	77	79	78	73	11.2	E	*52	ENE	Jan. 20	42	7.0	72	76	217	120	19	1	37	#2	181	236	102
St. Paul Island	39.4	31.0	35.2	57	Aug. 13+	1	Mar. 12	10774	20.95	1.71	Aug. 24-25	25.9	2.5	Apr. 2-3	87	88	88	83	----	---	--	---	---	--	8.4	19	83	263	180	8	0	58	#0	74	183	0
Yakutat	47.0	32.9	40.0	77	Jul. 10	-1	Feb. 13	9042	135.30	5.36	Jul. 15-16	321.6	20.7	Feb. 10-11	85	88	82	74	8.5	ENE	*52	S	Dec. 18	--	8.1	44	46	275	222	76	4	38	#5	35	165	3
ARIZONA Flagstaff	61.6	31.1	46.4	89	Jul. 19+	-7	Feb. 14	6781	21.46	1.85	Oct. 1	63.8	17.6	Feb. 8-9	--	74	42	--	----	---	--	---	---	--	4.4	164	112	89	81	16	61	8	0	8	198	5
Phoenix	84.6	59.3	72.0	112	Jun. 23	32	Jan. 4+	1203	8.40	1.47	Oct. 29-30	.0	.0		43	52	34	26	6.7	NE	ø71	N	Jul. 26	92	3.8	194	84	87	30	0	24	1	168	0	2	0
Prescott	71.3	41.5	56.4	100	Jul. 26+	11	Jan. 4	4048	12.82	1.42	Aug. 24	7.0	2.6	Feb. 8-9	--	--	34	--	9.5	S	50	NW	Jul. 17	77	4.1	178	98	89	57	5	54	5	53	0	128	0
Tucson	82.1	54.3	68.2	107	Jun. 24+	26	Jan. 21	1583	9.99	1.42	Jul. 3-4	T	T	Dec. 13-14+	41	51	30	24	9.5	SE	54	S	Jul. 11	85	4.0	190	76	99	48	0	49	0	136	0	20	0
Winslow	71.7	41.5	56.6	101	Jun. 24	7	Jan. 4	4311	7.78	.73	Sep.30 Oct.1	9.7	5.6	Dec. 13-14	43	55	33	25	9.6	SW	*55	WSW	Jan. 2	--	4.3	173	96	96	56	2	37	0	76	0	124	0
Yuma	90.2	61.5	75.9	118	Jul. 10	37	Feb. 3+	629	1.63	.41	Dec. 8	.0	.0		38	47	30	20	8.0	N	47	W	Dec. 13	93	2.8	250	63	52	17	0	7	4	194	0	0	0
ARKANSAS Fort Smith	72.0	49.9	61.0	99	Aug. 4	5	Jan. 22	3418	46.36	3.20	Nov. 3-4	1.8	1.0	Jan. 21	81	87	59	60	8.6	ENE	57	NE	Jun. 11	56	5.9	115	85	165	101	1	59	15	76	5	77	0
Little Rock	71.8	52.6	62.2	97	Aug. 3+	9	Jan. 4	3051	53.60	4.19	Feb. 13-14	.2	.2	Jan. 17	76	83	58	60	9.0	S	56	SE	Mar. 5	65	5.9	106	109	150	109	0	61	17	53	5	50	0
Texarkana	73.8	53.6	63.7	98	Aug. 30	12	Jan. 4	2630	44.53	3.04	Dec. 15-16	T	T	Feb. 21+	--	89	--	--	7.3	SW	--	---	---	--	---	---	---	---	104	0	57	22	72	1	44	0
CALIFORNIA Bakersfield	79.3	53.5	66.4	109	Jul. 11	28	Jan. 4	1691	1.87	.39	Feb. 10-11	.0	.0		51	61	46	34	6.7	NW	*35	NNW	Jun. 6+	--	3.4	219	68	78	20	0	0	8	103	0	7	0
Bishop	76.9	38.2	57.6	107	Jul. 17	9	Jan. 4	3758	3.98	1.63	Feb. 15-16	2.9	1.7	Jan. 5-6	--	--	26	17	----	---	--	---	---	--	3.3	215	89	61	24	2	18	0	102	0	135	0
Blue Canyon	62.1	44.3	53.2	91	Aug. 7	16	Dec. 31	4729	47.26	4.62	Jan. 8-9	199.8	33.1	Feb. 10-11	--	--	39	--	8.3	ENE	70	NE	Oct. 30	--	3.9	204	60	101	64	29	14	36	2	9	64	0
Burbank	77.2	53.8	65.5	104	Jul. 10	34	Feb. 22	1049	10.74	2.90	Jan. 5-6	T	T	Feb. 8	68	73	51	44	3.3	S	*31	NW	Dec. 13	--	3.9	190	99	76	23	0	2	21	40	0	0	0
Eureka (U)	58.0	46.9	52.5	73	Nov. 26	33	Dec. 31+	4500	29.14	4.88	Feb. 13-14	.0	.0		--	--	--	--	6.6	bN	42	bSE	Feb. 15	58	6.4	82	114	169	86	0	2	39	0	0	0	0
Fresno	78.1	49.2	63.7	108	Jul. 11	25	Jan. 3	2148	7.21	1.91	Feb. 10-11	.0	.0		59	75	50	33	6.5	NW	40	NE	Oct. 29	89	3.0	233	68	64	31	0	5	21	97	0	25	0

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs	Date	Snow, Sleet: Total	Greatest in 24 hrs	Date	Relative humidity: 1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	32° and below	Min temp: 32° and below	Zero and below
CALIFORNIA (Cont'd.)																																				
Long Beach	75.9	55.5	65.7	105	Jul. 10	39	Feb. 3	897	5.94	1.52	Feb. 15-16	0.0	0.0		--	--	--	--	----	---	*40	S	Feb. 10	--	4.5	159	127	79	24	0	1	49	15	0	0	0
Los Angeles	74.9	57.9	66.4	103	Sep. 11	42	Dec. 29+	659	6.44	1.65	Feb. 15-16	.0	.0		76	79	58	60	7.6	WSW	46	S	Jan. 6	--	4.5	157	128	80	25	0	1	36	5	0	0	0
Los Angeles (U)	76.6	58.0	67.3	103	Jul. 10	43	Feb. 13	664	6.23	1.24	Jan. 5-6	.0	.0		73	75	k47	53	6.0	bW	48	bN	Oct. 30	77	3.9	180	118	67	21	0	3	14	24	0	0	0
Mount Shasta (U)	64.4	37.7	51.1	99	Aug. 7	10	Feb. 12	5383	32.74	2.82	Jan. 4-5	127.0	29.1	Jan. 4-5	63	76	55	44	----	---	--	---	---	--	4.1	196	65	104	57	17	5	1	33	3	124	0
Oakland	68.5	49.8	59.2	99	Jul. 10	34	Dec. 26+	2291	13.02	3.23	Sep. 17-18	.0	.0		77	82	66	55	8.7	WNW	*40	SSE	Jan. 5	-	4.0	195	96	74	34	0	0	8	3	0	0	0
Red Bluff	78.2	51.6	64.9	112	Aug. 7	25	Jan. 4	2044	13.23	3.05	Jan. 4-5	.2	.2	Jan. 5	45	56	40	27	10.7	NNW	41	SE	Feb. 14	86	3.8	204	74	87	45	0	10	8	99	0	18	0
Sacramento	76.0	49.9	63.0	107	Jul. 10	28	Dec. 30	1979	11.85	1.50	Sep. 18-19	†.0	†.0		†65	†76	†55	†39	†9.3	†SW	†56	†SW	†Jan. 5	†89	†3.5	†214	†74	†77	36	†0	†3	†20	73	0	5	0
Sandberg (R)	66.3	48.3	57.3	98	Jul. 25+	22	Dec. 31+	3741	9.03	2.01	Jan. 5-6	10.6	3.6	Feb. 21	--	--	39	--	14.5	N	*64	NNW	Jun. 25	--	3.0	235	72	58	27	4	2	42	29	1	31	0
San Diego	72.9	58.5	65.7	102	Sep. 11	43	Feb. 13	683	5.88	1.07	Feb. 11-12	.0	.0		77	77	60	60	6.2	WSW	30	S	Feb. 11	69	4.5	170	107	88	26	0	0	28	2	0	0	0
San Francisco	68.6	50.0	59.3	97	Jul. 10	36	Jan. 4	2177	13.68	2.30	Sep. 17-18	.0	.0		78	84	67	58	10.7	WNW	ø48	øS	Sep. 18	--	3.9	195	88	82	32	0	3	10	4	0	0	0
San Francisco (U)	65.0	52.4	58.7	92	Jul. 10	43	Feb. 13+	2364	12.47	2.06	Sep. 17-18	.0	.0		--	e78	--	--	8.6	bW	40	bSE	Jan. 5	80	---	---	---	--	36	0	0	--	1	0	0	0
Santa Maria	70.4	46.6	58.5	98	Oct. 23	29	Feb. 9	2399	7.30	1.78	Feb. 10-11	.0	.0		80	83	56	57	7.3	WNW	*46	SE	Feb. 15	--	3.9	198	90	77	24	0	1	84	6	0	8	0
COLORADO																																				
Alamosa	59.4	24.6	42.0	87	Jul. 12	-31	Jan. 22	8328	9.55	1.82	Sep. 29-30	57.8	6.4	Oct. 3	--	74	46	41	----	---	--	---	---	--	4.8	140	131	94	71	17	36	20	0	21	222	36
Colorado Springs	63.0	33.8	48.4	94	Sep. 8+	-21	Jan. 3	6453	17.41	1.73	Sep. 28-29	86.9	17.1	Sep. 28-29	60	64	38	40	10.4	NNE	*49	WNW	Mar. 14	--	5.2	122	129	114	91	17	50	23	30	24	181	8
Denver	63.1	36.8	50.0	97	Aug. 18	-13	Jan. 4	6166	16.54	1.48	Mar. 24-25	112.0	12.5	Mar. 24-25	57	62	37	39	10.4	SSW	45	NW	Nov. 23	68	5.5	112	134	119	88	27	32	13	37	21	165	7
Grand Junction	65.4	41.1	53.3	100	Jul. 24+	4	Jan. 4	5443	6.21	.48	Sep. 15-16	17.4	3.2	Feb. 9	45	53	36	30	9.1	ESE	49	NW	Mar. 3	72	5.0	136	115	114	67	6	36	7	69	4	142	0
Pueblo	67.3	35.9	51.6	100	Jul. 7	-28	Jan. 4	5735	13.73	1.32	Sep. 28-29	53.1	9.5	Sep. 29	62	73	41	37	8.3	W	61	N	Nov. 4	76	5.1	132	120	113	69	13	38	6	64	15	164	7
CONNECTICUT																																				
Bridgeport	60.7	44.2	52.5	94	Jun. 30	5	Feb. 2	5452	38.10	2.93	Aug. 8-9	15.7	5.9	Mar. 12	--	76	58	70	----	---	--	---	---	--	6.2	98	101	166	117	4	21	24	12	21	105	0
Hartford	59.9	39.6	49.8	95	Jun. 29	-2	Feb. 9+	6322	45.70	4.45	Oct. 23-24	42.6	10.0	Mar. 12	82	82	57	69	8.0	S	46	NW	Jan. 6	53	6.5	84	103	178	138	13	24	40	16	35	145	5
New Haven	59.6	42.7	51.2	90	Sep. 9+	3	Feb. 2	5731	43.08	3.32	Oct. 23-24	19.3	7.5	Mar. 12	--	80	63	--	8.3	---	45	SW	Dec. 7	59	6.2	93	107	165	131	5	27	23	2	24	115	0
DELAWARE																																				
Wilmington	64.7	45.4	55.1	98	Jun. 30	5	Jan. 28	48[illegible]1	38.19	3.23	Aug. 31	9.8	2.5	Jan. 26-27	80	81	57	69	8.9	WNW	--	---	---	--	6.3	89	101	175	115	6	33	42	26	13	107	0
DIST. OF COLUMBIA																																				
Washington Nat'l.AP	67.8	49.9	58.9	100	Jun. 30+	11	Jan. 17+	3989	35.38	2.76	Jun. 2	4.0	2.2	Jan. 16	73	75	52	59	9.3	S	42	NNW	Feb. 11	57	6.1	97	114	154	109	2	36	10	42	9	72	0
FLORIDA																																				
Apalachicola (U)																																				
Daytona Beach	79.7	62.5	71.1	95	Oct. 2+	27	Jan. 17	764	56.24	4.14	Jun. 17-18	.0	.0		89	91	65	79	9.5	SE	40	W	Jan. 16	--	6.5	77	119	169	125	0	76	27	46	0	5	0
Fort Myers	83.7	64.7	74.2	96	Jun. 28	32	Jan. 11	360	66.68	7.57	Oct. 17-18	.0	.0		90	91	61	78	8.3	---	40	SSW	Oct. 18+	--	6.2	75	154	136	142	0	115	20	107	0	1	0
Jacksonville	79.0	60.7	69.9	98	Jun. 30	23	Jan. 17	1209	53.26	5.09	May 20-21	.0	.0		87	89	59	74	9.3	NE	38	S	Dec. 12	51	6.6	76	110	179	125	0	61	25	83	0	16	0
Key West	82.7	73.0	77.9	93	Jul. 4	49	Nov. 30+	64	42.67	7.33	Nov. 20-21	.0	.0		--	81	70	76	10.7	---	36	NW	Nov. 25+	67	6.1	70	162	133	120	0	64	2	35	0	0	0
Lakeland (U)	80.9	64.0	72.5	97	Jun. 29	30	Jan. 17	573	70.24	3.42	Apr. 20-21	.0	.0		--	--	--	--	6.9	---	--	---	---	56	6.4	59	154	152	151	0	106	17	63	0	1	0
Miami	82.6	68.9	75.8	93	Jun. 29	40	Jan. 11	156	89.33	7.93	Nov. 18-19	.0	.0		84	86	64	76	7.1	ESE	35	SW	Jun. 18	--	6.3	57	173	135	162	0	105	4	16	0	0	0
Miami Beach	81.9	71.8	76.9	94	Sep. 28	42	Jan. 11	92	67.45	6.70	Nov. 19	.0	.0		--	--	--	--	----	---	d39	dNW	dJan. 16	d52	d5.9	81	196	88	153	0	---	--	15	0	0	0
Orlando	81.8	62.8	72.3	96	Jul. 2	28	Jan. 17	608	63.77	3.69	Jun. 17-18	.0	.0		90	91	59	74	8.4	NNE	36	SW	Jun. 15	--	6.4	63	145	157	134	0	65	25	88	0	5	0

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Sleet: Total	Greatest in 24 hrs.	Date	Relative humidity: 1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	32° and below	Min temp: 32° and below	Zero and below
FLORIDA (Cont'd.) Pensacola (U)	74.8	60.7	67.8	96	Aug. 29	27	Jan. 17	1559	79.67	6.97	Sep. 12-13	0.0	0.0		--	--	--	--	9.5	---	33	SE	Mar. 28	53	---	---	---	---	133	0	65	--	22	0	14	0
Tallahassee	77.4	58.5	68.0	99	Jun. 30	21	Jan. 17	1468	81.83	6.00	Mar. 5-6	T	T	Feb. 20	86	88	59	72	6.0	NNW	--	---	---	--	6.7	65	122	178	133	0	89	35	73	0	18	0
Tampa	82.2	64.4	73.3	95	Jul. 25+	29	Nov. 30	515	76.57	3.70	Jun. 17-18	.0	.0		87	89	60	75	8.7	ENE	43	ENE	May 22	54	6.5	57	154	154	145	0	94	23	104	0	3	0
West Palm Beach	83.7	68.3	76.0	96	Jun. 30	35	Jan. 18	220	68.64	6.37	Oct. 19-20	.0	.0		84	85	62	75	10.2	ESE	46	WSW	Jun. 18	--	6.7	50	142	173	158	0	77	7	93	0	0	0
GEORGIA Athens	72.3	51.2	61.8	98	Aug. 24+	12	Jan. 17	2964	58.44	5.54	May 25-26	T	T	Mar. 30+	82	87	57	67	8.8	NE	52	WSW	Jan. 21	--	6.4	86	97	182	114	0	48	29	63	0	50	0
Atlanta	71.8	53.0	62.4	97	Jul. 1	9	Jan. 5	2821	42.23	2.90	May 30-31	T	T	Dec. 7+	80	86	59	64	9.5	NW	46	WSW	Jan. 21	56	6.4	89	102	174	113	0	38	22	40	1	36	0
Augusta	75.7	52.7	64.2	100	Aug. 26+	15	Jan. 17	2389	49.47	3.50	Aug. 29-30	.0	.0		86	89	55	69	5.9	WNW	35	NW	Sep. 29+	--	6.6	83	89	193	110	0	53	22	76	0	45	0
Columbus	75.5	53.4	64.5	100	Jun. 30	15	Jan. 6	2371	57.03	3.88	Jun. 1	T	T	Dec. 7+	--	88	57	68	7.8	---	47	S	Aug. 1	--	6.6	87	94	184	134	0	67	15	81	0	40	0
Macon	76.6	54.5	65.6	103	Jun. 30	16	Jan. 17	2213	57.81	2.96	Aug. 1	T	T	Dec. 7	81	87	52	61	8.3	NE	47	bSW	Jan. 21	60	6.3	95	95	175	125	0	62	22	96	0	36	0
Rome	72.6	48.4	60.5	98	Jul. 1	8	Jan. 17	3348	48.26	3.44	May 27-28	T	T	Dec. 6-7+	80	84	52	64	3.8	---	--	---	---	--	---	86	127	152	140	0	69	30	66	1	77	0
Savannah	76.3	56.1	66.2	101	Jun. 29	17	Jan. 17+	1893	66.00	4.65	Mar. 5-6	T	T	Mar. 2	86	89	58	73	7.7	NE	56	NW	Sep. 29	56	6.4	89	102	174	125	0	72	44	63	0	26	0
Thomasville	78.3	58.3	68.3	100	Aug. 27	21	Jan. 17	1509	61.98	5.18	Mar. 6	.0	.0		--	--	--	--	----	---	--	---	---	--	---	---	---	---	138	0	67	23	106	0	13	0
HAWAII Hilo	80.8	66.1	73.5	89	Jan. 17	59	Dec. 31+	0	117.82	15.59	Nov. 1-2	.0	.0		82	87	81	66	8.6	WSW	*33	SE	Aug. 5+	40	7.4	27	140	198	306	0	3	0	0	0	0	0
Honolulu	80.5	71.7	76.1	87	Oct. 7	61	Jan. 1	0	17.78	2.53	Aug. 5-6	.0	.0		†70	†75	†71	†57	†14.1	†NE	†67	†SW	†Jan. 17	†75	†5.5	†93	†189	†83	124	0	†1	†0	0	0	0	0
Lihue	82.1	69.2	75.7	89	Sep. 20+	55	Jan. 15	0	36.90	5.43	Aug. 6-7	.0	.0		77	80	77	65	12.0	NE	73	NE	Aug. 6	65	6.1	63	185	117	189	0	1	0	0	0	0	0
IDAHO Boise	62.6	38.1	50.4	106	Jul. 23	3	Jan. 4+	6002	10.01	.87	Sep. 18-19	11.2	2.8	Jan. 19	62	70	53	42	8.3	SE	40	NW	Apr. 6+	73	5.6	121	102	142	74	4	15	14	46	9	137	0
Idaho Falls 46 W (R)	58.0	27.7	42.9	98	Jul. 23	-31	Jan. 4	8313	7.97	1.44	Aug. 19-20	17.2	4.0	Dec. 24-25	--	--	--	--	8.4	SW	41	SW	May 9	--	---	---	---	---	50	9	m13	--	36	34	215	22
Idaho Falls 42 NW(R)	58.1	25.9	42.0	99	Jul. 23	-34	Jan. 4	8572	8.00	1.05	Dec. 24-25	----	---	----	--	--	--	--	7.9	SW	43	SW	May 9	--	---	---	---	---	49	--	--	--	39	34	227	31
Lewiston	61.7	39.9	50.8	109	Jul. 23	1	Jan. 4	5611	12.26	1.00	Aug. 20-21	10.2	4.9	Dec. 30-31	--	76	61	48	----	---	--	---	---	--	6.6	88	83	194	97	2	12	22	31	12	109	0
Pocatello	60.3	34.7	47.5	100	Jul. 23+	-13	Jan. 4	6856	7.25	.63	Sep. 14-15	24.9	7.0	Dec.31 Jan. 1	58	69	52	42	13.0	SW	61	SW	Nov. 12	70	5.8	114	102	149	74	5	15	9	44	21	159	3
ILLINOIS Cairo (U)	68.2	50.5	59.4	97	Jun. 30+	3	Jan. 5	3885	45.00	3.40	Sep. 25-26	1.9	1.0	Feb. 5	--	82	60	--	8.7	S	45	SW	May 26	62	6.0	101	117	147	121	1	56	4	43	12	68	0
Chicago (Midway)	59.5	42.7	51.1	96	Sep. 8+	-10	Jan. 5	6270	38.68	4.58	Jun. 25	44.1	7.6	Dec. 22-23	75	80	59	62	11.2	SSW	51	W	May 28	54	6.5	90	96	179	134	13	39	17	39	45	127	10
Moline	59.1	40.5	49.8	96	Aug. 24	-15	Jan. 5	6565	42.10	2.80	Apr. 27-28	53.3	7.7	Jan. 20-21	78	81	60	63	8.8	S	45	NE	Mar. 26+	56	6.4	90	94	181	127	18	51	28	25	46	135	18
Peoria	60.7	41.8	51.3	95	Aug. 24	-11	Jan. 23+	6190	30.63	2.40	May 18-19	27.8	7.7	Jan. 20-21	77	82	60	62	10.9	S	60	W	Sep. 26	56	6.4	100	76	189	114	7	49	24	39	39	130	10
Rockford	57.5	38.5	48.0	95	Sep. 7	-20	Feb. 2	7078	47.97	4.22	Jul. 18	58.8	7.4	Jan. 20-21	81	84	61	65	9.5	SSW	35	WNW	Jul. 23+	--	6.4	88	100	177	129	18	52	26	23	55	148	22
Springfield	62.7	43.9	53.3	97	Jun. 29	-7	Jan. 5	5575	35.98	5.12	Sep. 26	10.7	3.1	Dec. 20-21	76	82	59	62	11.6	SSW	62	W	Mar. 6	57	6.3	96	89	180	109	5	54	14	32	32	115	5
INDIANA Evansville	66.7	46.1	56.4	95	Jul. 30	-2	Jan. 5	4577	45.12	3.21	May 11-12	1.9	.8	Jan. 27	79	82	59	63	9.1	SW	53	SE	Mar. 5	64	6.3	93	102	170	117	0	41	18	35	13	105	1
Ft. Wayne	60.1	41.1	50.6	93	Aug. 23	-8	Jan. 5	6225	41.11	3.78	Jun. 25-26	24.1	3.9	Nov. 12	81	84	60	66	12.1	SW	57	SW	Mar. 15+	58	6.7	66	120	179	151	10	40	20	21	39	136	7
Indianapolis	62.6	42.7	52.7	96	Jun. 30	-13	Jan. 5	5672	39.60	3.90	Oct. 10-11	22.4	4.6	Mar. 10	78	83	62	66	10.1	SW	52	SW	Mar. 15	62	6.7	83	88	194	133	9	48	34	23	31	132	3
South Bend	59.2	40.1	49.7	96	Aug. 25	-8	Jan. 4	6532	38.47	1.80	Apr. 27-28	85.9	15.0	Jan. 16	81	85	62	68	11.2	SSW	41	WNW	Mar. 15	--	6.8	71	97	197	146	25	44	30	27	46	140	8
IOWA Burlington	60.3	40.8	50.6	95	Aug. 25	-14	Jan. 23	6319	35.37	2.79	Jun. 29-30	30.8	5.9	Jan. 20-21	79	83	62	65	11.0	SSW	54	NW	Mar. 15	65	6.2	98	90	177	129	10	49	32	29	40	137	13
Des Moines	58.7	39.9	49.3	97	Aug. 28	-14	Jan. 4	6751	36.31	4.86	Jun. 29-30	47.0	7.9	Mar. 5-6	78	83	63	63	11.7	S	54	NE	May 18	59	6.4	96	84	185	120	14	50	20	29	59	146	15

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Temperature: Averages: Daily minimum	Temperature: Averages: Monthly	Temperature: Extremes: Highest	Temperature: Extremes: Date	Temperature: Extremes: Lowest	Temperature: Extremes: Date	Degree days	Precipitation: Total	Precipitation: Greatest in 24 hrs.	Precipitation: Date	Snow, Sleet: Total	Snow, Sleet: Greatest in 24 hrs.	Snow, Sleet: Date	Relative humidity: 1:00a E. S. T.	Relative humidity: 7:00a E. S. T.	Relative humidity: 1:00p E. S. T.	Relative humidity: 7:00p E. S. T.	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Number of days: Sunrise to sunset: Partly cloudy	Number of days: Sunrise to sunset: Cloudy	Number of days: Precipitation .01 inch or more	Number of days: Snow, Sleet, 1.0 or more	Number of days: Thunderstorms	Number of days: Heavy fog	Number of days: Max temp: 90° and above	Number of days: Max temp: 32° and below	Number of days: Min temp: 32° and below	Number of days: Min temp: Zero and below
IOWA (Cont'd.)																																				
Dubuque	54.7	36.7	45.7	93	Aug. 24	-22	Feb. 2	7676	54.36	3.22	Jun. 29-30	74.2	15.5	Mar. 4-5	--	81	63	67	---	---	--	---	---	--	6.5	82	99	184	129	22	52	35	4	73	155	25
Sioux City	58.9	37.9	48.4	98	Jul. 29+	-14	Jan. 4	7073	30.33	2.16	May 28	51.2	8.6	Mar. 4-5	75	82	61	58	11.8	SE	54	S	May 2	63	6.1	98	113	154	107	15	42	18	38	53	154	17
Waterloo	56.8	36.8	46.8	94	Sep. 7+	-17	Jan. 23	7440	38.85	2.62	Jun. 29-30	49.0	12.2	Mar. 5-6	83	84	64	67	10.6	---	--	---	---	--	---	--	---	---	119	16	41	30	16	66	155	29
KANSAS																																				
Concordia (U)	63.9	43.4	53.7	104	Aug. 3	-12	Jan. 4	5538	26.12	1.94	Oct. 5	26.9	6.0	Jan. 20-21	71	79	57	54	[illegible].1	S	42	N	Mar. 14	72	5.0	145	100	120	96	9	53	7	56	28	122	3
Dodge City	66.7	42.0	54.4	105	Aug. 3	-12	Jan. 4	5260	20.09	3.27	Sep. 23-24	14.8	3.6	Dec. 26-27	71	80	52	49	15.5	S	71	W	May 20	69	4.9	149	99	117	72	6	53	17	67	19	139	4
Goodland	64.6	35.9	50.3	105	Jul. 7	-26	Jan. 3	6281	15.06	1.00	Oct. 29-30	44.7	7.3	Mar. 25-26	73	80	48	48	12.4	SSE	52	NW	Oct. 25+	--	5.1	142	107	116	82	14	51	26	64	22	172	10
Topeka	64.5	42.7	53.6	99	Aug. 3	-13	Jan. 4	5386	27.10	1.77	Jun. 30	18.4	5.1	Jan. 20-21	78	83	58	58	12.3	S	63	N	Mar. 20	60	6.1	106	86	173	94	7	47	20	39	28	125	5
Wichita	66.6	45.2	55.9	104	Aug. 3	-10	Jan. 4	4810	33.58	3.75	Aug. 14-15	15.3	7.2	Jan. 31	73	81	56	54	14.0	S	54	NW	Mar. 14+	65	5.5	135	84	146	93	3	59	21	55	19	110	5
KENTUCKY																																				
Lexington	66.1	46.2	56.2	95	Aug. 22+	-4	Jan. 5	4615	38.57	2.40	Jul. 23-24	6.7	[illegible].0	Jan. 15-16	80	84	59	67	10.6	S	--	---	---	--	6.3	98	102	165	126	3	40	23	29	15	97	3
Louisville	68.9	47.4	58.2	100	Aug. 26+	-2	Jan. 5	4289	37.08	2.67	Aug. 16-17	2.4	1.0	Jan. 27	77	[illegible]2	55	59	9.6	S	44	W	May 13	53	6.3	94	104	167	123	1	41	9	76	10	94	1
LOUISIANA																																				
Baton Rouge	78.1	57.2	67.7	96	Jul. 21+	22	Jan. 5	1692	61.54	3.87	Dec. 16-17	T	T	Mar. 16+	86	89	61	68	8.5	SE	--	---	---	--	6.7	64	120	181	126	0	91	46	87	0	25	0
Lake Charles	76.1	58.6	67.4	93	Aug. 7+	25	Jan. 22	1708	68.05	5.[illegible]7	Jul. 24-25	T	T	Feb. 21	84	88	61	67	9.4	N	35	NNW	Jan. 21	--	6.5	73	118	174	117	0	72	40	58	0	14	0
New Orleans (U)	7[illegible].8	62.1	69.5	95	Aug. 7	30	Jan. 5	1340	82.50	4.75	Feb. 23-24	T	T	Feb. 19	83	86	66	71	6.5	---	27	SW	Jan. 21	53	6.1	84	129	152	148	0	71	18	59	0	4	0
New Orleans	76.7	60.9	68.8	94	Aug. 8+	29	Jan. 11+	1438	68.49	9.86	May 30-31	T	T	Mar. 16+	85	88	65	70	9.9	SSE	41	NW	Sep. 3	--	6.3	78	123	164	133	0	63	33	60	0	10	0
Shreveport	75.2	54.3	64.8	98	Aug. 30	15	Jan. 4	2391	39.02	2.29	Feb. 14	.0	T	Nov. 27+	7[illegible]	85	57	59	10.2	S	--	---	---	64	6.0	105	99	161	113	0	65	16	82	1	41	0
MAINE																																				
Caribou	48.7	29.2	39.0	91	Jul. 28+	-21	Feb. 2+	9630	36.37	2.60	Aug. 9	109.0	12.8	Mar. 12-13	80	79	62	70	10.9	NW	60	W	Mar. 23	--	7.2	53	106	206	152	27	11	10	4	100	189	46
Portland	55.5	35.1	45.3	95	Aug. 16	-13	Feb. 25+	7460	40.73	2.18	Mar. 6	74.3	11.3	Mar. 12-13	85	83	63	76	9.5	WSW	46	S	Dec. 7	52	6.3	101	84	180	141	18	18	52	7	45	164	16
MARYLAND																																				
Baltimore (U)	67.7	50.9	59.3	101	Jun. 29	11	Jan. 6	3985	35.75	2.03	Jun. 1-2	----	----	----	--	--	--	--	----	---	--	---	---	--	---	--	---	---	112	--	--	--	51	10	66	0
Baltimore	66.3	46.2	56.3	100	Jun. 30	5	Jan. 18	4592	37.93	2.37	Jun. 2	5.0	1.0	Mar. 11	77	78	54	64	11.3	WNW	56	W	Dec. 7	60	6.0	90	121	154	115	1	36	32	39	13	106	0
Frederick	65.5	43.2	54.4	100	Jun. 30	2	Jan. 18	5093	35.81	2.32	Jun. 1-2	8.2	2.3	Apr. 12	--	--	64	--	----	---	--	---	---	--	---	--	---	---	134	6	--	14	36	19	127	0
MASSACHUSETTS																																				
Blue Hill Obs. (R)	57.9	39.8	48.9	93	Aug. 16+	-3	Feb. 9+	6571	48.31	2.19	Jun. 13-14	45.2	9.7	Mar. 12	78	75	58	70	14.8	S	61	S	Mar. 6	51	---	--	---	---	152	14	-	-	8	38	131	4
Boston	59.8	43.7	51.8	96	Aug. 16+	0	Feb. 9	5657	51.41	2.42	Jul. 10-11	35.5	6.4	Mar. 12	74	74	58	67	12.0	SW	*47	SSW	Mar. 6	60	6.4	91	91	183	146	11	20	36	22	27	94	1
Nantucket	55.6	42.8	49.2	88	Jun. 30	7	Jan. 6	5931	46.48	3.00	Jun. 2-3	36.9	[illegible].5	Mar. 27-28	84	82	70	82	13.4	WSW	50	bSE	Mar. 12	54	7.0	70	89	206	132	10	24	127	0	21	101	0
Pittsfield	56.4	35.5	46.0	90	Aug. 15+	-7	Feb. 2	7356	40.51	1.94	Oct. 6-7	63.7	8.8	Mar. 12-13	--	--	--	--	----	---	--	---	---	--	---	-	-	--	152	22	26	--	2	52	170	14
Worcester	56.4	38.9	47.7	91	Jun. 29	-5	Feb. 2	6863	57.44	3.77	Oct. 23-24	61.7	15.8	Mar. 12	72	71	57	65	11.6	SW	60	WSW	Jan. 5	--	6.5	85	102	178	142	16	21	102	2	52	147	8
MICHIGAN																																				
Alpena	51.6	34.6	43.1	94	Aug. 12+	-15	Feb. 20	8341	27.23	1.21	Apr. 28-29	89.7	8.2	Feb. 10-11	--	79	65	72	9.2	NW	40	NW	Mar. 21	52	6.6	77	110	178	149	28	31	18	11	82	177	19
Detroit	58.7	41.7	50.2	93	Aug. 20+	0	Jan. 5	6344	40.80	2.56	Sep. 28-29	41.0	4.2	Nov. 12-13+	75	77	58	62	10.7	S	48	SW	Mar. 15	53	6.6	74	110	181	153	15	36	9	20	40	129	1
Detroit (Willow Run)	59.3	40.7	50.0	95	Aug. 25	-5	Jan. 5	6414	37.08	2.09	Oct. 5-6	35.1	5.3	Nov. 12-13	79	82	57	64	11.7	SW	60	W	May 29	--	6.7	66	112	187	135	13	34	27	24	40	140	4
Escanaba (U)	49.1	34.1	41.6	88	Jul. 31	-16	Jan. 23	8728	31.90	1.96	Oct. 23-24	57.3	12.4	Mar. 5-6	78	81	68	72	10.0	---	41	N	Mar. 15	50	6.5	78	117	170	120	17	41	32	0	97	167	29
Flint	56.2	37.0	46.6	91	Aug. 26+	-22	Feb. 2	7335	37.82	2.25	Jul. 29-30	61.0	7.8	Jan. 20-21	83	83	62	69	9.3	SW	41	SW	Mar. 15	--	7.0	67	105	193	134	20	40	18	5	63	131	14
Grand Rapids	57.3	38.9	48.1	94	Sep. 8+	-8	Jan. 2	6980	34.87	1.56	Nov. 4-5	95.4	6.1	Jan. 20-21	80	82	61	[illegible]5	10.4	S	40	SW	Sep. 26	48	7.0	68	96	201	149	36	38	16	24	57	148	5

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs	Date	Snow, Sleet: Total	Greatest in 24 hrs	Date	Relative humidity: 1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	32° and below	Min temp: 32° and below	Zero and below
MICHIGAN (Cont'd.)																																				
Lansing ‡	57.6	37.8	47.7	92	Sep. 8+	-3	Feb. 2	6937	36.05	2.16	Jul. 29-30	47.2	7.9	Jan. 20-21	--	--	--	--	9.8	SSW	56	NE	Jul. 30	51	---	--	--	--	152	19	41	26	10	57	151	5
Marquette (U)	49.8	34.6	42.2	93	Jun. 9	-12	Jan. 23	8626	34.16	4.06	Oct. 24	120.4	11.9	Mar. 5-6	--	76	65	70	8.5	W	45	SW	Mar. 18	57	7.3	57	96	212	154	35	31	13	7	88	179	17
Muskegon	55.5	39.0	47.3	91	Sep. 8+	-6	Jan. 26	7114	33.29	2.54	Jul. 18	11.8	7.9	Jan. 21	—	82	64	69	---	---	--	---	---	--	7.1	72	82	211	144	43	34	22	5	61	143	2
Sault Ste. Marie	48.4	30.9	39.7	89	Jun. 10	-23	Feb. 20	9397	37.10	2.23	Jun. 26-27	84.0	8.8	Mar. 15-16	86	87	70	75	10.2	E	32	W	Sep. 9+	48	7.0	65	100	200	157	24	34	51	0	105	188	36
MINNESOTA																																				
Duluth	47.5	28.3	37.9	89	Aug. 19+	-23	Feb. 1+	10001	30.63	2.72	Jul. 7-8	58.1	11.2	Dec. 22-23	80	85	65	65	12.8	WNW	61	W	May 12	55	6.7	66	118	181	135	14	32	52	0	109	200	47
International Falls	47.1	24.5	35.8	94	Aug. 19	-37	Feb. 6	10812	23.56	1.65	Jul. 7-8	40.0	3.6	Jan. 28-29	77	80	61	63	8.4	W	*52	SSW	May 11	--	6.6	76	105	184	129	17	50	15	7	113	208	75
Minneapolis-St.Paul	55.1	37.0	46.1	96	Aug. 5+	-16	Jan. 4	7775	26.88	2.40	Jul. 8	27.5	4.6	Nov. 4-5	73	79	58	58	10.8	S	42	SW	May 5	59	6.2	93	106	166	116	8	35	8	29	75	157	23
Rochester	53.9	34.1	44.0	92	Aug. 20+	-25	Feb. 1	8243	34.74	3.80	Jun. 25	46.9	7.8	Feb. 10	80	83	64	66	10.1	S	--	---	---	--	6.5	90	85	190	111	16	45	19	7	80	167	35
St. Cloud	53.1	31.7	42.4	96	Aug. 19+	-22	Jan. 4+	8782	22.38	1.59	May 4-5	22.1	3.7	Feb. 27-28	79	82	59	60	----	---	--	---	---	--	6.4	88	98	179	100	8	43	20	21	85	188	39
MISSISSIPPI																																				
Jackson	75.2	53.5	64.4	94	Aug. 30+	16	Jan. 5	2490	50.46	5.29	Jul. 1-2	T	T	Dec. 31+	83	88	58	64	6.3	SE	42	SE	Mar. 4	57	6.1	90	126	149	122	0	74	16	76	1	46	0
Meridian	75.9	52.4	64.2	97	Jun. 29	15	Jan. 5	2488	63.03	6.95	Jul. 2	T	T	Jan. 16	--	92	60	67	----	---	--	---	---	—	5.8	93	135	137	122	0	49	21	95	1	61	0
Vicksburg (U)	74.0	55.6	64.8	94	Aug. 3	17	Jan. 5	2284	43.59	3.76	Dec. 16-17	T	T	Feb. 20+	--	--	--	--	7.8	---	38	W	Apr. 19	51	6.1	80	141	144	108	0	69	19	49	1	29	0
MISSOURI																																				
Columbia	65.1	44.4	54.8	97	Sep. 7+	-9	Jan. 5	5134	30.97	2.93	Sep. 23-24	10.7	5.3	Jan. 20-21	77	83	58	59	11.1	SSE	52	W	Mar. 31	55	6.0	95	108	162	105	3	55	15	49	25	106	4
Kansas City	65.3	47.3	56.3	100	Aug. 4	-7	Jan. 4	4806	38.49	2.47	Oct. 3-4	22.5	7.2	Jan. 20-21	68	75	55	52	10.6	S	52	W	May 30	60	6.2	101	92	172	97	7	42	8	47	21	92	2
St. Joseph	63.2	42.9	53.1	97	Aug. 3	-13	Jan. 4	5617	44.99	3.23	Jun. 28	24.8	6.7	Jan. 20-21	--	--	--	--	11.5	S	58	NNW	Apr. 2	--	5.7	126	89	150	100	7	55	22	41	33	124	5
St. Louis	65.5	47.1	56.3	98	Aug. 3+	-4	Jan. 5+	4790	28.31	2.56	Feb. 9-10	5.3	2.5	Jan. 21	74	81	59	60	9.3	S	--	---	---	--	6.4	83	107	175	98	3	43	7	50	26	94	2
Springfield	66.0	45.0	55.5	96	Aug. 5	-7	Jan. 4	4704	39.80	2.32	May 31 Jun. 1	6.2	3.0	Jan. 21	79	86	60	61	13.8	SSE	57	N	Jun. 11	64	6.0	101	109	155	105	2	56	24	27	15	108	4
MONTANA																																				
Billings	58.4	35.3	46.9	102	Jul. 24	-22	Nov. 16	7165	11.60	1.37	Nov. 11-12	65.3	15.3	Nov. 11-12	60	66	52	48	11.7	SW	60	NW	Sep. 8	61	6.2	92	100	173	92	18	23	14	37	34	151	14
Butte	51.6	22.7	37.2	90	Jul. 23	-42	Nov. 13	10037	10.59	1.17	Jun. 25-26	54.2	7.3	Nov. 12	--	--	--	--	7.6	NW	*38	WNW	Apr. 6+	--	6.6	82	97	186	96	21	33	7	1	63	245	45
Glasgow	51.4	29.4	40.4	103	Jul. 24	-30	Jan. 31	9338	9.70	.90	Sep. 21-22	28.1	3.7	Jan. 24-25	70	77	58	54	----	---	--	---	---	--	6.3	99	88	178	89	11	28	12	23	81	193	48
Great Falls	55.4	33.9	44.7	98	Jul. 23	-28	Jan. 3	7692	13.63	1.66	May 18-19	72.5	8.9	Feb. 16-17	57	64	49	44	11.2	SW	60	SW	Jan. 18	72	6.3	101	81	183	93	18	18	12	16	35	145	24
Havre (U)	54.3	30.8	42.6	99	Jul. 26	-25	Feb. 20+	8425	13.35	2.94	Jun. 26-27	37.7	6.0	Oct. 5-6	--	75	57	--	8.9	bW	54	bW	Sep. 6	66	6.0	101	104	160	74	16	11	2	24	56	170	44
Helena	54.8	29.7	42.3	97	Jul. 23	-39	Nov. 16	8419	9.37	.82	Nov. 11-12	69.8	21.5	Nov. 11-12	61	69	53	45	8.3	NW	54	W	Jun. 12	63	6.3	95	97	173	89	15	24	2	19	47	198	32
Kalispell	52.3	30.3	41.3	97	Jul. 23	-28	Nov. 16	8652	20.97	1.25	Sep. 14-15	83.3	10.1	Nov. 17-18	--	--	64	--	----	---	--	---	---	--	7.0	73	78	214	143	20	18	--	10	63	188	13
Miles City	56.4	32.4	44.4	106	Jul. 24	-29	Feb. 20	8262	9.48	.57	Jun. 25-26	33.2	3.0	Feb. 16+	--	--	--	--	10.2	WNW	*46	NW	Jun. 9+	--	6.3	85	103	177	82	14	18	10	47	60	179	39
Missoula	54.9	32.1	43.5	101	Jul. 23	-15	Nov. 16	7942	16.29	.98	Sep. 14-15+	55.7	9.7	Feb. 3-4	71	80	61	50	5.8	NW	42	NW	Jun. 8	51	7.1	63	90	212	140	15	18	33	18	49	180	12
NEBRASKA																																				
Grand Island	61.6	37.7	49.7	100	Sep. 7+	-20	Jan. 4	6600	28.37	2.06	Mar. 25-26	29.7	7.2	Mar. 4-5	75	81	57	57	13.3	S	--	---	---	--	5.6	128	92	145	90	11	52	12	43	38	158	14
Lincoln (U)	61.7	42.0	51.9	99	Aug. 21+	-10	Jan. 4	6023	32.66	2.47	May 4	35.3	8.6	Mar. 4-5	--	--	--	--	11.4	S	55	SW	May 4	66	5.7	108	111	146	102	10	55	4	48	42	134	7
Norfolk	59.2	36.7	48.0	99	Jun. 17+	-19	Jan. 4	7145	24.41	1.76	May 20	36.6	8.0	Mar. 4-5	--	81	57	57	----	---	--	---	---	--	6.0	107	99	159	93	12	46	8	39	53	164	20
North Platte	62.2	34.0	48.1	104	Aug. 11	-19	Feb. 20	6929	20.37	2.26	Mar. 25-26	34.4	8.4	Mar. 25-26	76	83	53	51	10.2	SSE	65	NW	Oct. 26+	65	5.6	112	120	133	82	14	56	12	47	28	189	15
Omaha	60.6	40.8	50.7	96	Aug. 21	-10	Jan. 4	6332	39.47	3.40	Aug. 1-2	31.8	7.8	Mar. 4-5	77	82	59	59	11.9	SSE	65	W	May 20	58	6.1	93	117	155	109	8	53	21	37	46	139	11
Scottsbluff	61.5	33.5	47.5	101	Aug. 11	-22	Jan. 4	7055	14.34	2.46	Sep. 23-24	50.6	12.1	Mar. 25-26	70	77	49	47	11.5	WNW	50	WNW	Nov. 23	--	5.7	114	109	142	85	14	38	8	50	27	187	16

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs	Date	Snow, Sleet: Total	Greatest in 24 hrs	Date	Relative humidity: 1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	32° and below	Min temp: 32° and below	Zero and below
NEBRASKA (Cont'd.)																																				
Valentine	60.2	32.8	46.5	106	Aug. 11	-29	Jan. 4	7582	14.66	2.28	Aug. 19-20	33.9	7.7	Nov. 11-12	75	82	53	53	11.0	N	54	NW	May 25	69	5.8	110	103	152	87	13	38	1	50	39	187	22
NEVADA																																				
Elko	63.2	29.5	46.4	101	Jul. 17	-11	Jan. 4	7115	5.51	1.19	Sep. 14	15.2	2.5	Feb. 7-8	47	60	41	29	5.9	SW	*58	W	Sep. 14	--	5.0	143	103	119	65	7	20	4	50	17	215	11
Ely	62.2	27.8	45.0	96	Jul. 11	-13	Feb. 13	7432	5.97	.65	Feb. 11-12	41.3	7.7	Feb. 11-12	51	62	39	31	12.6	S	69	S	May 1	85	4.9	140	121	104	61	16	38	3	25	18	224	12
Las Vegas	81.2	53.2	67.2	116	Jul. 11	20	Jan. 4	2251	4.17	1.09	Nov. 1-2	T	T	Dec. 31+	30	36	23	17	9.0	SW	*47	NNW	Dec. 13	88	3.4	211	91	63	21	0	17	1	137	0	32	0
Reno	68.3	31.3	49.8	102	Jul. 19+	3	Feb. 13	5887	5.98	1.44	Feb. 10-11	24.6	13.9	Feb. 10-11	52	71	40	25	5.7	WNW	46	SSE	Mar. 30	88	4.0	184	95	86	31	4	6	7	55	2	196	0
Winnemucca	66.6	29.5	48.1	103	Jul. 22+	-10	Dec. 14	6647	4.07	.61	Feb. 10-11	18.4	9.9	Feb. 10-11	48	60	39	29	7.6	W	40	E	Jul. 12	63	4.9	150	92	123	44	5	12	0	56	7	213	12
NEW HAMPSHIRE																																				
Concord	58.4	35.2	46.8	95	Aug. 15+	-12	Jan. 28	7171	41.20	2.49	Aug. 29-30	72.9	13.6	Mar. 12-13	83	81	55	68	7.1	NNW	39	NW	Jan. 6	54	6.3	96	100	169	134	19	18	37	17	38	168	21
Mt. Washington Obs.	34.4	20.2	27.3	69	Jul. 30+	-38	Jan. 6	13656	73.11	7.03	Oct. 23-24	210.0	17.1	Mar. 12-13	88	89	87	87	33.8	W	133	W	Jan. 7	33	7.8	45	74	246	215	71	12	325	0	175	235	69
NEW JERSEY																																				
Atlantic City (U)	64.1	45.7	54.9	98	Jun. 29	6	Jan. 19+	4829	47.75	6.46	Jul. 10	6.2	2.5	Jan. 26	82	82	57	72	12.0	S	---	---	---	--	6.4	89	97	179	114	3	21	38	22	13	99	0
Newark	64.1	46.4	55.3	100	Jun. 29	8	Feb. 20+	4878	39.71	4.17	Aug. 8-9	22.0	5.4	Mar. 11-12	72	74	53	62	9.7	SSW	42	NNW	Jan. 6	--	6.2	100	104	161	128	7	25	18	40	14	92	0
Trenton (U)	63.9	46.3	55.1	98	Jun. 29	7	Feb. 20+	4880	41.30	3.09	Aug. 29-30	15.7	5.2	Dec. 21-22	--	--	--	--	9.1	---	42	NW	Jan. 5	60	5.8	102	120	143	127	4	30	--	32	19	95	0
NEW MEXICO																																				
Albuquerque	69.6	44.2	56.9	97	Jun. 22+	3	Jan. 1	4271	10.14	1.13	Aug. 14-15	21.8	9.9	Dec. 14-15	45	55	38	29	9.0	N	66	N	Oct. 31	76	4.0	188	104	73	63	7	34	4	70	5	106	0
Clayton	66.8	37.4	52.1	98	Aug. 3	-21	Jan. 4	5409	13.96	1.65	Aug. 14-15	32.6	8.6	Mar. 20	--	70	41	41	----	---	--	---	---	--	4.6	156	106	103	79	8	46	7	28	13	154	5
Raton	64.5	31.4	48.0	92	Aug. 2	-20	Jan. 4+	6396	14.93	1.32	Jun.30 Jul.1	30.2	4.0	Dec. 26	--	--	38	--	----	---	---	---	---	--	5.0	136	110	119	83	13	72	5	5	12	192	6
Roswell	76.2	43.9	60.1	104	Aug. 4+	10	Jan. 22+	3563	9.52	1.20	Aug. 23	3.6	3.1	Dec. 14-15	52	66	38	31	11.4	---	68	W	Feb. 9	-	4.2	181	103	81	48	1	44	4	120	4	117	0
NEW YORK																																				
Albany	58.7	38.4	48.6	96	Aug. 15+	-8	Feb. 12	6845	32.39	2.01	Nov. 27-28	60.0	12.2	Mar. 12-13	79	80	56	66	9.3	SSE	57	W	Feb. 19	52	6.8	76	99	190	142	17	23	20	21	52	157	17
Binghamton	59.4	41.0	50.2	95	Aug. 15+	-2	Jan. 18	6242	43.37	2.41	Aug. 30	46.5	11.2	Mar. 12	†76	†80	†62	†67	9.2	NNW	†b59	†bNW	Jan. 5+	†50	†7.2	†56	†97	†212	164	10	†31	†46	20	34	121	1
Buffalo	57.7	40.4	49.1	95	Sep. 9	-2	Feb. 2	6631	42.81	2.68	Sep.30 Oct.1	108.4	7.3	Mar. 12	79	81	62	67	11.1	SW	68	W	Mar. 7	53	6.8	66	112	187	157	37	24	14	13	47	138	2
New York (La Guardia)	62.8	48.1	55.5	98	Jun. 29	8	Feb. 2	4823	41.19	1.89	Jul. 20	23.9	7.4	Mar. 12	71	73	54	63	13.9	---	63	NW	Jan. 5	-	6.2	98	110	157	126	7	22	14	26	17	80	0
New York (U)	61.6	47.4	54.5	96	Jun. 29	7	Feb. 2	4937	38.42	2.43	Nov. 6-7	17.5	6.6	Dec. 21-22	g70	75	k60	62	13.5	NW	69	NW	Jan. 5	57	5.8	109	115	141	123	4	20	13	8	15	81	0
N. Y. Central Park	63.2	47.6	55.4	97	Jun. 29	7	Feb. 2	4833	38.77	1.83	Aug. 8-9	25.5	13.7	Dec. 21-22	--	n73	n57	n66	9.3	SW	47	NW	Jan. 5	62	6.1	70	176	119	124	4	--	--	27	15	81	0
Rochester	57.7	39.3	48.5	98	Sep. 9	-2	Feb. 12	6822	32.23	2.61	Sep.30 Oct.1	151.7	17.6	Mar. 12-13	80	82	63	68	11.5	WSW	66	SW	Jan. 22	55	6.9	62	114	189	145	41	24	6	23	49	150	3
Syracuse	58.1	39.5	48.8	96	Aug. 15	-10	Jan. 26	6750	41.20	2.39	Oct. 1	120.8	9.0	Mar. 12-13	78	80	61	68	10.2	WNW	50	W	Mar. 7	50	6.9	69	102	194	169	36	30	7	23	53	143	9
NORTH CAROLINA																																				
Asheville (U)	67.1	46.2	56.7	93	Jun. 30	3	Jan. 5	4009	44.59	3.54	Sep. 29-30	2.8	1.5	Jan. 16	--	84	53	64	7.8	bNW	42	bW	Jan. 21	54	6.2	96	106	163	141	2	47	52	8	9	88	0
Cape Hatteras (R)	70.3	56.1	63.2	94	Jun. 30	18	Jan. 19	2442	50.43	3.58	Sep. 4	T	T	Nov. 29+	83	82	67	80	11.4	SW	--	---	--	--	6.2	97	106	162	124	0	40	14	7	0	21	0
Charlotte	72.4	50.4	61.4	102	Jun. 30	10	Jan. 17	3119	53.66	4.74	Sep. 29-30	1.3	1.3	Mar. 2	80	85	54	63	9.8	SSW	50	bNW	Jul. 10	61	6.3	101	89	175	125	1	40	30	60	2	56	0
Greensboro	69.4	47.5	58.5	101	Jun. 30	7	Jan. 18	3808	52.42	5.97	Oct. 9-10	4.7	2.7	Jan. 8	81	85	53	66	8.1	SW	36	WSW	Jan. 21	68	6.1	104	93	168	128	2	44	29	30	6	92	0
Raleigh	70.9	48.8	59.9	102	Jun. 30	10	Jan. 18+	3436	48.95	4.28	Aug. 29-30	2.9	1.7	Jan. 8	82	87	54	68	7.7	SSW	35	NNE	Jul. 29+	55	6.1	101	105	159	115	2	40	35	38	3	79	0
Wilmington	73.4	53.8	63.6	101	Jun. 29	16	Jan. 6	2478	53.73	2.90	Mar. 5-6	T	T	Dec. 24+	--	88	60	76	11.8	N	48	SW	Jun. 2	56	6.2	91	114	160	136	0	40	15	38	0	36	0
Winston-Salem	69.9	48.9	59.4	100	Jun. 30+	10	Jan. 18	3604	53.01	3.09	Sep. 29-30	3.5	1.8	Jan. 8	74	78	52	62	9.0	SSW	46	NE	Aug. 1	--	5.8	114	97	154	122	2	46	26	34	6	75	0
NORTH DAKOTA																																				
Bismarck	53.3	29.9	41.6	105	Sep. 8+	-40	Jan. 31	9127	12.36	1.19	Jun. 26-27	45.3	7.5	Nov. 25	71	78	57	55	12.1	WNW	66	NW	Sep. 8	61	6.5	80	103	182	93	16	35	10	39	87	195	50

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs	Date	Snow, Sleet: Total	Greatest in 24 hrs	Date	Relative humidity: 1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	32° and below	Min temp: 32° and below	Zero and below
NORTH DAKOTA (Cont'd.)																																				
Devils Lake (U)	48.7	28.1	38.4	100	Aug. 3+	-27	Jan. 31	10057	15.72	1.42	Oct. 8	39.9	5.7	Oct. 10	--	83	62	62	8.7	NW	42	NW	May 12	63	6.1	100	107	158	102	13	28	16	19	107	205	51
Fargo	51.9	31.6	41.8	102	Sep. 8	-24	Feb. 9	9085	18.23	2.48	Jul. 7-8	12.6	2.1	Nov. 22	76	81	61	60	15.1	N	115	NW	Jun. 9	58	6.4	87	110	168	80	6	34	10	26	87	192	44
Williston (U)	51.4	31.0	41.2	100	Jul. 27	-34	Jan. 31	9089	15.55	1.86	Jun. 20	38.0	7.5	Oct. 7	--	76	56	52	7.7	W	42	NW	Sep. 8	59	6.4	83	103	179	90	14	15	4	23	83	181	45
OHIO																																				
Akron	59.9	40.4	50.2	93	Aug. 14	-7	Jan. 5	6234	45.24	2.99	Jan. 20-21	48.5	6.4	Mar. 11-12	82	86	63	70	10.8	S	--	---	---	--	6.7	70	103	192	158	16	48	30	10	39	139	5
Cincinnati (Abbe Obs.)	66.1	45.9	56.0	98	Aug. 25+	-4	Jan. 5	4775	39.28	4.53	Jan. 20-21	21.4	5.9	Mar. 11-12	†75	†80	†57	†60	6.1	---	49	SW	Jan. 21	54	†7.0	†66	†92	†207	132	6	41	†30	59	16	105	2
Cleveland	60.7	42.8	51.8	94	Sep. 9+	-7	Jan. 5	5852	40.38	2.33	Feb. 9-10+	46.9	7.4	Mar. 11-12	79	81	61	67	11.3	S	70	SW	Mar. 15	46	6.8	70	105	190	165	14	34	10	26	34	123	3
Columbus	64.0	42.9	53.5	99	Aug. 25	-6	Jan. 5	5440	36.91	4.81	Jan. 20-21	22.5	3.8	Mar. 11-12	80	83	57	64	7.5	S	56	W	Jan. 21	55	6.7	67	109	189	133	9	40	19	39	27	125	4
Dayton	62.4	43.3	52.9	94	Aug. 23	-11	Jan. 5	5591	40.17	4.30	Jan. 20-21	28.9	4.9	Mar. 11-12	78	82	57	64	10.4	SSW	63	SW	Mar. 6	57	6.8	69	98	198	141	9	40	20	18	33	123	6
Sandusky (U)	60.4	43.6	52.0	97	Sep. 9	-6	Jan. 5	5896	40.05	2.85	Jul. 29	34.8	4.8	Jan. 3-4	--	--	--	--	8.4	---	75	SW	Apr. 28	62	5.7	104	139	122	137	17	47	9	34	37	119	3
Toledo	59.8	40.0	49.9	94	Sep. 9+	-6	Jan. 5	6439	37.24	1.78	Jan. 20-21	27.7	4.1	Nov. 12-13	82	85	62	68	8.4	SW	40	NW	Apr. 3	60	6.7	74	109	182	144	9	49	20	27	40	140	5
Youngstown	59.5	39.4	49.5	92	Sep. 9+	-4	Feb. 20+	6366	42.39	2.79	Jan. 20-21	52.8	6.7	Mar. 11-12	83	85	63	70	10.7	SW	58	W	Jul. 11	--	6.9	74	95	196	161	18	44	32	10	40	143	5
OKLAHOMA																																				
Oklahoma City	69.3	47.9	58.6	99	Aug. 3	-4	Jan. 4	3945	46.46	4.09	Sep. 23-24	5.3	2.4	Jan. 20-21	80	87	61	59	14.1	SSE	54	NW	Mar. 14	63	5.1	146	91	128	80	3	53	10	50	11	82	2
Tulsa	70.4	49.3	59.9	99	Aug. 6	-5	Jan. 5	3670	49.39	5.46	Oct. 1-2	7.3	4.1	Jan. 20-21	74	82	57	55	9.8	SSE	50	N	Mar. 20	56	5.6	123	95	147	99	2	58	8	57	9	74	2
OREGON																																				
Astoria	58.0	43.3	50.7	92	Jul. 30	17	Jan. 3	5149	74.41	3.48	Nov. 17-18	1.1	1.1	Jan. 4	88	90	79	73	9.4	ESE	*40	S	Jan. 24		7.8	46	68	251	212	1	6	46	1	1	26	0
Burns (U)	61.4	32.9	47.2	100	Jul. 22	-4	Jan. 4	6812	9.64	1.16	Sep. 18	32.3	3.7	Dec. 12	60	71	53	37	----	---	--	---		--	5.4	136	84	145	71	9	15	3	29	9	187	4
Eugene	63.2	41.9	52.6	98	Jul. 30+	19	Nov. 14+	4643	32.94	3.22	Feb. 13-14	1.2	1.2	Jan. 4	--	--	71	57	8.3	---	*37	*SW	Nov. 20	--	6.9	75	80	210	122	1	1	56	13	3	52	0
Meacham	52.0	35.2	43.6	97	Jul. 22	-12	Jan. 3	7907	32.58	1.51	Jan. 26-27	142.2	12.0	Jan. 1-2	--	--	64	--	----	---	---	---	---	--	6.8	92	63	210	160	50	6	39	3	36	163	3
Medford	67.6	40.0	53.8	106	Jul. 21+	17	Dec. 8	4647	10.42	1.90	Feb. 14-15	2.5	1.9	Dec. 30-31	70	85	67	44	4.6	NW	*40	SSE	Feb. 16+	--	5.7	127	75	163	80	1	3	51	54	6	109	0
Pendleton	62.6	41.1	51.9	105	Jul. 22	-3	Jan. 4	5304	12.20	1.09	Feb. 16-17	21.2	9.5	Feb. 16-17	65	73	58	49	10.4	SE	*63	WNW	Dec. 11	--	6.2	97	96	172	107	6	5	29	33	20	102	2
Portland	61.9	46.9	54.4	98	Jul. 31	18	Jan. 5+	4091	41.60	1.79	Oct. 10-11	5.4	3.0	Feb. 14	†76	†84	†73	†60	8.0	ESE	†42	S	Jan. 24	†43	†7.5	†57	†65	†243	156	2	†3	†43	8	3	14	0
Roseburg	65.6	41.2	53.4	102	Jul. 18	21	Jan. 3	4445	25.97	2.24	Feb. 13-14	3.3	2.6	Feb. 14-15	--	--	71	53	4.6	bN	31	bSW	Nov. 20+	50	6.5	79	103	183	110	1	4	61	25	0	66	0
Salem	63.4	41.5	52.5	100	Jul. 19	16	Nov. 14	4670	35.38	2.32	Feb. 13-14	5.5	3.4	Jan. 4-5	82	90	72	60	7.0	S	*35	W	Nov. 21	--	7.1	66	74	225	148	2	1	40	18	3	55	0
Sexton Summit (R)	56.0	38.8	47.4	93	Jul. 22+	15	Jan. 3	6524	24.58	2.44	Jan. 11-12	73.4	22.6	Feb. 13-14	--	--	65	--	11.0	N	--	---	---	--	5.5	140	64	161	101	16	3	119	4	15	109	0
PACIFIC AREA																																				
Canton Island	89.9	78.5	84.2	95	May 6	72	Jul. 31+	0	29.89	5.21	Jan. 29-30	0.0	0.0		75	79	78	62	13.9	E	*35	W	Feb. 8+	--	8.6	29	48	288	85	0	3	0	237	0	0	0
Guam (R)	85.7	72.7	79.2	91	Jun. 16+	59	Feb. 12	0	79.07	4.33	Aug. 25-26	0.0	0.0		--	--	--	--	----	bE	30	bE	Oct. 16	71	---	--	--	--	261	0	28	0	15	0	0	0
Koror (R)	87.0	75.4	81.2	91	Nov. 30+	71	Sep. 19	0	151.89	7.31	Jul. 1-2	0.0	0.0		89	92	82	78	----	---	--	---	---	--	9.0	1	56	308	279	0	34	0	20	0	0	0
Majuro	85.5	77.0	81.3	90	Aug. 7	72	Sep. 2+	0	130.57	5.73	Jun. 7-8	0.0	0.0		82	83	76	79	10.6	°E	36	NE	Mar. 3	58	9.5	0	28	337	249	0	19	0	1	0	0	0
Ponape (R)	86.5	74.3	80.4	93	Aug. 31	69	Jan. 12	0	217.80	8.05	Apr. 29-30	0.0	0.0		90	91	79	81	6.3	---	36	E	Mar. 6	42	9.3	2	35	328	302	0	36	0	24	0	0	0
Truk	86.7	76.2	81.5	92	Aug. 24	72	Dec. 31+	0	159.80	14.92	Dec. 30-31	0.0	0.0		79	85	86	78	---	---	--	---	---	--	9.5	0	22	342	261	0	11	0	16	0	0	0
Wake Island	84.8	75.2	80.0	91	Sep. 16	68	Mar. 2+	0	24.84	1.71	Dec. 14-15	0.0	0.0		77	78	68	72	15.0	ENE	*39	ENE	Oct. 30	--	5.4	108	171	86	169	0	4	0	20	0	0	0
Yap (R)	86.8	76.2	81.5	91	Oct. 13+	70	Jan. 27	0	120.27	4.87	Dec. 6-7	0.0	0.0		87	89	79	78	----	---	--	---	---	--	9.7	0	14	351	271	0	20	0	23	0	0	0
PENNSYLVANIA																																				
Allentown	62.5	42.5	52.5	97	Jun. 29	2	Jan. 19	5536	41.62	2.43	Jul. 23-24	24.4	8.1	Mar. 11-12	80	82	57	67	10.4	WSW	54	WNW	Nov. 2	--	6.1	105	99	161	134	7	45	25	19	23	134	0

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs	Date	Snow, Sleet: Total	Greatest in 24 hrs	Date	Relative humidity: 1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	32° and below	Min temp: 32° and below	Zero and below
PENNSYLVANIA (Cont'd.)																																				
Erie	58.6	41.3	50.0	94	Sep. 9	-4	Feb. 20	6334	43.51	4.84	Sep.30 Oct. 1	76.6	8.0	Jan. 15-16	--	--	--	--	6.8	---	46	NW	Jul. 20	---	6.8	67	109	189	150	29	40	12	8	38	132	3
Harrisburg	64.0	44.8	54.4	96	Jun. 30+	7	Jan. 18	5122	35.62	2.74	Jun. 2	29.3	6.0	Mar. 11-12	72	75	52	59	7.0	WNW	42	NW	Jan. 9	62	6.4	92	96	177	129	13	40	18	33	20	115	0
Philadelphia	64.6	46.4	55.5	97	Jun. 30+	9	Feb. 20+	4765	38.37	2.96	Jun. 2	10.5	2.9	Dec. 21-22	77	78	55	63	9.6	SW	52	NW	Jan. 6	59	6.5	79	112	174	118	5	23	26	29	13	98	0
Pittsburgh	61.9	41.6	51.8	95	Sep. 9	-3	Jan. 5	5751	38.62	1.77	Oct. 23-24	42.4	5.9	Jan. 15-16	76	80	58	63	8.6	SW	40	W	Mar. 15	60	6.9	63	106	196	155	13	36	10	14	34	131	3
Reading (U)	64.4	46.4	55.4	97	Jun. 30+	9	Feb. 20+	4865	36.84	2.12	Dec. 6-7	18.8	5.0	Dec. 7	--	--	--	--	10.4	---	56	bNW	Nov. 2	54	6.3	87	107	171	124	5	33	7	35	17	103	0
Scranton	60.0	40.7	50.4	96	Jun. 29	-1	Jan. 19	6192	34.15	1.97	Nov. 27-28	32.7	5.8	Mar. 11-12	77	80	59	67	8.7	SW	12	SE	Mar. 6	49	6.7	75	105	185	145	12	34	32	22	37	134	2
Williamsport	61.2	41.4	51.3	96	Aug. 21+	-3	Jan. 18	5903	45.81	2.08	Nov. 27-28	39.2	9.7	Mar. 11-12	--	81	56	64	----	---	--	---	--	--	6.7	59	136	170	156	8	--	--	28	27	139	2
PUERTO RICO																																				
San Juan (U)	83.8	74.0	78.9	91	Sep. 22+	68	Feb. 17+	0	52.53	4.01	Apr. 26	.0	.0		†88	†84	†65	†79	†7.7	ENE	†30	SE	Mar. 4	†71	†5.9	†49	†218	†98	198	0	33	0	8	0	0	0
RHODE ISLAND																																				
Block Island	56.9	44.0	50.5	85	Aug. 28	7	Feb. 2	5632	49.75	2.66	Jul. 14-15	14.7	2.7	Mar. 12	--	--	--	--	----	---	--	---	---	--	6.2	104	100	161	111	7	16	102	0	19	87	0
Providence	59.9	41.8	50.9	93	Aug. 21	2	Feb. 2	5864	43.14	2.06	Jul. 10-11	23.5	6.2	Mar. 12	78	77	57	69	11.6	SW	60	S	Mar. 6	58	6.1	102	94	169	144	7	18	26	10	27	122	0
SOUTH CAROLINA																																				
Charleston (U)	74.1	54.7	64.4	99	Jun. 30+	17	Jan. 17	2103	67.16	6.63	Mar. 5-6	T	T	Mar. 2	91	91	63	79	8.7	N	-	---	--	68	6.7	66	110	189	133	0	45	24	20	0	27	0
Columbia	75.3	52.7	64.0	103	Jun. 30	13	Jan. 17	2511	66.00	5.81	Jul. 9-10	1.0	1.0	Mar. 2	83	87	52	65	7.3	SW	38	ESE	Sep. 29	63	6.1	98	104	163	128	1	58	21	73	0	46	0
Florence	74.5	53.3	63.9	101	Jun. 30	15	Jan. 6	2458	64.71	4.35	Sep. 28-29	T	T	Dec. 21+	83	86	54	69	---	---	--	---	---	--	6.1	92	119	154	119	0	63	40	59	0	39	0
Greenville	70.9	51.1	61.0	100	Jun. 30	10	Jan. 17	3117	55.30	3.37	Sep. 29-30	.8	.4	Dec. 6+	77	81	54	64	7.7	NE	35	SW	Jan. 21+	57	6.5	86	95	184	126	0	45	22	42	0	47	0
Spartanburg	70.9	50.7	60.8	99	Jun. 30	9	Jan. 17	3130	56.85	4.76	Sep. 29-30	T	T	Feb. 3+	--	--	--	--	6.7	--	16	W	Apr. 28	-	---	--	--	--	116	0	52	30	38	2	47	0
SOUTH DAKOTA																																				
Huron	57.0	33.4	45.2	102	Aug. 18	-30	Feb. 19	8119	20.05	2.17	Aug. 1-2	38.1	5.6	Feb. 9-10	76	83	58	56	13.0	SSE	58	N	Jul. 3	66	6.4	88	104	173	106	10	46	19	50	73	175	38
Rapid City	59.5	34.1	46.8	104	Aug. 18	-20	Jan. 4	7410	14.61	1.17	Apr. 18-19	41.2	10.1	Apr. 18-19	64	67	49	48	11.5	NNW	66	SW	Jul. 15	61	5.8	109	102	154	97	10	38	7	56	41	179	16
Sioux Falls	56.7	34.8	45.8	99	Jul. 26+	-24	Feb. 19	7909	29.81	3.94	Aug. 2	43.7	11.0	Feb. 9-10	69	75	55	55	11.0	S	44	ENE	Aug. 2	--	6.2	89	118	158	94	12	39	27	36	73	171	32
TENNESSEE																																				
Bristol	68.3	45.8	57.1	98	Jul. 1	-1	Jan. 18	4143	40.50	2.50	Mar. 26-27	10.7	4.0	Jan. 16	--	86	56	62	----	--	--	---	---	--	6.5	83	102	180	122	3	40	26	32	9	90	1
Chattanooga	70.8	49.2	60.0	97	Jun. 30	7	Jan. 5	3481	46.75	3.93	Jan. 20-21	.1	.1	Jan. 16	84	89	57	64	6.5	S	59	SW	Jan. 21	56	6.6	86	94	185	122	0	53	38	39	2	65	0
Knoxville	70.1	49.4	59.8	96	Jul. 31+	6	Jan. 5	3595	45.27	3.25	Aug. 24	7.1	3.7	Dec. 6	77	84	58	61	7.0	NE	60	SW	Jan. 21	46	6.7	83	92	190	133	2	44	30	40	5	61	0
Memphis	71.6	52.0	61.8	96	Jul. 31	9	Jan. 5	3191	49.20	3.17	Jul. 24-25	.6	.6	Feb. 5	76	81	56	59	8.2	S	35	NW	Nov. 24	60	6.1	96	113	156	108	0	54	9	54	6	60	0
Nashville	70.2	49.1	59.7	96	Aug. 25+	2	Jan. 5	3678	47.97	3.84	Oct. 7-8	3.0	2.0	Feb. 5	82	87	61	65	7.7	S	42	SW	Mar. 14+	53	6.3	91	97	177	121	2	61	12	53	9	79	0
Oak Ridge (R)	69.1	48.3	58.7	95	Jul. 1	3	Jan. 5	3784	50.54	3.21	Jan. 20-21	2.7	1.3	Jan. 15-16	--	--	--	-	4.9	---	--	---	--	-	6.2	101	90	174	127	2	48	33	25	5	74	0
Oak Ridge Area Sta.	69.1	48.1	58.6	94	Aug. 26+	2	Jan. 5	3797	49.02	3.31	Aug. 5	-	---	----	-	--	--	-	4.7	NE	--	---	---	--	---	---	--	---	123	--	--		21	6	70	0
TEXAS																																				
Abilene	75.7	51.2	63.5	105	Aug. 30	5	Jan. 4	2850	27.31	5.10	Oct. 2-3	1.5	1.5	Feb. 19	68	80	51	45	11.7	S	47	W	Jun. 11+	68	4.8	165	78	122	68	1	44	5	105	4	60	0
Amarillo	69.7	42.7	56.2	101	Jun. 11	-11	Jan. 4	4492	22.81	2.25	Dec. 16-17	4.9	1.3	Jan. 15	61	71	44	38	12.5	SW	54	NW	Mar. 14+	79	4.4	172	97	96	74	1	57	24	59	8	129	2
Austin	77.8	56.9	67.4	100	Aug. 7	14	Jan. 4	1950	34.96	3.64	Oct. 3-4	1.0	1.0	Nov. 14	79	86	59	57	9.1	SSE	47	N	Aug. 31	54	5.8	108	112	145	90	1	42	27	118	1	25	0
Brownsville	80.9	64.0	72.5	98	Jul. 25	31	Jan. 4	811	22.85	2.24	Nov. 5-6	T	T	Jan. 5	88	91	64	71	10.9	SSE	36	S	Apr. 27	60	6.2	94	120	151	78	0	14	32	119	0	2	0
Corpus Christi	78.7	61.7	70.2	97	Jul. 23	25	Jan. 4	1201	38.44	4.26	Oct. 4	T	T	Nov. 17+	85	89	65	71	10.7	SSE	42	SE	Dec. 31	57	6.3	87	116	162	87	0	37	25	89	0	8	0
Dallas	75.1	55.3	65.2	103	Aug. 30	9	Jan. 4	2463	38.78	6.52	Oct.30 Nov. 1	1.3	1.3	Feb. 19	70	80	56	52	11.6	S	47	N	Aug. 30	63	5.3	140	88	137	88	1	47	8	89	2	35	0
El Paso	78.2	51.3	64.8	105	Jul. 8	17	Jan. 1	2426	4.99	.97	Aug. 5-6	T	T	Dec. 26+	38	49	31	23	11.6	N	56	NW	Mar. 19	83	3.8	201	91	73	36	0	25	0	111	0	54	0

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature							Degree days	Precipitation						Relative humidity				Wind					Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days										
	Averages			Extremes								Snow, Sleet									Fastest mile					Sunrise to sunset							Max temp		Min temp	
	Daily maximum	Daily minimum	Monthly	Highest	Date	Lowest	Date		Total	Greatest in 24 hrs	Date	Total	Greatest in 24 hrs	Date	1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Average hourly speed	Prevailing direction	Speed	Direction	Date			Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet 1.0 or more	Thunderstorms	Heavy fog	90° and above	32° and below	32° and below	Zero and below
TEXAS (Cont'd.) Ft.Worth(Amon Carter)	75.6	54.4	65.0	104	Aug. 30	7	Jan. 4	2553	34.14	5.91	Sep.30 Oct. 1	2.2	2.0	Feb. 19	72	82	56	53	13.1	S	73	N	Aug. 30	--	5.2	143	88	134	83	1	47	[illegible]	97	[illegible]	15	[illegible]
Galveston (U)	73.6	63.9	68.8	93	Aug. 8	26	Jan. 4	1369	42.54	5.26	Jul. 24-25	.0	.0		--	--	--	--	12.6	-	66	W	May 21	61	--	--		-	95	0	--	--	8	0	4	0
Galveston	74.4	63.2	68.8	94	Aug. 8	27	Jan. 4	1421	53.36	5.46	Jul. 24-25	.0	.0		79	81	71	72	12.0	SE	--	---	---	--	6.5	74	124	167	109	0	62	35	34	0	3	0
Houston (U)	77.0	60.8	68.9	97	Jul. 11	21	Jan. 4	1452	63.85	4.49	Jul. 24-25	.0	.0		†86	†89	†63	†68	10.0	SE	49	N	Jul. 25	63	6.2	85	135	145	110	0	64	25	81	0	10	0
Laredo	84.7	61.7	73.2	106	Sep. 1	30	Jan. 4	1093	16.72	2.94	Jun. 25	.0	.0		71	82	49	43	11.7	SE	40	ESE	May 5	--	5.5	113	129	123	65	0	36	22	178	0	8	0
Lubbock	73.1	45.0	59.1	103	Jun. 11	0	Jan. 4	3787	16.21	2.38	Jun. 3	1.4	1.0	Feb. 1-2	63	75	48	41	13.6	S	58	N	Mar. 20	--	4.2	184	93	88	55	0	41	15	90	5	106	0
Midland	75.8	49.1	62.5	105	Aug. 30	8	Jan. 4	2922	20.39	3.64	Jul. 1-2	.6	.3	Feb. 1+	62	77	47	39	10.1	SSE	44	WSW	Mar. 25	--	4.5	165	100	100	56	0	46	11	103	4	73	0
Port Arthur	76.4	58.9	67.7	96	Aug. 7	23	Jan. 4	1673	69.92	3.96	Jul. 24-25	T	T	Mar. 16	88	91	67	73	11.5	ESE	51	SW	May 21	55	6.8	51	132	182	135	0	78	44	63	0	15	0
San Angelo	76.1	52.0	64.1	106	Aug. 30	9	Jan. 4	2600	33.86	6.03	Sep. 29-30	T	T	Nov. 14+	66	79	51	44	11.9	S	46	NW	Mar. 20	--	4.5	170	89	106	60	0	37	9	98	4	57	0
San Antonio	78.7	57.3	68.0	101	Sep. 1+	20	Jan. 4	1814	24.50	3.79	Oct. 3-4	T	T	Nov. 14+	79	85	57	54	9.9	SSE	43	SE	Jun. 5	62	5.7	104	128	133	92	0	40	23	119	0	24	0
Victoria	78.3	59.6	69.0	99	Aug. 8	22	Jan. 4	1456	35.22	3.57	Oct. 4	T	T	Mar. 16	--	90	62	67	9.3	SSE	60	NW	May 23	--	6.3	82	130	153	93	0	49	26	100	1	13	0
Waco	76.5	55.3	65.9	100	Aug. 30+	11	Jan. 4	2275	33.81	3.63	Oct. 3-4	T	T	Nov. 14+	76	85	59	56	12.5	S	44	NE	Jun. 12+	--	5.6	127	97	141	89	0	47	13	99	1	35	0
Wichita Falls	74.8	51.1	63.0	105	Aug. 30	3	Jan. 4	3093	32.97	5.61	Oct. 2-3	3.1	2.1	Feb. 1-2	66	76	51	46	11.1	SSE	42	NNW	Mar. 14	--	4.5	174	78	113	66	2	47	4	109	6	69	0
UTAH Milford	66.4	33.6	50.0	101	Jul. 23+	-5	Feb. 14+	6149	5.64	.86	Mar. 23-24	30.5	5.8	Mar. 24	--	--	36	28	----	---	--	---	---	--	5.0	138	113	114	56	12	39	4	70	11	188	7
Salt Lake City	64.5	38.9	51.7	101	Jul. 23	-1	Jan. 4	5766	13.82	1.15	Apr. 17-18	39.9	8.5	Feb. 8	60	66	43	38	8.0	SSE	42	W	Jun. 15	70	5.4	125	99	141	83	13	33	4	61	10	144	1
VERMONT Burlington	54.9	35.7	45.3	96	Jul. 30	-18	Feb. 12	7816	34.54	1.80	Nov. 27-28	96.0	12.5	Jan. 16	77	76	58	66	8.2	SSW	42	NW	Dec. 9	53	7.2	54	105	206	162	25	26	19	8	74	158	26
VIRGINIA Lynchburg	67.7	47.3	57.5	98	Jun. 29	6	Jan. 6	4049	37.62	2.56	Sep. 29-30	9.1	3.9	Jan. 16+	--	80	53	62	7.8	S	39	S	Apr. 3	57	5.9	101	106	158	110	2	31	41	30	9	82	0
Norfolk	69.9	52.0	61.0	98	Jun. 29	14	Jan. 6	3256	51.13	6.79	Sep. 28-29	1.1	1.1	Jan. 8	81	80	59	71	10.0	SW	56	SW	Jan. 22	62	6.2	93	108	164	116	1	38	27	41	6	44	0
Richmond	69.7	48.3	59.0	100	Jun. 29	8	Jan. 18	3805	51.34	4.58	Jul. 1	3.6	2.1	Jan. 16	80	81	53	66	7.8	S	40	S	Jan. 21	58	6.2	95	102	168	107	2	48	25	50	7	77	0
Roanoke	68.8	47.1	58.0	100	Jun. 30	6	Jan. 6+	4035	37.39	3.45	Sep. 29.30	5.6	3.9	Jan. 8	73	77	49	58	8.0	SE	--	---	---	--	6.0	97	115	153	128	2	42	25	52	11	91	0
WASHINGTON Olympia	59.6	40.0	49.8	97	Jul. 31	7	Jan. 3	5535	52.92	3.59	Nov. 20-21	21.3	9.9	Feb. 9-10	80	88	75	60	7.6	SW	*40	SSW	Jan. 24	--	7.6	49	77	239	165	5	1	86	7	3	78	0
Seattle-Tacoma	57.9	43.8	50.9	93	Jul. 31	14	Jan. 3	5168	46.52	3.41	Nov. 20	9.7	5.1	Feb. 10	77	85	75	63	10.4	SSW	*40	SSW	Jan. 24	--	7.6	46	85	234	177	4	8	45	2	2	31	0
Seattle (U)	59.5	47.0	53.3	94	Jul. 31	18	Jan. 3	4379	37.91	2.63	Nov. 19-20	6.5	2.6	Jan. 5	†72	†80	†68	†56	†7.4	†S	60	SW	Dec. 11	37	---	--	--	--	162	4	--	--	3	2	9	0
Spokane	55.8	36.7	46.3	102	Jul. 23	-5	Jan. 4	7095	19.57	1.10	Jan. 23-24	63.3	6.7	Jan. 5	70	80	65	54	8.7	SW	43	SW	Oct. 8	55	6.9	82	72	211	120	19	6	49	17	33	147	3
Stampede Pass (R)	44.3	32.6	38.5	85	Jul. 31+	-6	Jan. 4	9615	117.75	6.76	Nov. 22-23	363.7	14.1	Dec. 11-12	--	91	85	80	----	---	--	---	---	--	7.8	54	52	259	231	84	2	262	0	89	191	4
Tatoosh Island (R)	53.4	45.4	49.4	80	Jul. 30	22	Jan. 3	5599	77.54	3.70	Apr. 28-29	5.4	4.1	Jan. 4-5	85	87	83	81	14.8	E	68	E	Jan. 4	43	7.9	40	78	247	202	2	6	52	0	2	6	0
Walla Walla (U)	62.6	44.1	53.4	107	Jul. 22	-2	Jan. 4	4901	17.32	1.22	Feb. 16-17	23.5	4.5	Feb. 16-17	--	--	59	--	5.7	bS	43	bW	Nov. 20	61	6.4	93	84	188	108	12	5	16	31	17	79	1
Yakima	62.4	35.6	49.0	102	Jul. 22+	-6	Jan. 4	6103	6.07	.71	Jan. 11-12	17.2	4.3	Feb. 9-10	66	76	53	41	7.2	WNW	*46	SW	Dec. 15+	--	6.3	98	87	180	69	5	3	17	30	21	161	2
WEST VIRGINIA Charleston	67.5	45.1	56.3	96	Aug. 25+	-1	Jan. 5	4434	36.40	1.87	Jul. 27	23.2	5.5	Apr. 12-13	75	78	52	58	6.2	SW	35	SW	Jul. 18	--	7.1	44	125	196	149	7	41	95	30	12	95	2
Huntington (U)	68.6	46.2	57.4	97	Aug. 26+	-2	Jan. 5	4251	41.72	2.63	Jul. 5-6	8.3	3.8	Nov. 27-28	--	--	--	--	----	---	--	---	---	--	---	--	--	--	127	4	--	--	53	12	91	1
Parkersburg (U)	66.3	44.7	55.5	98	Aug. 23+	-3	Jan. 5	4810	33.45	1.73	May 13	19.3	3.5	Jan. 15-16	--	--	--	--	5.8	---	33	W	Mar. 15	48	6.4	85	107	173	116	11	44	--	39	19	106	1
WISCONSIN Green Bay	52.5	33.1	42.8	94	Sep. 8	-19	Feb. 2+	8551	32.53	2.95	Jul. 8	79.0	9.2	Feb. 22-23	85	88	68	73	11.9	SW	49	SW	Jul. 8	52	6.3	96	91	178	125	25	40	42	10	87	167	36

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs	Date	Snow, Sleet: Total	Greatest in 24 hrs	Date	Relative humidity: 1:00a E. S. T.	7:00a E. S. T.	1:00p E. S. T.	7:00p E. S. T.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	Max temp: 32° and below	Min temp: 32° and below	Min temp: Zero and below
WISCONSIN (Cont'd.)																																				
La Crosse	54.6	36.4	45.5	92	Sep. 8+	-21	Feb. 1	7863	38.19	2.23	Aug. 26-27	91.4	15.7	Mar. 5-6	--	81	62	63	9.9	S	45	NNW	Aug. 10	--	6.5	86	95	184	117	18	46	30	14	77	152	32
Madison	56.1	35.2	45.7	96	Aug. 21	-28	Feb. 2	7764	40.34	2.82	Aug. 26-27	80.4	10.8	Mar. 5-6	80	82	62	66	9.4	SW	45	W	Apr. 5	54	6.6	84	91	190	123	22	46	35	24	69	155	29
Milwaukee	54.8	37.5	46.2	95	Aug. 21	-17	Feb. 2	7513	37.68	4.35	Jul. 17-18	77.9	12.5	Jan. 20-21	80	84	65	71	11.1	WNW	46	SW	Sep. 26	58	6.4	94	94	177	129	21	44	34	16	63	153	21
WYOMING																																				
Casper	58.2	31.8	45.0	100	Jul. 24	-25	Jan. 3	7725	10.75	1.40	Jun. 28-29	69.0	7.6	Apr. 18-19	61	68	45	42	13.7	SW	*58	NW	May 29+	--	6.0	104	99	162	99	26	31	11	31	44	185	17
Cheyenne	57.9	32.2	45.1	95	Aug. 11	-23	Jan. 3	7546	13.07	1.48	May 21-22	58.2	6.9	Apr. 8-9	64	66	43	47	14.4	WNW	63	W	Apr. 2	65	5.6	100	141	124	110	20	51	34	12	42	194	13
Lander	57.1	30.9	44.0	97	Jul. 24	-30	Jan. 4	8087	12.54	1.37	May 22	150.4	15.0	May 22	59	65	49	47	6.4	bSW	57	bW	Jul. 6	74	5.5	114	122	129	72	32	26	1	27	46	199	16
Sheridan	57.0	30.8	43.9	104	Jul. 24	-25	Nov. 16	8086	10.32	.83	Jun. 20-21	50.7	6.4	Nov. 11-12	67	75	54	52	8.3	NW	63	NW	May 9	62	5.9	103	100	162	105	19	23	6	35	45	189	20

Data from airport unless otherwise indicated.
U indicates Urban, R indicates Rural, sites.
* Data entered in column headed "Fastest Mile" is the fastest observed one minute wind speed and its direction. This station is not equipped with automatic recording wind instruments.
\+ Also on earlier dates.
ø From recorder charts.
\# Number of days maximum 70° or above for Alaskan stations.
ç Sun below horizon continuously Nov. 18 to Jan. 24.
† Airport Data
‡ Data for the East Lansing Weather Bureau Office Observational Site for the months of Jan.-Apr., for the Capital City Airport location for months of May-Dec.
∴ Direction observed Jan.-Mar.
Wind Direction to 8 compass points thru September.
f Data obtained from the Federal Building City Office Observational Site for the months of Jan.-Aug., from the Philps Collins Field Airport location for the months of Sep.-Dec.

a Sun below horizon continuously Nov. 26 to Jan. 16.
b Wind Direction to 8 compass points only.
c Fastest observed 1 minute wind speed May-Dec.
d City Office Data.
e 8 AM Local Standard Time.
g Midnight Local Standard Time.
k Noon Local Time.
m Occurrences between 5 PM and 8 AM.
n Relative Humidity reported 30 minutes later.
T Trace - an amount too small to measure.

NORMALS, MEANS AND EXTREMES

State and station	Elevation (ground, feet)	Temp. normal January daily maximum	Temp. normal January daily minimum	Temp. normal July daily maximum	Temp. normal July daily minimum	Temp. normal annual	Temp. extremes length of record (yrs)	Record highest	Record lowest	Normal degree days January	Normal degree days season	Precip. normal wettest month	Precip. normal driest month	Precip. normal annual	Precip. extremes wettest month	Precip. extremes driest month	Precip. extremes maximum in 24 hrs	Snow, sleet mean total January	Snow, sleet mean total seasonal	Snow, sleet extreme maximum in 24 hours
ALABAMA							76	112	-18							0.00	20.33			
Anniston (1952)	599	56.6	34.9	91.2	68.2	62.5	47	105	-3	614	2820	6.69	2.58	52.20	16.25	0.02	6.38	0.9	1.8	11.0
Birmingham	610	55.5	34.9	90.2	69.0	62.5	16	106	3	623	2780	6.31	2.71	53.52	15.25	T	5.89	.4	1.2	4.5
Huntsville	605	----	----	----	----	----	1	99	7	----	----	----	----	-----	5.74	2.74	2.62	T	T	T
Mobile (U) (1952)	10	61.4	44.8	89.8	74.0	68.1	81	103	1	412	1529	7.94	3.07	62.23	26.67	.00	12.98	1	2	----
Mobile	211	62.2	43.2	89.4	72.0	67.3	18	104	11	416	1612	8.97	3.75	67.57	19.29	.05	13.36	2	4	3.5
Montgomery (U)	201	59.1	41.5	90.6	72.4	66.3	f	f	f	483	1954	6.40	2.15	50.93	f	f	f	f	f	f
Montgomery	195	59.7	38.7	91.3	71.0	65.4	15	105	8	517	2137	6.50	2.36	53.66	21.32	.32	8.81	.2	.2	2.5
ALASKA (Northern)							73	100	-76							0.00				
Anchorage	90	20.4	5.5	65.4	49.1	35.3	37	86	-38	1612	10789	2.71	.40	14.27	5.91	.00	2.06	10.9	61.1	17.7
Barrow	22	-8.5	-21.6	46.0	33.3	10.1	39	78	-56	2483	19994	.83	.10	4.11	2.44	.00	1.00	2.1	26.7	15.0
Barter Island	39	-8.4	-22.5	47.0	34.6	10.6	11	72	-59	2496	19803	1.18	.19	7.18	4.91	T	2.23	5.9	46.6	17.0
Bethel	125	14.6	-1.1	62.4	46.6	29.6	17	86	-52	1804	12880	4.02	.55	18.17	12.37	.02	2.40	10.5	59.3	18.7
Fairbanks	436	-0.3	-19.2	70.5	51.2	26.2	30	93	-66	2319	14158	2.26	.29	11.92	6.88	T	2.33	13.2	59.7	15.5
Galena (1952)	120	-0.9	-17.7	69.2	51.0	25.2	5	88	-64	2303	14538	2.84	.18	14.62	4.45	.08	2.34	8.8	51.2	9.0
King Salmon	44	21.7	6.5	62.6	46.6	34.1	17	88	-40	1578	11235	4.01	.84	22.46	6.44	.00	1.52	7.2	41.5	9.5
Kotzebue	10	.6	-13.7	58.5	46.7	20.6	17	85	-48	2220	16151	1.95	.27	8.02	5.18	T	1.78	5.3	39.9	8.6
McGrath	334	1.1	-18.5	68.0	49.3	25.5	17	88	-64	2285	14390	3.63	.49	19.13	6.26	.01	2.39	15.8	86.0	15.2
Nome	13	12.9	-1.7	55.4	43.8	26.3	13	81	-42	1841	14086	3.76	.59	18.69	7.82	.02	2.38	11.1	61.1	8.4
Northway (1956)	1713	-8.5	-25.7	69.8	48.5	22.4	14	88	-72	2545	15506	2.89	.22	11.35	6.42	T	3.91	7.7	40.1	11.5
ALASKA (Southern)							76	99	-51											
Annette	110	38.6	30.5	62.5	51.0	45.6	12	89	1	942	7096	14.38	4.49	96.59	34.87	.71	7.59	12.4	49.1	14.2
Cold Bay	90	33.5	24.7	54.4	45.5	38.4	15	78	-9	1113	9687	4.38	1.34	33.20	9.97	.02	2.75	6.8	43.2	9.7
Cordova	40	32.4	17.6	60.1	46.4	38.6	16	84	-33	1240	9615	15.56	4.19	98.64	27.72	.08	7.92	26.4	126.0	22.9
Juneau (U)	80	33.5	25.5	61.9	50.1	42.5	--	---	--	1101	8187	13.03	4.13	90.25	-----	----	----	----	----	----
Juneau	15	31.2	21.2	62.4	47.0	40.6	16	84	-21	1203	8888	8.47	2.98	55.94	13.29	.27	4.66	17.4	92.0	31.0
St. Paul Island	22	29.9	22.9	49.3	42.4	35.2	42	64	-26	1197	10839	3.49	1.02	24.24	9.32	.08	1.93	12.6	53.2	13.0
Yakutat	28	33.0	19.9	58.6	46.8	39.3	13	86	-22	1194	9354	19.93	4.96	134.15	43.88	.52	7.13	36.7	210.2	26.0
ARIZONA							65	127	-33							0.00	5.95			
Flagstaff	6993	38.9	11.7	79.2	51.1	44.6	10	94	-16	1231	7525	2.60	.53	18.47	6.60	T	3.11	18.9	67.9	22.0
Phoenix (U)	1083	64.3	38.2	103.5	77.5	70.5	--	---	--	425	1492	.96	.06	7.12	-----	---	----	----	----	----
Phoenix	1109	64.8	34.5	105.1	75.1	69.4	22	118	17	474	1698	1.00	.06	7.16	5.56	.00	3.07	T	T	.6
Prescott	5014	50.2	20.4	90.9	61.0	55.2	17	103	-5	921	4533	3.70	.23	15.98	9.61	.00	3.08	6.7	17.3	12.4
Tucson	2584	63.1	36.3	99.4	73.0	67.6	19	111	16	474	1776	2.15	.21	10.66	7.93	.00	3.93	.4	1.2	6.4
Winslow	4880	46.2	19.2	92.6	61.8	55.0	28	106	-18	1001	4702	1.62	.29	7.83	2.72	.00	2.12	2.3	7.9	6.5
Yuma	199	67.2	43.3	107.7	81.5	74.7	9	120	28	318	951	.64	.01	3.39	2.68	.00	2.09	.0	.0	.0
ARKANSAS							69	120	-29							0.00	12.00			
Fort Smith	458	50.6	29.4	94.2	70.4	62.0	14	111	-9	775	3188	5.06	2.56	41.56	14.01	.06	5.90	1.8	4.2	5.5
Little Rock	257	51.1	32.4	92.7	71.1	62.4	18	107	-5	719	2982	5.16	2.81	47.38	12.53	T	7.71	1.8	3.2	4.2
Texarkana	361	56.3	35.5	94.6	71.1	65.1	17	106	-3	600	2362	5.30	2.79	50.59	15.33	.04	6.55	1.2	1.5	4.5
CALIFORNIA							75	134	-45							0.00	26.12			
Bakersfield	494	57.3	36.5	101.1	67.3	65.0	22	115	21	561	2115	1.12	.01	6.36	4.61	.00	1.68	T	T	T
Beaumont (U) (1952)	2589	57.4	35.6	94.7	57.4	60.1	13	110	11	574	2840	3.67	.09	17.86	8.63	.00	4.16	1.9	2.4	7.1
Bishop	4108	53.6	22.2	96.9	54.1	56.0	12	109	-6	840	4222	1.12	.10	5.38	5.03	.00	3.32	4.5	7.8	9.0
Blue Canyon	5280	43.8	28.5	77.7	57.9	50.1	16	93	5	893	5719	9.47	.03	53.51	45.12	.00	9.31	53.7	252.1	38.5
Burbank	699	65.2	39.9	87.3	59.0	62.8	28	111	21	396	1808	3.06	T	13.88	13.84	.00	7.76	.3	.3	4.7
Eureka (U)	43	53.6	40.8	60.6	52.2	52.3	49	85	22	552	4632	6.20	.09	36.15	13.97	.00	5.83	.2	.2	3.0
Fresno	331	53.5	35.9	100.1	64.1	63.0	20	111	18	629	2532	1.66	T	9.31	6.73	.00	2.44	T	T	.1
Long Beach	34	----	----	----	----	----	7	107	32	----	----	----	----	-----	9.05	.00	6.86	.0	.0	.0
Los Angeles (U)	312	64.6	45.4	83.2	61.7	63.9	19	110	28	328	1451	3.37	T	14.54	12.42	.00	6.11	T	T	.3
Los Angeles	99	63.3	43.0	74.4	60.8	60.9	23	108	23	378	2015	2.75	T	12.37	8.14	.00	6.19	T	T	T
Mount Shasta (U)	3544	41.4	24.1	84.8	49.5	49.3	17	103	-2	998	5913	5.39	.13	33.71	17.60	.00	5.90	36.4	106.5	37.4
Oakland	3	56.0	38.4	72.0	53.4	56.5	31	102	23	552	3163	3.42	.01	17.63	11.29	.00	3.23	T	T	1.0
Red Bluff	341	53.3	36.9	98.9	67.4	63.2	15	114	21	617	2546	4.23	.02	21.57	11.38	.00	4.00	1.4	2.0	9.9
Sacramento (U)	23	52.1	38.3	92.0	58.6	60.9	26	112	22	614	2600	3.31	T	16.32	12.20	.00	3.52	†T	†T	†T
Sacramento	17	52.4	36.2	92.0	57.2	60.0	16	---	--	642	2822	3.01	T	15.02	-----	---	----	.2	.2	4.0
San Diego	19	64.3	45.5	75.5	63.1	62.4	19	104	29	317	1574	2.57	.01	10.86	7.60	.00	3.07	T	T	T
San Francisco (U)	52	55.4	44.8	64.4	53.4	56.7	23	97	30	462	3069	4.07	.01	20.51	11.47	.00	3.65	T	T	T
San Francisco	8	55.8	39.9	69.2	51.5	55.6	32	104	20	530	3421	3.59	.01	17.43	12.30	.00	3.33	T	T	T
San Jose (1950)	95	58.0	40.5	80.8	54.5	59.3	50	106	20	487	2410	2.53	T	12.69	12.38	.00	4.56	T	T	1.0
Sandberg (R)	4517	46.0	33.6	85.1	62.7	55.3	27	102	3	781	4243	2.85	.02	12.42	11.12	.00	4.09	9.8	26.7	38.5
Santa Catalina (1952)	1568	59.0	46.7	77.0	58.3	60.1	8	102	29	375	2249	2.97	T	12.88	7.81	.00	2.68	.4	.5	2.0
Santa Maria	238	62.7	38.0	72.6	51.7	57.1	17	104	22	453	2934	2.71	.03	13.48	5.88	.00	3.07	T	T	T
COLORADO							72	118	-60							0.00	8.05			
Alamosa	7536	36.3	-2.5	81.3	46.8	41.4	14	91	-50	1491	8659	1.10	.17	6.23	2.45	T	1.82	4.6	26.8	10.0
Colorado Springs	6173	40.9	16.6	84.8	57.6	49.1	11	100	-27	1122	6254	2.72	.22	14.26	5.90	T	3.09	4.9	39.3	18.0
Denver (U)	5221	42.5	20.3	85.9	61.5	51.4	85	105	-29	1042	5673	2.06	.50	13.43	8.57	.00	6.53	5.9	54.6	23.0

State and station	Rel. humidity January 7:30 a.m. EST	January 1:30 p.m. EST	January 7:30 p.m. EST	Rel. humidity July 7:30 a.m. EST	July 1:30 p.m. EST	July 7:30 p.m. EST	Wind speed mean hourly January	Wind speed mean hourly July	Fastest mile	Percent of possible sunshine January	July	Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temp. max 90° and above	Temp. min 32° and below	Temp. min 0° and below
ALABAMA																					
Anniston (1952)	82	65	78	83	57	67	6.8	3.9	54	50	69	143	114	108	120	*	61	6	54	51	*
Birmingham	84	61	69	86	56	65	9.0	6.3	65	38	59	97	122	146	117	*	57	7	66	51	0
Huntsville	82	61	66	88	54	59	7.7	5.2	--	--	--	85	115	165	124	0	66	3	82	67	0
Mobile (U) (1952)	--	--	--	--	--	--	10.1	8.0	98	51	59	110	138	117	119	*	64	15	47	12	*
Mobile	87	62	76	90	64	78	11.6	7.7	--	--		108	119	138	126	*	87	32	71	16	0
Montgomery (U)	f	f	f	f	f	f	---	---	f	f	f	f	f	f	f	f	f	f	f	f	f
Montgomery	87	61	69	88	57	68	7.6	5.7	60	50	66	108	106	151	111	*	62	21	87	33	0
ALASKA (Northern)																					
Anchorage	74	74	72	84	74	62	5.2	5.7	66	39	45	72	86	207	103	21	1	26	#14	202	35
Barrow	63	64	63	95	92	89	10.9	11.8	70	--	--	ø62	ø52	ø183	68	6	*	63	#*	324	168
Barter Island	71	71	70	93	90	86	13.9	10.1	--	--	--	a44	a78	a191	98	14	1	71	#*	304	167
Bethel	79	79	78	93	87	69	11.5	9.5	--	--	--	59	66	240	160	20	2	27	#8	221	77
Fairbanks	68	69	68	88	72	52	3.2	5.9	m60	-		70	90	205	110	20	8	20	#49	232	120
Galena (1952)	69	70	69	82	73	59	6.0	8.2	--	-		72	77	216	126	17	5	11	#23	232	113
King Salmon	77	78	76	92	83	64	11.6	10.3	--	-	--	52	69	244	149	13	*	32	#13	265	54
Kotzebue	70	71	70	88	86	78	14.8	12.8	--	--	--	88	71	206	113	12	*	22	#4	252	119
McGrath	70	69	71	87	75	57	2.6	5.7	--	--	--	63	68	234	143	26	6	10	#29	231	114
Nome	78	79	78	91	87	84	11.4	9.8	75	45	29	80	67	218	131	21	*	24	#2	238	89
Northway (1956)	68	67	65	87	67	50	3.0	5.9	--	--	--	45	84	236	102	11	12	17	#37	247	138
ALASKA (Southern)																					
Annette	77	77	74	92	80	73	13.8	8.8	--	--	--	42	58	265	220	16	2	19	#15	81	0
Cold Bay	87	87	84	93	91	83	18.6	16.4	--	--	--	15	51	299	206	13	0	33	#*	163	2
Cordova	82	82	81	91	87	79	4.4	3.6	-	-	--	51	52	262	214	38	1	12	#9	191	21
Juneau (U)	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Juneau	78	79	76	88	78	68	8.4	7.6	68	30	28	43	40	282	223	26	*	21	#22	148	10
St. Paul Island	87	87	86	95	96	92	---	---	--	--	--	23	69	273	200	18	*	41	#0	188	5
Yakutat	80	81	78	96	84	78	9.2	7.2	--	--	--	41	46	278	221	49	1	33	#5	173	11
ARIZONA																					
Flagstaff	80	56	--	75	35	--	---	---	--	--	--	175	90	100	70	18	46	4	1	209	9
Phoenix (U)	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Phoenix	74	47	39	52	31	23	4.3	6.1	75	f76	f84	210	85	70	37	0	22	2	162	17	0
Prescott	n71	50	n46	n60	31	n33	7.3	8.3	72	70	73	184	97	84	61	6	47	5	47	131	*
Tucson	63	39	34	57	33	30	7.1	7.3	59	80	76	190	93	82	49	1	39	1	147	21	0
Winslow	69	48	40	59	29	27	7.7	9.1	--	--	--	179	95	91	53	3	37	3	71	133	2
Yuma	53	35	26	48	30	21	7.0	9.7	54	85	91	255	65	45	15	0	7	2	186	2	0
ARKANSAS																					
Fort Smith	81	64	68	88	53	54	8.5	6.7	58	42	71	131	95	139	93	2	61	11	83	71	*
Little Rock	80	66	68	86	56	59	9.2	7.3	61	43	69	116	102	147	102	1	59	15	74	48	*
Texarkana	84	67	71	89	56	58	8.0	6.8	--	--	--	---	---	---	97	1	65	18	85	38	*
CALIFORNIA																					
Bakersfield	87	72	59	48	30	19	4.8	7.2	--	--	--	200	83	82	38	0	3	20	110	15	0
Beaumont (U) (1952)	63	44	44	63	26	25	8.7	6.8	--	--	--	184	95	86	49	*	9	51	83	32	0
Bishop	--	47	38	--	19	14	---	---	--	--	--	204	87	74	29	3	13	*	100	147	*
Blue Canyon	--	65	--	--	31	--	11.7	7.7	70	--	--	177	65	123	90	41	13	69	1	103	0
Burbank	72	55	48	82	51	42	4.0	5.1	--	--	--	188	103	74	39	*	4	30	47	4	0
Eureka (U)	n87	--	n78	n93	--	n80	7.0	6.8	56	40	51	82	102	181	118	*	5	49	0	5	0
Fresno	93	81	67	61	37	20	4.8	7.1	43	50	98	198	72	95	46	0	5	38	103	25	0
Long Beach	--	--	--	--	--	--	---	---	--	--	--	140	143	82	29	0	2	63	14	*	0
Los Angeles (U)	64	k46	52	84	k49	53	6.8	5.4	49	71	81	182	107	76	37	0	6	17	17	*	0
Los Angeles	76	57	62	85	65	67	6.1	6.8	62	--	--	139	114	112	37	0	3	52	3	1	0
Mount Shasta (U)	84	77	75	70	39	30	---	---	--	--	--	161	86	118	88	18	14	9	20	135	*
Oakland	86	74	68	88	69	62	6.1	8.7	--	--	--	144	120	101	63	*	2	18	4	7	0
Red Bluff	81	71	59	49	29	16	8.9	7.9	63	53	96	117	71	117	73	1	12	15	98	23	0
Sacramento (U)	†90	†82	†70	†77	†47	†29	†10.1	†10.5	†70	†43	†97	†201	†64	†100	60	†0	†5	†31	66	9	0
Sacramento	90	81	69	76	46	28	7.3	8.3	70	44	96	225	72	68	--	*	4	21	---	---	--
San Diego	76	58	60	86	68	64	5.6	6.7	51	68	67	150	122	93	43	0	3	30	3	*	0
San Francisco (U)	n84	k68	n70	n92	k75	n78	6.8	11.2	47	54	64	134	113	118	67	0	2	7	1	*	0
San Francisco	87	77	69	90	70	67	6.9	13.7	62	--	--	162	105	98	62	0	2	21	3	7	0
San Jose (1950)	--	--	66	--	--	50	6.6	7.1	43	54	87	210	84	71	59	*	*	23	13	14	0
Sandberg (R)	--	59	--	--	26	--	17.6	13.1	--	--	--	210	81	74	41	7	4	83	20	55	0
Santa Catalina (1952)	72	65	67	65	58	54	---	---	--	--	--	190	81	94	45	*	*	112	10	*	0
Santa Maria	82	61	62	93	66	64	7.2	6.3	--	--	--	174	111	80	46	0	3	88	4	15	0
COLORADO																					
Alamosa	74	57	57	82	38	36	---	---	--	--	--	148	140	77	64	12	45	13	1	226	44
Colorado Springs	55	40	46	68	34	38	10.4	10.0	--	--	--	140	119	106	88	11	60	23	17	165	7
Denver (U)	54	37	41	55	27	30	7.6	6.9	65	67	68	146	151	68	84	15	42	4	23	137	7

See reference notes at end of table.

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temp. (°F) Normal (1921-1950) January Daily maximum	January Daily minimum	July Daily maximum	July Daily minimum	Annual	Extremes Length yrs	Record highest	Record lowest	Normal degree days (1921-1950) January	Seasonal	Precipitation (inches) Normal (1921-1950) Wettest month	Driest month	Annual	Extremes Wettest month	Driest month	Maximum in 24 hours	Snow, sleet Mean total January	Seasonal	Extreme Maximum in 24 hours	Relative humidity (percent) January 7:00 a.m. EST	January 1:00 p.m. EST	January 7:00 p.m. EST	July 7:00 a.m. EST	July 1:00 p.m. EST	July 7:00 p.m. EST	Wind Speed (m.p.h.) Mean hourly January	July	Fastest mile	Sunshine (percent of possible) January	July	Annual mean number of days: Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperature Max. 90 and above	Min. 32 and below	Min. Zero and below
COLORADO (Cont'd.)																																									
Denver	5292	41.7	15.6	87.2	58.3	49.8	25	104	-30	1125	6132	2.20	0.50	14.20	7.31	T	3.43	8.8	58.7	19.4	60	44	49	67	32	34	9.9	9.1	53	69	70	113	137	115	87	18	43	10	34	154	8
Grand Junction	4849	33.8	14.1	92.5	63.8	52.1	13	102	-14	1271	5796	1.20	.45	9.06	3.48	0.00	1.24	9.2	28.6	9.1	76	64	63	46	27	21	5.6	9.7	66	55	77	141	106	118	72	10	40	7	55	139	3
Pueblo	4639	44.9	13.8	89.8	59.9	51.5	19	105	-31	1104	5709	1.81	.38	11.87	6.17	T	3.77	6.1	32.8	16.8	68	45	48	73	35	34	7.6	7.9	80	72	77	135	127	103	72	10	46	9	56	157	9
CONNECTICUT							72	105	-32							0.00	12.12																								
Bridgeport	7	36.6	21.8	81.6	63.9	50.5	11	103	-5	1110	5896	4.43	2.83	42.01	13.29	.07	5.84	5.6	22.3	15.0	75	64	69	79	58	72	9.9	7.5	62	--	--	102	106	157	122	5	26	26	9	99	*
Hartford Bradley Fld.	169	36.1	17.9	85.6	62.0	50.1	5	101	-17	1178	6068	3.81	2.57	40.48	21.87	.73	12.12	9.3	49.6	10.6	73	58	66	84	56	69	11.9	8.8	51	47	55	87	110	168	136	14	22	32	14	139	5
Hartford	15	35.4	18.5	83.0	62.3	49.7	f	f	f	1178	6139	3.93	2.70	42.43	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
New Haven	6	37.0	21.2	80.1	62.3	49.7	16	100	-8	1113	6026	4.12	3.00	44.99	10.95	.12	5.55	9.2	35.1	17.2	77	65	--	81	68	--	8.0	6.2	57	51	66	100	106	159	135	9	29	30	4	111	*
DELAWARE							67	110	-17							T	7.83																								
Wilmington	78	41.8	24.7	86.7	65.0	54.2	12	102	-4	983	4910	5.28	2.98	44.50	12.09	.16	6.24	5.6	18.9	15.6	76	62	70	80	53	69	9.4	7.4	--	--	--	93	109	163	124	5	31	46	23	102	*
DIST. OF COLUMBIA																																									
Silver Hill Obs (1953)	284	43.4	27.4	84.6	66.2	55.3	2	101	8	918	4539	5.94	2.58	43.91	9.99	.66	3.03	2.4	11.9	7.5	--	--	--	--	--	--	---	---	--	--	--	---	---	---	120	5	37	-	27	44	0
Washington (U) (1958)	72	44.0	28.9	87.1	68.4	56.8	87	106	-15	884	4258	4.49	2.64	41.44	17.45	.14	7.31	5.9	19.4	25.0	73	56	64	78	52	67	7.7	5.7	62	46	64	125	116	124	124	6	33	12	28	81	*
Washington Nat'l AP	14	43.8	28.5	86.1	68.4	56.5	18	103	1	893	4333	4.75	2.44	40.48	14.31	.22	6.39	4.5	13.8	14.4	73	57	62	77	53	64	10.9	8.5	78	45	63	101	107	157	114	5	32	15	29	73	[illegible]
FLORIDA							70	109	-2							0.00	38.70																								
Apalachicola (U)	13	62.2	48.1	87.4	75.1	68.8	30	102	18	352	1307	7.65	2.45	56.03	22.55	.01	11.71	T	T	1.2	87	69	80	85	72	76	8.5	6.7	67	59	64	134	110	121	107	*	74	24	17	4	0
Daytona Beach	31	69.3	49.6	89.8	71.7	70.5	16	102	24	245	868	7.11	2.10	51.07	19.89	.06	9.29	.0	T	T	91	60	81	90	67	81	9.6	7.8	--	--	--	98	138	129	116	0	82	35	64	4	0
Fort Myers	15	75.2	53.9	90.5	73.4	73.9	20	101	28	124	405	9.20	1.21	53.27	16.32	.00	10.85	.0	.0	.0	92	56	79	87	63	81	8.3	6.7	--	--	--	105	155	105	119	0	100	21	122	*	0
Jacksonville (U)	18	65.9	48.7	89.6	73.7	69.8	84	104	10	303	1113	7.89	1.57	52.30	23.32	T	9.86	---	----	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	122	*	---	--	61	5	0
Jacksonville	24	66.3	45.4	91.4	72.7	69.3	18	105	17	331	1243	7.64	1.62	52.08	19.36	.04	10.17	T	1	1.5	88	56	74	86	57	75	8.4	7.9	72	58	61	100	127	138	117	*	64	34	90	11	0
Key West (U)	5	75.8	65.8	89.1	78.3	77.6	88	97	41	28	77	6.78	1.54	39.52	23.56	T	19.88	0	0	.0	84	69	79	77	68	74	10.3	8.2	91	68	69	140	157	68	112	0	59	*	33	0	0
Key West	5	75.4	65.1	89.2	77.5	77.2	7	95	46	34	89	6.75	1.50	39.16	14.73	.00	7.73	.0	.0	.0	84	69	78	77	66	73	13.2	10.3	127	66	57	114	168	83	116	0	60	*	61	0	0
Lakeland (U)	214	71.5	52.5	90.2	72.2	72.2	19	101	25	185	649	8.16	1.39	51.43	15.57	.07	10.12	T	T	T	--	--	--	--	--	--	6.9	5.5	--	60	60	100	156	109	123	0	97	19	87	1	0
Melbourne (1953)	26	71.3	53.8	89.1	73.0	72.4	16	100	22	169	537	7.68	2.11	52.40	19.68	.11	8.56	.0	.0	.0	92	62	82	87	67	82	---	---	--	--	--	81	155	129	119	*	88	14	60	*	0
Miami (U)	8	74.4	62.6	86.8	76.4	75.3	47	95	27	57	173	7.88	1.73	47.20	25.34	T	15.10	.0	.0	0	87	58	75	84	64	77	13.3	10.3	132	66	65	106	154	105	130	0	71	3	7	*	0
Miami	7	77.9	58.6	91.0	74.1	75.7	17	98	32	58	178	8.33	1.65	56.41	23.02	.01	9.95	.0	.0	.0	86	55	74	84	65	76	9.6	7.7	80	--	--	88	172	105	128	0	77	7	66	*	0
Miami Beach	9	75.5	64.4	87.6	77.4	76.6	18	98	35	43	123	7.07	1.75	42.90	18.02	.01	6.70	.0	.0	.0	--	--	--	--	--	--	---	---	122	70	61	158	112	95	127	0	--	--	13	0	0
Orlando	106	73.0	50.7	91.4	72.7	72.5	17	102	24	188	650	7.85	1.32	51.23	15.87	T	9.67	T	T	T	90	55	73	90	60	79	8.8	7.6	--	--	--	99	149	117	119	0	83	29	108	2	0
Pensacola (U)	13	61.1	46.9	86.9	75.0	68.0	20	103	13	383	1435	7.59	3.84	61.60	18.80	T	9.16	T	.2	2.1	86	64	79	85	64	74	8.1	6.7	91	56	66	---	---	-	113	*	66	--	40	9	0
Pensacola	110	----	----	----	----	----	--	---	--	----	----	----	----	-----	-----	----	----	---	----	----	83	69	77	83	69	76	---	---	--	--	--	---	---	---	---	--	---	-	---	--	--
Tallahassee	64	65.2	42.0	91.0	71.0	67.7	20	103	15	385	1519	7.87	2.38	56.66	20.32	.02	7.07	T	.2	2.8	88	57	72	91	64	77	6.5	4.8	-	--	--	101	132	132	114	*	81	39	81	19	0
Tampa	19	70.8	52.1	89.5	73.8	72.3	13	98	24	201	674	8.06	1.04	49.94	18.59	T	6.14	T	T	T	89	57	74	88	61	78	8.5	7.1	56	69	60	99	146	120	116	0	92	26	84	2	0
West Palm Beach	15	75.4	58.6	89.9	74.0	75.0	21	101	31	85	248	9.12	2.20	61.72	18.26	.12	15.23	.0	.0	.0	86	59	75	84	64	79	9.8	7.4	--	--	--	74	158	133	136	0	78	6	91	*	0
GEORGIA							68	112	-17							0.00	18.00																								
Albany (1953)	190	62.4	40.3	93.0	71.9	67.4	65	106	-2	446	1763	5.46	2.09	49.50	20.48	.00	7.60	T	T	1.0	88	57	70	85	55	70	7.0	4.9	60	-	--	116	118	131	111	*	66	25	100	18	0
Athens	798	54.6	34.8	92.4	69.1	62.7	16	105	5	629	2800	5.17	2.94	49.94	14.98	.09	5.54	.4	1.0	5.0	79	56	64	90	58	69	10.5	7.8	--	--	--	108	110	147	108	*	50	32	57	48	[illegible]
Atlanta (U)	1054	52.5	36.6	87.3	70.0	62.0	f	f	f	632	2811	5.49	2.50	47.96	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Atlanta	975	53.3	35.9	89.4	69.6	62.2	11	103	3	632	2826	5.67	2.60	49.16	15.72	.09	5.46	.8	1.6	8.3	82	62	67	87	58	67	11.3	7.7	70	47	61	109	110	146	117	*	53	26	49	36	[illegible]
Augusta	143	59.2	35.6	91.9	70.1	64.0	9	106	10	554	2407	5.21	2.44	43.17	8.40	T	3.96	.1	.4	1.3	85	54	70	87	53	68	6.9	5.8	46	-	--	111	102	152	102	*	56	23	86	45	[illegible]
Columbus	385	58.1	36.7	91.0	70.7	64.2	14	104	10	563	2396	5.92	2.04	49.00	12.53	.30	5.32	T	T	T	87	60	73	88	59	70	---	---	--	-	-	111	102	152	113	0	59	19	79	42	[illegible]
Macon	356	60.4	38.6	93.3	71.5	66.1	11	106	10	497	2049	5.34	2.27	46.31	11.77	.32	4.60	.3	.3	3.7	83	53	63	86	53	66	9.1	7.6	65	58	65	117	107	141	110	*	60	22	97	36	[illegible]
Rome	637	53.6	31.8	92.2	67.7	61.3	14	106	-1	700	3138	5.83	2.86	52.96	17.37	.36	7.53	.2	.9	3.7	82	59	73	88	55	68	---	---	--	-	-	99	122	144	123	*	64	25	68	77	[illegible]
Savannah	48	62.2	40.9	90.8	71.5	66.4	9	104	14	439	1808	7.09	1.51	45.75	13.93	.18	6.36	T	.1	1.0	85	54	70	87	59	75	9.3	7.5	66	56	64	105	119	141	108	*	66	37	72	27	[illegible]
Thomasville	283	64.2	44.2	90.0	71.1	67.9	37	106	13	376	1472	7.02	2.24	51.86	18.83	.01	9.00	T	.1	2.0	p85	p60	p70	p85	p60	p78	5.3	4.1	--	54	57	122	119	124	116	*	72	9	73	13	[illegible]
Valdosta (1953)	200	65.4	41.7	92.0	70.5	67.8	6	103	18	386	1525	8.03	2.14	51.62	15.94	.05	4.85	.0	T	T	--	--	--	--	--	--	---	---	--	--		113	114	138	115	0	73	39	101	18	[illegible]
HAWAII							55	100	18							0.00																									
Hilo	31	78.4	62.4	82.6	67.0	73.0	13	93	55	0	0	15.99	6.75	139.98	50.82	.36	15.59	.0	.0	.0	85	81	68	89	82	68	7.3	6.8		48	44	26	119	220	289	0	6	0	*	0	0
Honolulu (U)	12	76.7	67.2	82.2	73.5	75.2	37	88	57	0	0	4.31	.63	23.92	18.70	.06	17.41	0	0	.0	†80	†80	†62	†74	†69	†56	†9.9	†14.0	†67	†65	†75	†[illegible]	†165	†[illegible]	148	0	†6	†0	0	0	0
Honolulu	7	78.6	65.8	84.6	73.0	75.9	--	---	--	----	----	4.65	.23	21.70	-----	--	--	---	----	----	80	80	62	74	69	56	9.6	13.4	59	66	72	107	160	98	--	0	7	0	0	0	0
Lihue	115	77.4	62.7	82.4	72.4	74.0	9	90	51	----	----	6.23	1.65	42.49	18.45	.30	11.20	.0	0	.0	84	84	68	81	77	65	10.1	12.5	73	48	58	54	171	140	204	0	8	0	*	0	0
IDAHO							67	118	-60							0.00	7.17																								
Boise	2842	34.6	19.9	90.5	59.1	50.8	26	109	-17	1169	5890	1.35	.18	11.48	4.00	.00	2.24	7.4	21.1	13.0	82	75	74	54	34	23	9.2	8.8	61	40	89	124	[illegible]	146	91	8	16	18	40	128	3
Idaho Falls 46W (R)	4933	27.6	3.8	88.1	50.3	42.3	10	99	-31	1528	8556	1.02	.36	7.69	4.42	.00	1.73	7.2	24.3	8.5	--	--	--	--	--	-	6.1	8.1	51	--	--	-		---	68	10	c14	[illegible]	27	215	42
Idaho Falls 42NW (R)	4790	25.3	-.7	87.9	48.3	41.1	9	102	-35	1634	8925	1.08	.31	7.35	3.00	.00	1.33	---	----	----	-	--	--	-	--	-	5.2	8.1	50	--	--	-	--		66	--	--	-	31	218	38
Lewiston	1413	37.2	24.4	90.1	60.2	52.1	13	109	-22	1060	5483	1.75	.38	13.12	4.80	T	1.73	7.2	17.5	11.9	79	74	72	63	37	24	----	-			-	[illegible]	80	192	103	6	16	19	35	101	[illegible]
Pocatello	4444	31.0	13.0	89.4	55.9	47.2	21	103	-31	1333	6976	1.32	.72	12.44	3.80	.00	1.65	10.3	36.5	16.1	82	76	74	57	30	21	9.8	[illegible]	72	37	82	[illegible]	103	149	91	13	27	10	32	161	[illegible]
Salmon	3949	28.2	4.1	89.6	46.8	44.0	48	---	--	1513	7922	1.28	.42	8.64	3.88	.00	1.50	---	---	---	--	--	--	--	--	--	---	---	--	-	--	---	---	---	---	--	--	--	---	-	--
ILLINOIS							70	117	-35							0.00	10.25																								
Cairo (U)	314	44.9	29.8	90.7	71.7	59.8	17	104	-5	856	3756	4.72	2.60	43.65	14.95	.33	7.56	2.7	7.4	6.6	81	69	-	84	58	--	9.9	6.5	[illegible]	[illegible]	73	110	104	151	116	2	54	6	55	62	*
Chicago (Midway)	610	32.7	17.1	85.3	63.9	50.1	17	104	-15	1243	6310	4.15	1.41	32.72	12.06	.30	6.24	7.7	31.8	11.8	81	70	75	78	51	56	[illegible]	7.7	[illegible]	[illegible]	[illegible]	[illegible]	102	168	118	10	36	17	26	[illegible]	7
Joliet (1952)	584	32.5	15.0	86.9	60.5	49.1	11	101	-20	1277	6578	4.14	1.51	34.25	9.23	.25	5.32	5.7	25.0	8.0	--	--	--	--	--	-	-	-	-		--	83	124	[illegible]	110	9	40	24	26	[illegible]	2
Moline	589	31.9	14.4	87.2	63.7	50.2	27	106	-23	1296	6364	4.63	1.17	33.10	16.35	.04	4.89	6.6	25.4	9.6	80	69	75	83	54	56	[illegible]	7.4	[illegible]	44	73	102	102	161	[illegible]	9	45	26	28	[illegible]	[illegible]
Peoria	654	33.3	16.7	87.0	64.4	51.0	20	103	-16	1240	6087	3.94	1.91	35.18	10.80	.25	5.06	5.1	22.1	9.0	82	72	76	84	54	57	[illegible]	[illegible]	[illegible]	43	70	104	100	161	110	7	48	20	28	128	8
Rockford	728	----	----	----	----	48.6	9	103	-20	----	----	4.62	1.41	34.77	11.81	[illegible]	5.22	8.8	30.1	9.5	81	73	78	86	56	60	8.8	[illegible]	[illegible]			[illegible]	103	[illegible]	112	10	39	24	21	[illegible]	12

See reference notes at end of table

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temperature (°F) Normal (1921-1950) January Daily maximum	January Daily minimum	July Daily maximum	July Daily minimum	Annual	Extremes Length, yrs.	Record highest	Record lowest	Normal degree days (1921-1950) January	Seasonal	Precipitation (inches) Normal (1921-1950) Wettest month	Driest month	Annual	Extremes Wettest month	Driest month	Maximum in 24 hours	Snow, sleet Mean total January	Seasonal	Extreme Maximum in 24 hours	Relative humidity (percent) January 7:00 am EST	January 1:00 pm EST	January 7:00 pm EST	July 7:00 am EST	July 1:00 pm EST	July 7:00 pm EST	Wind Speed (m.p.h.) Mean hourly January	July	Fastest mile	Sunshine (percent of possible) January	July	Annual mean number of days Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperature Max 90° and above	Min 32° and below	Zero and below
ILLINOIS (Cont'd.)																																									
Springfield (U)	632	36.4	21.6	89.1	68.3	54.4	--	---	---	1116	5225	4.11	1.67	35.82	----	----	----	---	----	---	--	--	--	--	--	--	---	---	--	--	--	---	--	---	---	--	--	--	--	--	-
Springfield	589	35.3	19.4	87.4	65.2	52.4	12	112	-15	1166	5693	4.19	1.62	36.65	8.86	0.15	5.12	2.8	15.3	8.0	81	70	75	86	57	60	13.4	8.8	75	39	73	109	91	165	115	4	51	16	30	121	4
INDIANA							73	116	-35							0.00	10.50																								
Evansville	383	43.4	26.0	89.1	67.3	56.9	19	105	-23	939	4360	4.29	2.82	41.37	13.50	.13	5.16	3.4	9.9	9.6	83	69	75	85	55	60	9.9	6.6	59	39	77	102	101	162	116	3	50	15	43	100	1
Fort Wayne	801	33.4	19.1	84.3	62.6	49.9	13	103	-17	1200	6287	3.56	1.77	34.21	9.72	.42	4.60	7.4	28.4	7.7	83	74	80	84	54	59	10.9	8.0	65	36	70	80	107	178	132	8	45	19	20	134	5
Indianapolis (U)	718	38.7	23.4	88.3	67.7	54.5	--	---	---	1051	5134	4.18	2.08	39.24	----	---	----	---	----	---	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Indianapolis	793	37.1	20.5	87.9	64.1	52.5	22	104	-19	1122	5611	4.21	2.08	39.69	12.69	.21	3.90	4.1	17.8	5.6	83	72	78	84	55	61	12.5	8.3	90	37	73	93	101	171	123	7	47	22	23	121	4
South Bend	768	31.9	17.2	84.6	62.1	49.1	20	101	-22	1252	6524	3.84	1.56	35.59	9.75	.02	3.18	13.9	54.5	15.0	83	75	80	85	54	59	11.9	8.4	63	--	--	77	107	181	137	19	44	21	18	138	7
Terre Haute (1953)	578	38.4	20.2	88.9	64.9	53.5	41	110	-20	1107	5366	4.43	2.14	40.91	11.94	.03	5.16	4.7	17.7	10.2	82	70	76	77	50	56	10.4	7.3	66	44	74	98	128	139	121	6	48	11	34	100	4
IOWA							87	118	-47							0.00	12.99																								
Burlington	694	32.5	15.5	88.0	65.5	51.3	62	111	-27	1271	6101	5.64	1.41	36.61	15.10	.08	6.28	7.1	24.7	13.0	81	70	75	85	57	59	11.1	8.0	73	51	77	167	78	120	102	10	54	20	35	129	10
Charles City(U)(1952)	1013	25.7	7.8	84.8	62.3	46.5	61	108	-34	1494	7504	4.28	1.15	31.42	12.78	T	6.74	9.9	43.4	17.5	--	--	--	--	--	--	7.7	6.0	48	49	74	121	118	126	111	--	42	--	17	155	28
Davenport (U) (1956)	568	32.0	16.5	87.3	67.2	51.4	84	111	-27	1262	6091	4.79	1.31	34.27	12.68	.01	6.57	7.2	26.6	11.2	--	--	--	--	--	--	---	---	--	--	--	---	---	--	112	9	42	9	22	123	11
Des Moines (U)	807	31.4	14.2	87.6	66.6	50.9	78	110	-30	1308	6274	5.05	1.11	30.93	15.79	T	5.37	8.9	32.2	17.7	83	k69	75	77	k49	54	10.1	8.0	71	54	74	124	118	123	107	10	47	7	25	129	15
Des Moines	948	30.8	13.3	86.8	65.6	50.2	20	105	-21	1330	6446	4.99	1.08	30.74	14.19	.03	5.50	8.8	31.0	19.8	79	71	73	85	56	56	12.3	9.9	76	48	71	102	95	168	102	9	48	17	28	140	13
Dubuque (U) (1950)	641	27.9	11.3	84.7	60.4	48.3	76	110	-32	1407	6910	4.68	1.31	33.26	14.16	.02	5.48	9.2	34.9	14.9	81	70	75	78	52	60	7.0	5.8	47	48	73	114	115	136	114	11	39	12	16	131	17
Dubuque	1065	27.2	11.6	83.2	63.3	47.0	9	99	-26	1414	7271	5.09	1.11	32.85	8.14	T	4.36	8.7	40.0	15.5	82	72	77	85	58	64	---	---	--	--	--	93	99	173	110	13	44	27	10	154	16
Sioux City	1094	28.9	9.2	88.4	64.2	48.6	19	107	-24	1423	7012	4.41	.74	24.90	8.67	T	3.89	5.8	29.7	11.4	77	67	71	86	55	54	11.1	9.0	91	57	70	105	106	154	96	10	44	21	33	151	18
Waterloo	870	28.0	9.4	86.2	62.8	47.7	11	103	-27	1435	7144	4.76	1.01	32.06	8.45	T	3.08	7.5	27.0	12.2	77	71	68	89	59	63	11.5	9.4	--	--	--	---	---	---	81	8	34	24	19	158	19
KANSAS							73	121	-40							0.00	12.59																								
Concordia (U)	1375	37.6	18.6	91.2	68.7	54.5	75	116	-25	1144	5323	4.23	.59	25.40	13.74	T	6.46	4.4	20.5	17.2	78	63	68	77	47	48	7.7	7.1	65	60	79	142	127	96	87	8	45	10	48	117	6
Dodge City	2594	42.0	18.6	92.9	66.9	55.0	17	107	-15	1076	5058	3.01	.49	20.58	8.69	T	4.17	4.8	19.9	9.3	79	59	62	77	46	42	14.6	13.7	78	68	77	142	109	114	77	6	54	26	63	126	3
Goodland	3645	39.3	12.3	90.9	60.2	49.9	39	111	-26	1215	6367	3.02	.31	18.21	8.09	.00	2.95	5.4	31.9	15.2	77	54	62	81	43	41	12.0	11.8	66	--	--	141	128	96	76	11	52	31	60	156	9
Topeka (U)	926	39.8	20.8	91.8	69.4	55.9	69	114	-25	1088	4919	4.61	1.00	33.28	14.10	T	8.08	---	---	---	--	--	--	--	--	--	---	---	--	--	--	142	122	101	97	--	--	--	48	106	4
Topeka	877	38.8	18.6	90.7	67.7	54.6	13	109	-21	1125	5209	4.66	.97	33.09	12.02	T	4.48	5.9	20.0	9.3	78	64	67	86	56	56	10.6	9.2	81	50	64	118	99	148	96	6	57	12	55	128	4
Wichita (U) (1955)	1372	41.3	22.6	92.3	69.4	57.0	67	114	-22	1023	4571	4.99	.98	30.70	14.43	.00	7.99	3.2	13.6	12.3	78	63	66	77	48	49	12.5	11.6	100	61	80	158	112	95	87	4	52	11	54	96	2
Wichita	1321	41.3	22.6	92.3	69.4	57.0	6	113	-10	1023	4571	4.99	.98	30.70	10.46	T	4.24	4.0	13.2	7.2	80	63	66	79	47	44	13.4	11.8	66	59	78	130	98	137	83	4	53	20	73	113	1
KENTUCKY							71	114	-33							0.00	10.10																								
Bowling Green (1952)	534	45.6	27.0	88.9	65.6	56.9	65	113	-20	890	4279	5.66	2.88	50.10	20.70	.03	6.15	3.0	8.8	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Lexington	979	42.7	25.1	87.4	65.7	55.4	15	103	-15	964	4677	4.50	2.44	43.71	16.65	.24	4.39	4.8	10.9	9.5	83	71	77	84	56	66	13.2	8.2	--	--	--	99	106	160	132	4	48	19	30	95	1
Louisville (U)	457	43.2	27.9	87.9	69.3	57.3	f	f	f	911	4279	4.67	2.48	41.60	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Louisville	474	43.6	26.2	89.1	66.6	56.5	12	105	-19	933	4439	4.67	2.45	41.47	11.38	.23	4.22	4.5	12.3	7.3	81	68	73	85	53	59	10.2	6.9	61	34	70	103	101	161	124	5	47	24	52	90	*
LOUISIANA							69	114	-16							0.00	21.40																								
Baton Rouge	64	61.3	43.4	90.0	72.2	67.5	9	103	19	424	1595	5.87	2.98	59.13	13.23	.09	4.96	T	.1	1.0	85	60	65	93	60	73	10.1	6.1	--	--	--	102	117	146	107	*	71	35	97	18	0
Burrwood (1952)	5	65.2	49.0	89.0	76.1	70.7	45	99	10	303	1033	7.31	3.56	58.40	18.99	.00	10.80	T	T	T	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	--	--
Lake Charles	12	61.8	43.4	91.1	73.3	68.3	21	104	12	416	1453	6.93	3.44	57.82	17.94	T	16.01	.4	.5	3.4	89	67	75	93	62	71	10.4	6.8	69	--	--	95	120	150	107	*	70	37	85	12	0
New Orleans (U)	9	63.5	48.3	90.3	75.8	70.4	45	102	17	341	1175	7.09	3.66	63.54	25.11	T	14.01	T	.1	1.3	85	67	73	84	63	71	7.5	5.7	98	49	61	109	135	121	119	*	74	15	67	4	0
New Orleans (1950)	3	63.2	46.5	90.1	73.4	69.1	14	100	19	364	1317	5.90	3.18	59.65	16.87	.21	7.87	T	T	T	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	0	--	--	--	5	0
Shreveport (U) (1955)	174	56.4	39.2	93.4	73.8	66.4	82	110	-5	550	2117	4.83	2.22	45.10	25.45	T	12.44	.9	1.8	11.0	83	67	66	86	56	62	9.0	7.1	59	47	78	150	109	106	99	--	49	6	84	22	*
Shreveport	252	56.1	39.5	93.3	73.6	66.8	8	106	15	550	2058	4.83	2.22	45.10	11.19	.04	7.17	T	T	T	82	62	64	91	56	58	10.9	7.9	--	51	75	128	93	144	94	0	58	17	99	28	0
MAINE							72	105	-48							0.00	7.72																								
Caribou	624	18.1	-0.8	74.5	53.5	37.2	20	96	-41	1745	10173	4.03	1.73	35.88	8.45	.12	6.23	21.5	104.3	18.2	73	69	73	82	58	71	12.5	10.0	--	--	--	56	104	205	161	30	19	24	3	191	43
Eastport (U) (1952)	33	29.8	14.1	69.2	51.9	42.3	80	93	-23	1333	8266	3.66	2.49	35.92	13.22	.13	5.48	16.9	71.6	18.5	74	72	71	85	77	83	13.5	7.5	83	45	56	89	114	162	149	23	13	60	*	137	10
Portland	61	30.7	10.6	78.7	56.9	44.5	19	100	-39	1373	7681	4.43	2.59	41.78	9.97	.26	7.49	19.6	68.7	21.0	81	65	74	79	59	76	9.4	7.7	76	54	67	116	98	151	127	17	19	52	5	162	15
MARYLAND							65	109	-40							T	14.75																								
Baltimore (U)	14	43.6	29.6	86.9	70.0	57.1	89	107	-7	880	4203	4.38	2.95	42.59	17.69	.05	7.82	6.1	22.7	24.5	72	58	66	71	52	65	10.3	8.8	66	48	65	121	123	121	125	6	32	15	25	71	*
Baltimore	146	42.8	25.6	86.6	66.0	54.7	9	102	-4	955	4787	4.38	2.95	42.59	18.35	.20	7.82	5.1	16.1	15.5	77	60	67	80	53	66	11.0	9.0	80	49	67	105	113	147	116	9	31	33	31	98	*
Frederick	294	41.4	24.0	87.9	65.4	54.7	10	102	-13	1001	4854	4.03	2.58	40.23	11.26	.15	5.56	4.3	16.2	10.0	--	64	--	--	57	--	---	---	--	--	--	---	---	---	123	7	--	9	30	127	*
MASSACHUSETTS							72	106	-34							0.00	11.14																								
Blue Hill Obs.	629	34.0	18.6	79.7	61.4	47.3	75	101	-21	----	----	4.20	3.45	46.28	18.78	.06	9.93	15.5	59.1	22.2	--	--	--	--	--	--	17.4	13.0	121	44	56	---	---	---	137	16	--	--	4	130	4
Boston	15	36.5	21.6	80.0	64.3	50.7	7	100	-12	1113	5791	3.50	2.79	38.76	17.09	.35	8.40	10.4	38.5	19.4	70	60	64	72	54	66	14.3	9.9	65	52	70	103	99	165	134	12	18	23	15	92	*
Nantucket	43	39.3	24.8	73.8	60.3	48.8	13	95	2	1020	6102	4.05	2.83	41.69	8.88	.01	4.48	6.0	29.2	20.1	81	74	77	86	74	90	14.7	11.3	73	37	63	86	94	185	126	7	22	96	*	91	0
Pittsfield	1153	29.8	12.5	79.0	56.1	44.5	21	95	-25	1358	7694	4.95	2.51	44.24	10.32	.60	4.25	17.6	74.0	---	--	--	--	--	--	--	---	---	--	--	--	57	127	181	156	23	28	45	2	161	13
Worcester	986	31.3	16.6	79.3	61.0	47.0	4	93	-19	1271	6979	4.31	2.57	42.02	8.25	.83	3.77	17.5	78.6	15.8	76	65	71	73	56	68	16.2	11.3	76	--	--	88	106	171	139	22	21	84	4	149	7
MICHIGAN							73	112	-51							0.00	9.91																								
Alpena (U) (1958)	587	28.1	14.2	76.8	57.9	43.5	45	104	-28	1358	8073	3.20	1.45	26.63	7.43	.16	4.40	16.0	64.4	16.7	80	70	76	77	61	68	11.7	9.2	61	29	70	82	119	164	144	19	29	20	3	155	10
Detroit	619	33.1	19.3	83.5	62.6	49.3	26	105	-16	1203	6404	3.61	2.02	31.03	8.05	.38	3.72	8.3	31.9	9.8	81	70	76	75	51	56	11.3	8.2	68	32	71	82	107	176	133	11	34	12	15	125	2
Detroit, Willow Run	722	32.1	18.5	84.3	62.6	49.2	13	100	-9	1231	6469	3.44	1.74	30.16	8.71	.30	4.78	8.4	33.1	8.0	81	71	76	78	48	55	11.6	8.8	60	--	--	80	104	181	123	11	34	27	20	134	3
East Lansing(U)(1958)	856	30.9	16.6	82.4	59.7	47.3	53	102	-25	1277	6982	3.75	1.81	31.08	9.21	.04	5.47	11.2	46.9	18.1	80	71	--	80	50	--	9.7	6.3	50	34	72	94	111	160	143	14	38	12	10	145	7
Escanaba (U)	594	25.0	10.0	75.3	58.4	41.9	50	100	-31	1473	8657	3.22	1.37	27.08	9.93	.07	5.05	13.8	56.4	14.5	78	70	75	80	65	69	10.2	9.1	68	42	66	103	106	156	129	19	33	21	*	163	20
Flint	766	30.5	15.8	82.7	59.2	46.8	18	101	-22	1296	7128	3.48	1.58	30.14	8.68	.07	6.04	9.9	38.1	13.4	85	75	80	83	53	60	12.2	8.3	81	--	--	66	110	189	132	12	32	19	12	148	8
Grand Rapids (U)	638	31.8	19.7	84.0	63.2	49.3	f	f	f	1215	6474	3.47	1.73	31.35	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f

See reference notes at end of table.

NORMALS, MEANS AND EXTREMES

State and Station	Elevation on ground (feet)	Temperature (°F) Normal (1921-1950) January Daily maximum	January Daily minimum	July Daily maximum	July Daily minimum	Annual	Extremes Length yrs	Record highest	Record lowest	Normal degree days (1921-1950) January	Seasonal
MICHIGAN (Cont'd.)											
Grand Rapids	681	30.7	16.3	83.6	59.4	47.1	20	102	-22	1287	7075
Marquette (U)	677	25.2	12.1	75.1	57.1	42.2	22	102	-17	1435	8529
Muskegon	627	31.4	18.3	80.5	59.2	46.8	18	97	-14	1243	7089
Sault Ste. Marie	721	21.9	5.7	75.4	52.4	39.3	18	98	-25	1587	9475
MINNESOTA							73	114	-59		
Duluth (U)	1162	18.7	1.9	75.8	55.8	39.2	82	106	-41	1696	9574
Duluth	1409	17.2	-0.7	76.8	56.0	38.2	18	97	-35	1758	9937
International Falls	1179	13.6	-7.7	78.6	53.0	36.3	19	98	-41	1922	10600
Minneapolis-St. Paul	830	23.1	6.1	84.9	63.3	45.6	22	104	-31	1562	7853
Rochester	1017	23.5	5.1	84.2	59.4	44.5	3	95	-25	1572	8095
Rochester (1951)	1017	23.5	5.1	84.2	59.4	44.5	19	108	-40	1572	8095
St. Cloud	1034	20.7	0.2	83.2	58.0	41.9	20	103	-40	1690	8893
St. Paul (1952)	703	23.3	6.5	84.9	63.7	45.8	80	108	-41	1553	7804
MISSISSIPPI							71	115	16		
Jackson	305	58.6	37.9	93.6	70.5	65.4	4	99	15	535	2202
Meridian	294	58.5	36.5	92.0	69.8	64.5	14	104	8	561	2333
Vicksburg (U)	234	57.6	40.8	90.0	72.9	66.1	22	101	6	507	2000
MISSOURI							72	118	-40		
Columbia	778	38.8	20.7	88.8	66.8	54.6	20	113	-18	1091	5113
Kansas City	741	39.0	21.0	91.2	70.5	56.1	26	113	-13	1085	4888
St Joseph	809	36.9	17.3	91.4	68.8	54.5	11	107	-13	1175	5336
St Louis (U) (1958)	465	41.0	25.6	89.6	71.6	57.3	23	112	-12	983	4469
St. Louis	552	40.8	23.6	90.0	69.3	56.3	2	98	-5	1017	4699
Springfield	1265	41.7	23.7	87.7	67.2	55.7	14	113	-11	1001	4693
MONTANA							93	117	-70		
Billings	3567	32.3	13.4	87.9	58.6	47.2	25	106	-38	1305	7106
Butte	5530	28.0	4	79.8	45.0	38.3	28	100	-52	1575	9760
Glasgow	2277	19.6	1.4	86.7	57.6	42.0	16	108	-50	1690	8869
Great Falls	3664	31.7	13.6	83.8	55.3	45.1	22	105	-35	1311	7555
Havre (U)	2488	26.3	6.1	85.9	56.6	43.6	56	107	-57	1513	8213
Helena (U)	4090	27.3	9.9	80.5	53.2	43.2	--	---	---	1438	8126
Helena	3893	27.7	7.5	83.8	52.2	43.0	19	102	-42	1469	8250
Kalispell	2965	28.0	12.6	82.1	49.9	43.2	10	97	-38	1386	8055
Miles City	2629	[illegible]	5.5	89.9	60.0	45.4	22	110	-37	1516	7850
Missoula	3200	28.6	10.1	86.3	50.4	44.1	15	105	-33	1414	7873
NEBRASKA							84	118	-47		
Grand Island	1841	34.0	11.9	92.9	64.9	51.0	2	109	-26	1302	6311
Lincoln (U) (1954)	1184	34.3	15.7	90.5	67.8	52.7	68	115	-29	1240	5865
Lincoln (U)	1166	34.3	15.7	90.5	67.8	52.7	4	105	-10	1240	5865
Norfolk	1544	29.4	9.2	88.7	63.7	48.3	14	113	-26	1417	7065
North Platte	2779	36.8	11.2	89.4	62.2	49.5	8	112	-19	1271	6546
Omaha	978	32.4	13.5	89.3	67.6	51.6	24	114	-21	1302	6160
Scottsbluff	3950	36.7	10.3	90.1	59.0	48.2	17	107	-27	1287	6841
Valentine	2587	33.3	6.7	88.6	60.5	47.2	4	106	-29	1395	7266
NEVADA							71	122	-50		
Elko	5075	34.5	9.2	91.3	49.1	45.7	29	104	-43	1336	7335
Ely	6257	37.4	8.6	88.6	48.1	45.2	21	99	-27	1302	7443
Las Vegas	2162	55.4	33.0	105.4	75.6	66.8	11	116	12	653	2425
Reno	4404	45.7	16.6	91.8	47.3	49.5	18	104	-16	1048	6036
Winnemucca	4299	37.4	18.2	92.0	56.4	49.1	10	104	-19	1153	6369
Tonopah (1952)	6101	37.4	22.7	87.1	62.0	51.0	--	---	---	1082	5813
NEW HAMPSHIRE							83	106	-46		
Concord	339	31.6	8.6	82.6	55.3	44.8	18	100	-37	1392	7612
Mt. Washington Obs.	6262	14.[illegible]	-3.3	55.1	43.4	27.0	75	71	-47	1790	13694
NEW JERSEY							75	110	-34		
Atlantic City (U) (1958)	10	42.4	29.1	79.3	67.9	54.1	85	104	-9	905	4741
Newark	11	39.0	24.0	84.9	65.6	52.9	18	105	-7	1039	5252
Trenton (U)	56	39.8	25.4	84.6	66.0	53.5	27	106	-14	1004	5068
NEW MEXICO							68	116	-50		
Albuquerque	5310	45.6	21.8	91.6	66.4	56.6	20	104	-5	970	4389
Clayton	4969	46.7	19.0	88.4	59.8	53.1	15	102	-21	995	5138
Raton	6379	42.8	9.5	84.4	52.7	48.2	15	98	-24	1203	64[illegible]7
Roswell	3612	53.8	25.3	92.[illegible]	65.8	59.8	12	110	-15	787	3424

State and Station	Precipitation (inches) Normal (1921-1950) Wettest month	Driest month	Annual	Extremes Wettest month	Driest month	Maximum in 24 hours	Snow, sleet Mean total January	Seasonal	Extreme Maximum in 24 hours
MICHIGAN (Cont'd.)									
Grand Rapids	3.45	1.73	31.50	8.42	0.03	4.26	17.8	72.1	10.0
Marquette (U)	3.46	1.72	31.24	10.20	.21	4.65	18.9	100.5	16.1
Muskegon	3.34	1.64	29.01	7.12	.19	3.51	22.2	73.4	12.5
Sault Ste. Marie	3.49	1.52	30.19	6.93	.25	2.67	20.8	100.0	14.3
MINNESOTA					0.00	10.75			
Duluth (U)	3.72	1.00	26.67	11.52	.07	5.35	11.1	56.0	23.0
Duluth	4.33	1.20	29.72	8.48	.13	4.05	16.1	77.2	25.4
International Falls	3.73	.85	24.17	11.26	.10	4.82	10.8	61.2	13.9
Minneapolis-St. Paul	4.26	.80	24.71	7.80	T	4.12	6.2	40.8	16.2
Rochester	4.33	.75	28.48	6.95	.06	4.37	3.3	29.5	9.7
Rochester (1951)	4.33	.75	28.48	9.66	T	5.26	8.5	42.4	10.0
St. Cloud	3.85	.69	24.16	9.34	.01	4.62	6.5	42.0	12.2
St. Paul (1952)	4.23	.87	26.50	11.67	T	5.67	8.9	41.2	17.0
MISSISSIPPI					0.00	12.35			
Jackson	6.23	2.10	50.86	9.78	.04	5.29	T	6	2.5
Meridian	6.58	2.38	55.07	15.29	T	6.95	.4	.5	4.7
Vicksburg (U)	6.03	1.77	49.63	16.28	.03	9.97	1.1	1.3	8.0
MISSOURI					0.00	12.25			
Columbia	4.90	1.57	39.33	13.30	.09	4.05	4.4	16.7	10.3
Kansas City	5.02	1.16	35.31	11.94	.04	5.96	5.3	18.1	12.8
St Joseph	6.46	1.01	35.28	13.73	.05	4.76	6.4	20.4	11.3
St Louis (U) (1958)	4.10	1.88	37.86	20.45	.03	8.78	3.8	14.6	12.4
St. Louis	4.37	1.66	36.73	7.81	.32	3.16	8.2	17.8	11.2
Springfield	5.56	1.76	41.51	18.75	.13	6.85	3.0	12.0	12.5
MONTANA					0.00	10.10			
Billings	2.61	.44	13.10	7.64	T	2.83	7.2	54.0	23.7
Butte	2.28	.53	12.67	5.40	T	2.02	7.1	51.0	13.0
Glasgow	3.48	.34	13.26	6.95	T	2.83	7.3	35.4	8.4
Great Falls	2.96	.55	14.03	8.13	T	3.20	8.5	55.3	11.0
Havre (U)	2.98	.39	12.31	7.09	T	2.94	7.3	37.3	22.9
Helena (U)	2.45	.49	12.55	-----	---	----	---	---	----
Helena	2.15	.41	11.30	4.74	.02	1.99	8.5	49.0	21.5
Kalispell	2.43	.92	16.35	4.44	T	1.99	19.5	67.6	15.4
Miles City	2.84	.36	12.81	9.78	T	2.67	5.7	29.6	10.5
Missoula	1.87	.78	12.76	4.19	.02	1.82	10.4	43.7	11.2
NEBRASKA					0.00	13.15			
Grand Island	3.87	.55	22.70	9.60	.00	5.41	6.0	28.0	8.6
Lincoln (U) (1954)	4.10	.82	25.73	14.21	.00	8.38	5.7	26.3	12.4
Lincoln (U)	4.10	.82	25.73	11.40	.05	4.86	9.0	31.6	10.4
Norfolk	4.78	.78	25.69	9.11	T	3.46	5.1	27.1	8.0
North Platte	2.92	.34	17.54	7.21	T	3.61	4.1	32.8	9.7
Omaha	4.51	.81	25.90	10.81	T	3.62	8.3	30.9	13.7
Scottsbluff	2.78	.33	15.00	8.33	T	3.74	6.5	40.2	12.1
Valentine	3.16	.46	18.23	5.39	T	2.28	5.1	25.0	7.7
NEVADA					0.00	4.37			
Elko	1.07	.29	9.13	3.35	T	1.62	10.6	36.5	16.7
Ely	1.29	.50	10.52	2.68	.00	1.42	8.9	43.8	13.1
Las Vegas	.58	.13	4.35	2.59	.00	2.59	1.7	1.8	5.0
Reno	1.05	.22	6.96	5.25	.00	2.37	6.6	24.1	16.9
Winnemucca	1.01	.18	8.75	2.86	T	1.79	6.5	23.6	9.9
Tonopah (1952)	.55	.19	4.81	3.26	.00	1.97	---	----	----
NEW HAMPSHIRE					0.00	8.00			
Concord	3.62	2.30	37.23	10.10	.41	4.47	18.8	60.9	19.0
Mt. Washington Obs.	6.58	4.75	70.20	18.23	.75	7.03	29.0	129.6	32.0
NEW JERSEY					0.00	14.8			
Atlantic City (U) (1958)	4.72	2.98	41.77	14.87	.01	9.21	4.2	14.6	18.0
Newark	4.20	3.10	42.96	11.84	.27	4.17	6.4	27.0	26.0
Trenton (U)	4.59	2.65	40.06	14.10	.06	4.79	5.0	21.3	14.3
NEW MEXICO					0.00	11.28			
Albuquerque	1.43	.28	8.68	3.25	.00	1.92	2.0	10.7	14.2
Clayton	2.5[illegible]	.27	15.42	7.77	.00	4.67	4.1	20.2	10.9
Raton	2.50	.35	15.42	7.61	.00	3.97	5.4	25.1	8.0
Roswell	2.00	.39	12.[illegible]7	5.64	.00	3.37	3.2	7.9	8.9

State and Station	Relative humidity (percent) January 7:00 am EST	January 1:00 pm EST	January 7:00 pm EST	July 7:00 am EST	July 1:00 pm EST	July 7:00 pm EST	Wind Speed (m.p.h.) Mean hourly January	Mean hourly July	Fastest mile	Sunshine (percent of possible) January	July
MICHIGAN (Cont'd.)											
Grand Rapids	86	77	82	83	51	56	11.0	8.0	65	29	69
Marquette (U)	75	69	73	76	64	66	8.9	7.2	59	30	65
Muskegon	82	76	78	83	57	60	---	---	--	--	--
Sault Ste. Marie	84	78	83	88	62	68	10.2	8.5	58	33	62
MINNESOTA											
Duluth (U)	78	74	74	87	61	66	12.3	10.5	75	46	67
Duluth	78	73	73	88	61	65	12.5	10.8	75	52	68
International Falls	75	69	72	88	57	59	9.5	8.0	36	--	--
Minneapolis-St. Paul	81	71	74	82	54	54	10.6	9.5	92	50	70
Rochester	80	69	75	87	57	57	10.5	8.8	--	--	--
Rochester (1951)	75	67	72	83	55	57	---	---	--	--	--
St. Cloud	76	70	72	87	56	58	8.2	7.0	--	--	--
St. Paul (1952)	75	69	69	79	51	53	9.5	8.1	92	--	--
MISSISSIPPI											
Jackson	82	59	66	92	60	66	8.5	4.8	54	44	64
Meridian	88	63	70	93	58	71	---	---	--	--	--
Vicksburg (U)	83	62	70	93	62	71	9.4	6.8	49	44	65
MISSOURI											
Columbia	80	66	69	85	55	56	11.0	7.9	63	47	75
Kansas City	78	64	67	76	49	48	10.2	9.1	72	50	76
St Joseph	79	66	70	88	59	59	11.2	8.6	64	46	62
St Louis (U) (1958)	n77	n65	n68	n73	n50	n55	12.6	9.5	82	45	72
St. Louis	80	67	69	85	61	57	9.8	7.6	--	--	64
Springfield	83	69	72	88	58	61	13.3	10.1	66	45	72
MONTANA											
Billings	67	62	59	65	40	33	12.6	9.9	73	49	78
Butte	--	--	--	--	--	-	7.1	8.1	--	--	--
Glasgow	77	71	74	73	39	33	---	---	--	--	--
Great Falls	67	62	62	63	37	31	17.4	11.2	82	53	80
Havre (U)	82	71	78	74	36	35	8.8	7.2	59	49	78
Helena (U)	--	--	--	--	--	--	---	---	--	--	--
Helena	73	69	66	73	42	33	6.7	8.0	73	50	79
Kalispell	--	77	--	--	42	--	---	---	--	--	--
Miles City	--	--	--	--	--	--	8.9	10.0	--	--	--
Missoula	84	78	75	77	40	28	4.9	6.4	72	31	78
NEBRASKA											
Grand Island	79	63	69	82	51	48	11.6	11.8	--	--	--
Lincoln (U) (1954)	--	--	--	--	--	--	10.4	9.2	66	57	76
Lincoln (U)	--	--	--	--	--	--	10.3	9.3	64	56	73
Norfolk	79	65	71	84	54	51	---	---	--	--	--
North Platte	83	65	69	84	49	44	9.3	10.1	72	56	74
Omaha	81	68	72	81	52	51	11.5	9.5	109	53	76
Scottsbluff	72	54	58	79	42	39	9.6	9.6	80	--	--
Valentine	81	66	68	84	46	41	9.5	10.1	65	66	76
NEVADA											
Elko	79	72	67	57	25	19	5.3	6.3	--	--	--
Ely	75	60	57	50	22	21	11.3	10.9	74	61	79
Las Vegas	59	41	34	31	19	14	6.5	9.9		74	84
Reno	81	67	53	72	26	19	6.4	[illegible]	72	65	91
Winnemucca	78	67	61	45	21	15	8.4	8.4	63	44	86
Tonopah (1952)	--	--	--	--	--	--	---	---	--	--	--
NEW HAMPSHIRE											
Concord	79	61	71	79	50	68	7.3	[illegible]	72	46	62
Mt. Washington Obs.	82	83	82	91	87	90	47.0	25.3	231	32	31
NEW JERSEY											
Atlantic City (U) (1958)	79	68	74	81	72	82	16.2	15.3	91	51	67
Newark	72	56	65	75	51	64	11.3	8.7	-	-	--
Trenton (U)	--	--	--	--	--	--	9.8	7.8	64	48	68
NEW MEXICO											
Albuquerque	67	51	46	59	33	28	8.3	9.2	[illegible]	[illegible]	76
Clayton	64	45	52	77	43	43	--	--	--	--	--
Raton	--	46	--	--	38	--	---	---	--	--	--
Roswell	66	43	38	71	38	32	8.8	[illegible]	75	--	--

State and Station	Annual mean number of days Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperature Max 90° and above	Min 32° and below	Zero and below
MICHIGAN (Cont'd.)										
Grand Rapids	71	92	202	139	25	38	20	14	150	5
Marquette (U)	62	105	198	156	29	29	15	6	160	10
Muskegon	79	92	194	138	27	37	23	6	145	2
Sault Ste. Marie	69	93	203	160	33	29	46	2	179	25
MINNESOTA										
Duluth (U)	110	119	136	126	16	31	37	2	173	41
Duluth	82	102	181	134	22	33	49	2	191	51
International Falls	83	105	177	137	19	29	12	4	198	66
Minneapolis-St. Paul	104	101	160	113	12	38	11	16	154	29
Rochester	97	98	170	105	8	41	12	6	166	33
Rochester (1951)	78	135	152	105	13	40	16	14	82	34
St. Cloud	96	108	161	108	13	38	21	11	179	44
St. Paul (1952)	104	128	133	114	13	34	9	12	154	32
MISSISSIPPI										
Jackson	100	108	157	121	*	73	16	80	43	0
Meridian	126	113	126	104	*	57	18	92	47	0
Vicksburg (U)	106	118	141	103	*	62	11	68	18	0
MISSOURI										
Columbia	113	103	149	108	5	55	15	43	[illegible]	3
Kansas City	121	106	138	100	6	49	14	56	[illegible]	2
St Joseph	121	98	146	95	6	59	19	46	127	5
St Louis (U) (1958)	128	106	131	110	6	51	8	46	20	2
St. Louis	90	105	170	100	4	44	10	42	98	2
Springfield	114	99	152	108	6	62	20	40	101	1
MONTANA										
Billings	90	123	152	92	19	31	18	29	149	16
Butte	79	108	178	106	19	41	6	4	228	43
Glasgow	86	105	174	91	12	28	11	28	185	47
Great Falls	86	109	170	98	19	28	13	15	146	23
Havre (U)	121	124	120	90	13	25	5	21	172	38
Helena (U)	---	---	---	---	--	--	--	--	--	--
Helena	83	108	174	98	15	39	9	14	183	26
Kalispell	75	83	207	132	23	26	-	7	180	15
Miles City	99	110	156	89	12	29	9	38	175	33
Missoula	74	84	207	124	14	27	25	18	180	13
NEBRASKA										
Grand Island	122	107	136	85	16	48	16	45	150	11
Lincoln (U) (1954)	131	112	122	95		47	5	40	41	[illegible]
Lincoln (U)	118	106	141	96	10	48	3	43	128	6
Norfolk	118	106	141	86	9	48	11	36	[illegible]	[illegible]
North Platte	123	110	132	79	[illegible]	48	17	43	[illegible]	[illegible]
Omaha	116	108	141	94	10	49	[illegible]	40	[illegible]	[illegible]
Scottsbluff	123	113	129	81	13	47	10	[illegible]	[illegible]	[illegible]
Valentine	118	[illegible]	143	82	10	46	4	41	182	25
NEVADA										
Elko	135	102	128	[illegible]	[illegible]	22	[illegible]	41	[illegible]	[illegible]
Ely	139	106	120	68	14	30	2	14	[illegible]	[illegible]
Las Vegas	221	80	[illegible]	[illegible]	1	15	1	[illegible]	[illegible]	
Reno	172	92	[illegible]	[illegible]	8	13	[illegible]	47	[illegible]	[illegible]
Winnemucca	141	87	134	[illegible]	[illegible]	13	2	52	[illegible]	[illegible]
Tonopah (1952)	---	---	---	---	--	--	-	--	--	--
NEW HAMPSHIRE										
Concord	94	110	161	127	21	22	56	[illegible]	[illegible]	[illegible]
Mt. Washington Obs.	[illegible]	[illegible]	236	200	68	16	[illegible]	[illegible]	242	[illegible]
NEW JERSEY										
Atlantic City (U) (1958)	118	122	125	122	5	23	21	3	[illegible]	*
Newark	95	111	[illegible]	124	7	25	24	26	[illegible]	*
Trenton (U)	100	115	150	[illegible]	7	33		19	89	*
NEW MEXICO										
Albuquerque	172	115	78	[illegible]	4	45	5	[illegible]	[illegible]	*
Clayton	170	98	97	67	8	53	12	41	[illegible]	[illegible]
Raton	132	87	[illegible]	77	9	78	8	[illegible]	[illegible]	[illegible]
Roswell	186	98	81	50	3	14	7	109	[illegible]	[illegible]

See reference notes at end of table

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temp. Normal (1921-1950) January Daily maximum	January Daily minimum	July Daily maximum	July Daily minimum	Annual	Extremes Length yrs	Record highest	Record lowest	Normal degree days (1921-1950) January	Seasonal	Precip. Normal (1921-1950) Wettest month	Driest month	Annual	Precip. Extremes Wettest month	Driest month	Maximum in 24 hours
NEW YORK							70	108	-52							0.00	10.45
Albany (U)	19	32.9	17.4	82.6	63.6	49.4	--	---	---	1234	6319	4.08	2.18	35.81	-----	----	----
Albany	277	30.9	14.0	82.5	60.2	47.2	13	100	-26	1318	6962	3.37	2.03	31.82	8.96	0.64	4.08
Bear Mountain(1952)	1300	32.8	18.9	79.5	62.6	48.3	13	99	-23	1212	6511	4.71	2.90	44.29	16.87	.25	5.50
Binghamton (U)	858	34.0	17.3	82.8	60.0	48.4	69	103	-28	1218	6556	3.69	2.24	36.26	9.59	.16	4.55
Binghamton	1590	29.7	13.6	79.1	59.0	45.2	12	---	---	1342	7537	3.87	2.30	37.66	-----	----	----
Buffalo	693	32.4	18.5	81.1	60.0	47.5	16	99	-12	1225	6838	3.09	2.43	32.29	9.13	.11	3.11
New York (U)	10	39.9	25.8	82.3	66.9	53.4	89	102	-14	995	5050	4.34	3.04	42.03	14.51	.11	9.40
New York Central Park	132	39.2	26.1	84.7	67.4	54.0	91	106	-15	1001	4965	4.40	3.03	43.36	16.85	.02	5.41
New York	19	39.1	26.8	84.0	67.8	53.9	19	103	-7	992	4989	4.27	2.91	40.38	16.05	.03	7.11
Oswego (U) (1952)	292	31.7	17.6	77.8	62.3	47.0	82	100	-23	1249	6975	3.33	2.48	33.07	10.50	.18	3.76
Rochester	543	32.7	16.7	82.7	59.7	47.5	19	100	-16	1249	6863	3.09	2.36	31.74	9.70	.36	3.13
Schenectady (1952)	217	28.8	14.2	82.5	62.8	47.2	8	102	-28	1349	7050	3.86	2.22	35.25	8.69	.64	7.46
Syracuse	424	33.9	17.0	83.5	61.4	48.8	10	98	-24	1225	6520	3.68	2.52	36.42	8.41	.93	4.27
NORTH CAROLINA							73	109	-23							0.00	22.22
Asheville (U)	2203	48.8	30.0	84.1	63.4	56.3	29	99	-4	794	4072	4.50	2.11	37.22	13.75	.22	6.78
Charlotte	725	52.2	32.3	88.8	68.3	60.5	20	104	-3	704	3205	4.67	2.65	43.09	10.89	T	4.84
Greensboro	891	49.0	29.0	87.4	66.9	58.1	31	102	-7	806	3810	4.94	2.60	42.49	13.26	.13	7.49
Cape Hatteras (R)	7	54.3	41.6	83.4	73.5	63.1	2	94	14	527	2392	6.48	3.08	54.77	8.74	.45	4.46
Raleigh (U)	400	51.3	34.0	88.9	69.6	61.1	f	f	f	691	3075	5.64	2.68	45.83	f	f	f
Raleigh	433	50.8	32.0	89.0	68.0	59.9	15	105	7	732	3369	5.45	2.82	45.09	12.94	.44	5.20
Wilmington	30	58.7	36.9	89.1	70.9	63.8	8	104	11	533	2323	8.16	2.59	49.84	15.51	.17	8.24
Winston-Salem	967	48.6	30.0	87.0	67.9	58.5	5	100	1	797	3721	4.57	2.79	43.15	10.86	.95	3.48
NORTH DAKOTA							68	121	-60							0.00	7.70
Bismarck	1650	20.1	-1.8	85.5	58.6	41.7	20	109	-44	1730	9033	3.33	.36	15.40	8.29	T	3.25
Devils Lake (U)	1471	14.2	-4.7	81.7	56.9	38.7	55	112	-46	1866	9940	3.18	.40	17.61	8.55	T	4.82
Fargo	895	16.9	-2.8	84.2	58.3	40.9	18	105	-36	1795	9274	3.04	.60	18.73	8.52	.02	4.72
Williston (U)	1877	19.8	.2	83.5	58.2	41.3	43	110	-50	1705	9068	3.59	.46	14.66	7.88	T	3.06
OHIO							86	113	-39							0.00	8.70
Akron-Canton	1210	34.8	20.0	83.1	61.6	49.7	11	100	-11	1166	6203	4.20	2.13	37.26	11.43	.31	4.18
Cincinnati (U) (1950)	553	42.3	26.9	88.0	68.1	50.3	80	109	-17	942	4532	4.07	2.19	39.34	13.68	.13	5.22
Cincinnati	869	39.7	23.8	85.9	64.3	53.6	16	---	---	1021	5195	4.04	2.17	39.16	-----	---	----
Cincinnati Obs.	761	40.9	25.2	87.2	65.9	54.9	44	109	-17	989	4870	4.07	2.19	39.34	13.68	.17	4.77
Cleveland (U)	653	36.0	23.0	80.9	66.5	51.5	--	---	---	1101	5717	3.35	2.19	33.50	-----	---	----
Cleveland	787	36.0	20.9	84.7	62.6	50.6	18	103	-9	1132	6006	3.13	2.12	32.08	9.50	.61	3.73
Columbus (U)	724	38.2	23.9	85.8	65.8	53.4	--	---	---	1051	5277	3.66	2.00	34.36	-----	---	----
Columbus	815	37.8	21.6	86.2	62.6	52.0	20	102	-15	1094	5615	4.33	2.27	37.88	9.75	.33	3.87
Dayton	1002	37.3	22.1	85.3	64.7	52.2	16	102	-16	1094	5597	3.90	2.11	35.15	10.89	.10	4.30
Portsmouth (R) (1954)	670	42.7	23.4	87.7	61.6	54.1	34	107	-25	989	4965	4.26	2.28	38.56	9.92	.51	3.43
Sandusky (U)	603	35.7	21.8	83.7	65.5	51.3	31	105	-12	1122	5859	3.73	1.92	33.16	12.51	.40	5.95
Toledo	676	34.7	18.0	85.3	60.9	49.4	4	97	-9	1197	6394	3.55	1.86	31.84	6.71	.54	2.50
Youngstown	1178	34.9	20.0	83.3	61.2	49.8	16	100	-12	1163	6172	4.16	2.72	41.33	9.87	.43	4.31
OKLAHOMA							68	120	-27							0.00	19.75
Oklahoma City(U)(1953)	1254	47.2	28.3	93.1	71.8	61.0	63	113	-17	843	3519	4.42	1.28	32.59	14.12	T	7.87
Oklahoma City	1280	47.0	27.2	93.3	70.9	60.4	5	107	6	865	3644	4.25	1.24	30.22	10.78	T	4.82
Tulsa	672	46.9	27.9	93.1	71.1	60.6	21	112	-8	856	3584	5.15	1.57	37.68	18.00	T	7.30
OREGON							70	119	-54							0.00	10.17
Astoria	8	44.0	36.1	66.7	54.8	51.4	6	93	15	772	4995	13.21	1.07	75.99	18.94	.09	3.55
Baker (U) (1952)	3446	32.3	15.9	84.2	51.0	46.1	62	104	-25	1268	7087	1.31	.33	10.02	4.00	T	1.83
Burns (U)	4140	35.5	12.2	87.3	52.2	46.8	9	100	-25	1274	6918	1.47	.25	10.25	3.97	.00	1.57
Eugene	361	44.8	31.6	82.4	50.7	52.4	17	105	-4	831	4779	6.00	.26	37.51	19.49	T	4.82
Meacham	4050	32.0	17.7	77.3	49.0	43.5	15	97	-15	1243	7888	4.38	.46	33.29	9.29	.00	3.00
Medford	1312	44.6	29.8	88.8	54.7	54.0	30	115	-3	862	4547	3.13	.17	18.15	9.16	.00	3.17
Pendleton	1492	36.9	24.2	89.0	59.9	52.7	24	110	-22	1066	5204	1.69	.26	12.96	3.03	.00	1.49
Portland (U)	30	44.2	34.7	79.2	57.8	54.6	57	107	3	791	4143	7.10	.42	39.91	17.45	.00	5.01
Portland	21	43.3	31.5	79.2	55.3	53.0	16	---	--	856	4632	6.17	.42	35.23	-----	---	-----
Roseburg (U) (1952)	479	47.5	34.5	83.4	54.3	54.6	75	109	-6	744	4122	4.93	.20	30.50	12.82	.00	4.15
Roseburg	505	47.1	31.8	83.2	51.2	53.1	7	104	9	791	4556	4.93	.20	30.50	15.74	T	4.03
Salem	195	44.8	31.9	83.2	52.2	53.1	22	108	-10	825	4574	7.12	.32	39.85	15.40	.00	3.16
Sexton Summit (R)	3836	41.6	30.0	76.4	50.0	48.1	15	100	8	905	6217	4.70	.29	30.96	14.71	.00	5.20
Troutdale (1952)	29	42.2	31.4	80.0	53.1	52.4	7	103	3	874	4775	7.24	.53	42.92	11.25	.03	2.84
PACIFIC AREA																	
Canton Island	8	88.0	78.0	90.0	78.4	83.7	13	98	70	0	0	3.78	.27	20.01	16.39	T	5.21
Guam (R)	361	83.8	71.5	87.0	72.2	78.8	3	95	59	0	0	14.50	2.37	86.45	20.59	.90	7.26
Johnston Island	7	----	----	----	----	----	4	88	67	0	0	-----	----	------	15.80	.22	----
Koror (R)	94	85.0	75.4	85.2	75.8	80.9	10	93	69	0	0	18.81	7.68	147.98	27.46	1.65	11.57
Majuro, Marshall Is.	10	----	----	----	----	----	4	91	69	----	----	-----	----	------	24.26	.96	10.01

State and Station	Snow, sleet Mean total January	Seasonal	Extreme Maximum in 24 hours	Relative humidity (percent) January 7:00 am EST	January 1:00 pm EST	January 7:00 pm EST	July 7:00 am EST	July 1:00 pm EST	July 7:00 pm EST	Wind speed (m.p.h.) Mean hourly January	July	Fastest mile	Sunshine (percent of possible) January	July	Annual mean number of days: Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperature Max 90° and above	Min 32° and below	Zero and below
NEW YORK																								
Albany (U)	----	----	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Albany	15.4	59.8	17.9	78	66	74	77	51	63	9.9	7.3	71	43	65	76	115	174	134	14	28	22	14	115	12
Bear Mountain(1952)	11.3	48.9	23.0	--	--	--	--	--	--	---	---	--	--	--	73	122	170	126	13	27	98	4	130	3
Binghamton (U)	12.5	51.2	21.0	†83	†75	†78	†83	†55	†64	13.1	9.0	†72	†34	†67	†19	†102	†214	152	15	†32	†47	10	133	7
Binghamton	----	----	----	82	68	77	85	55	70	---	---	72	32	55	68	108	189	---	--	31	--	--	---	--
Buffalo	28.1	104.2	19.9	79	72	77	79	53	63	14.6	11.3	91	34	70	63	114	191	165	27	27	2	8	129	2
New York (U)	7.4	30.0	25.8	72	62	66	76	58	67	16.5	12.0	113	52	65	107	131	130	124	8	30	20	7	92	0
New York Central Park	7.7	29.7	26.4	n68	n61	n61	n76	n57	n64	11.1	7.9	--	49	66	100	129	136	122	8	--	--	15	81	1
New York	6.8	30.3	22.8	69	59	63	74	54	65	---	---	--	--	--	---	---	---	121	7	--	--	18	77	*
Oswego (U) (1952)	23.8	87.9	19.1	78	68	77	76	63	70	12.1	7.9	48	19	69	79	102	184	163	28	26	9	2	127	6
Rochester	18.3	78.8	17.8	82	73	79	80	51	60	11.2	7.6	73	34	71	65	116	184	159	24	30	15	15	135	5
Schenectady (1952)	16.7	62.7	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Syracuse	25.2	109.0	15.1	78	71	76	77	53	61	10.1	8.4	63	31	58	65	102	198	172	35	29	11	12	135	7
NORTH CAROLINA																								
Asheville (U)	2.3	10.9	15.8	82	59	67	89	57	71	9.8	5.7	52	49	61	110	122	134	131	4	51	44	14	82	*
Charlotte	1.5	7.2	6.7	82	57	67	86	55	69	8.5	6.7	57	56	70	112	108	147	113	1	45	22	54	64	*
Greensboro	2.6	6.8	14.3	82	58	71	85	56	72	8.3	6.7	63	50	64	112	110	143	119	1	48	32	37	84	*
Cape Hatteras (R)	T	2.0	4.0	78	64	75	88	72	85	12.6	10.3	--	--	--	105	104	157	117	1	40	20	6	27	0
Raleigh (U)	f	f	f	--	--	--	--	--	--	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Raleigh	2.5	5.6	9.1	82	57	69	86	55	72	8.3	6.6	--	61	70	117	106	142	119	1	46	34	49	70	0
Wilmington	.1	1.0	3.1	83	56	74	86	62	77	10.6	10.1	88	58	66	126	112	127	113	*	45	22	48	39	0
Winston-Salem	2.7	6.6	8.9	73	52	60	84	56	68	9.4	7.5	48	--	--	118	105	142	118	1	42	33	39	106	0
NORTH DAKOTA																								
Bismarck	7.1	37.5	13.5	77	71	75	84	51	48	10.1	10.0	72	54	75	97	110	158	96	12	37	13	24	186	48
Devils Lake (U)	6.1	35.3	13.4	76	72	75	86	53	53	9.8	8.4	57	53	71	112	110	143	102	11	30	10	10	189	60
Fargo	5.9	32.6	11.2	74	70	73	86	55	54	13.6	11.5	115	48	69	90	114	161	102	11	34	12	14	182	53
Williston (U)	5.6	33.2	10.6	74	67	69	77	45	41	6.8	7.0	60	51	78	122	116	127	90	12	27	7	18	178	43
OHIO																								
Akron-Canton	8.0	40.8	8.5	84	74	80	83	56	66	13.0	7.7	--	--	--	74	101	190	153	13	42	28	11	137	3
Cincinnati (U) (1950)	5.4	18.1	11.0	--	--	--	--	--	--	8.9	5.5	49	40	72	f	f	f	130	7	46	10	26	89	1
Cincinnati	----	----	----	82	70	74	84	52	60	---	---	--	--	--	108	115	142	---	--	--	--	--	---	--
Cincinnati Obs.	5.1	18.2	11.0	--	--	--	--	--	--	8.4	5.3	49	41	72	---	---	---	133	7	51	--	29	97	1
Cleveland (U)	----	----	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Cleveland	10.4	51.2	15.0	81	72	78	80	53	59	12.7	9.0	74	27	68	73	105	187	157	18	37	14	20	118	4
Columbus (U)	----	----	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Columbus	10.6	28.4	8.2	82	71	76	83	52	60	10.0	6.1	63	35	69	79	105	181	136	7	41	20	28	118	4
Dayton	6.2	23.5	7.7	83	72	77	82	54	58	12.2	8.2	78	37	69	80	105	180	131	7	43	21	19	116	3
Portsmouth (R) (1954)	8.8	32.9	10.1	n71	n59	n59	n88	n47	n54	7.7	3.4	60	--	--	39	75	142	106	9	63	64	36	113	0
Sandusky (U)	6.5	27.1	12.3	--	--	--	--	--	--	7.8	6.9	75	34	75	92	114	159	138	10	35	8	19	110	2
Toledo	11.2	32.6	9.8	85	72	79	87	55	61	10.6	8.6	72	44	71	81	102	182	136	11	47	22	16	143	6
Youngstown	11.6	46.2	20.7	84	74	80	83	54	65	11.9	7.0	--	--	--	74	102	189	164	17	38	30	11	135	4
OKLAHOMA																								
Oklahoma City(U)(1953)	f2.7	f7.8	f11.3	f79	f62	f65	f80	f49	f51	---	---	66	f57	f78	f161	f107	f97	82	f2	f45	f8	64	70	*
Oklahoma City	3.3	8.8	8.4	84	67	69	81	51	47	15.2	12.2	87	53	78	152	93	120	83	3	51	17	70	83	*
Tulsa	4.0	9.2	9.0	80	62	64	84	54	53	11.8	9.0	75	50	72	124	106	135	90	3	55	7	72	75	1
OREGON																								
Astoria	2.1	3.8	3.1	88	85	80	91	75	70	8.0	7.8	--	--	--	52	71	242	200	2	8	40	1	37	0
Baker (U) (1952)	11.3	40.4	16.7	†83	†81	†78	†69	†68	†36	5.9	5.8	53	41	83	122	107	136	103	45	16	3	15	156	6
Burns (U)	17.5	52.5	10.9	82	75	70	54	33	20	---	---	--	--	--	131	86	148	87	18	15	11	21	180	5
Eugene	5.1	7.4	7.2	--	87	82	--	54	38	8.7	8.4	--	--	--	78	86	201	141	3	6	56	14	60	*
Meacham	34.6	155.6	22.9	--	80	--	--	41	--	---	---	--	--	--	88	73	204	153	47	18	30	3	170	5
Medford	3.9	7.8	7.9	92	88	74	75	45	27	4.6	5.6	--	--	--	117	82	166	100	3	9	45	47	80	*
Pendleton	8.4	18.4	13.3	82	78	77	55	35	23	8.1	9.7	--	--	--	103	97	165	102	6	12	29	31	87	3
Portland (U)	5.2	9.0	16.0	†87	†82	†78	†85	†63	†47	†10.0	†7.0	†61	†22	†67	†66	†70	†229	151	3	†7	†27	8	22	0
Portland	---	----	----	87	82	78	86	63	48	9.8	6.8	57	19	65	67	68	230	---	--	8	23	--	--	--
Roseburg (U) (1952)	3.1	6.6	8.0	91	87	79	85	54	38	3.9	5.1	40	f	f	f	f	f	133	1	4	49	14	34	*
Roseburg	3.8	7.0	9.1	--	85	74	--	55	35	4.2	6.0	37	24	79	104	117	144	134	2	6	56	18	61	0
Salem	3.8	6.0	10.8	88	84	79	87	54	39	9.1	6.8	--	--	--	76	87	202	151	2	6	39	16	59	*
Sexton Summit (R)	25.8	99.9	22.6	--	85	--	--	61	--	---	---	--	--	--	119	71	175	132	31	7	165	2	111	0
Troutdale (1952)	8.9	14.8	7.3	85	80	76	91	63	50	11.7	4.7	--	--	--	67	77	221	164	5	9	26	13	52	0
PACIFIC AREA																								
Canton Island	.0	.0	.0	80	79	66	80	79	65	14.4	13.4	--	--	--	72	161	132	99	0	4	0	180	0	0
Guam (R)	.0	.0	.0	--	--	--	--	--	--	---	---	--	85	76	---	---	---	260	0	15	0	13	0	0
Johnston Island	.0	.0	.0	--	--	--	--	--	--	---	---	--	--	--	---	---	---	177	0	0	0	0	0	0
Koror (R)	.0	.0	.0	90	81	76	91	82	78	---	---	--	--	--	3	72	290	280	0	42	0	48	0	0
Majuro, Marshall Is.	.0	.0	.0	82	75	78	86	78	81	---	---	--	--	--	6	51	308	252	0	18	0	*	0	0

See reference notes at end of table.

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temp. Normal (1921-1950) January Daily maximum	January Daily minimum	July Daily maximum	July Daily minimum	Annual	Extremes Length yrs	Record highest	Record lowest	Normal degree days (1921-1950) January	Seasonal	Precip. Normal (1921-1950) Wettest month	Driest month	Annual	Extremes Wettest month	Driest month	Maximum in 24 hours	Snow, sleet Mean total January	Seasonal	Extreme Maximum in 24 hours
PACIFIC AREA (Cont'd.)																				
Ponape (R)	120	86.4	76.0	88.0	72.7	81.0	9	96	67	0	0	19.66	7.87	182.44	38.65	2.40	22.48	0.0	0.0	0.0
Truk, Moen Is.																				
Wake Island	11	81.1	73.8	86.3	77.6	79.9	12	92	64	0	0	8.90	1.26	41.30	e17.66	.27	e15.00	.0	.0	.0
Yap (R)	55	85.4	76.1	87.6	75.7	81.6	11	97	70	----	----	16.60	4.71	122.14	29.44	1.08	10.45	.0	.0	.0
PENNSYLVANIA							72	111	-42							0.00	34.50			
Allentown	376	36.5	20.4	85.5	62.7	50.9	16	102	-10	1132	5880	4.78	2.64	42.25	12.10	.34	4.79	7.1	28.2	17.5
Erie	732	34.2	20.1	80.6	60.1	48.3	6	94	-5	1172	6558	3.50	2.07	34.48	9.87	.58	4.84	20.2	80.8	23.0
Harrisburg	335	38.6	23.6	85.6	65.1	53.0	21	102	-4	1051	5258	3.70	2.24	36.01	9.07	.23	4.36	8.8	30.0	21.0
Park Place (U) (1953)	1932	30.8	16.8	77.8	59.5	46.1	24	98	-22	1277	7175	5.54	2.52	46.65	19.81	.72	7.83	9.8	44.8	16.0
Philadelphia(U)(1954)	26	41.5	28.2	85.3	69.0	55.7	84	106	-11	933	4523	4.62	2.61	41.44	12.10	.09	5.89	5.7	21.2	21.0
Philadelphia	7	40.9	25.4	86.5	66.0	54.3	18	102	1	986	4866	4.58	2.60	41.13	9.70	.11	4.81	4.8	17.5	13.0
Pittsburgh(U)	749	40.2	25.8	85.1	65.6	53.9	78	103	-20	992	5048	3.83	2.35	36.23	9.81	.06	4.08	8.6	34.7	17.5
Pittsburgh	1151	36.6	21.3	82.8	61.8	50.6	7	99	-8	1116	5905	4.07	2.37	36.92	8.20	.40	3.56	8.7	34.7	10.5
Pittsburgh Allegheny (1952)	1252	38.0	22.7	83.4	63.3	51.9	17	102	-16	1073	5555	3.84	2.35	36.49	10.25	.53	3.23	9.0	41.7	17.5
Reading (U)	266	39.1	25.3	85.2	66.1	53.7	19	102	0	1017	5060	4.43	2.68	40.02	14.85	.17	6.08	8.1	27.8	18.7
Scranton (U)	746	35.4	21.0	83.2	61.9	50.1	f	f	f	1141	6047	4.43	2.02	36.61	f	f	f	f	f	f
Scranton	940	34.3	19.5	83.0	61.4	49.3	4	96	-10	1181	6284	5.33	2.02	40.49	7.11	.35	2.24	7.8	42.4	9.9
Shippingport (1957)	736	33.8	20.7	80.5	60.0	51.0	2	92	-3	1163	5647	5.17	1.40	38.96	7.01	.71	3.30	3.6	17.4	9.0
Williamsport	527	36.0	20.9	85.2	61.4	50.7	15	102	-15	1132	5898	4.31	2.34	39.49	9.45	.67	4.38	8.2	37.2	13.7
PUERTO RICO							59	103	40							0.00				
San Juan (U)	47	79.6	70.2	84.2	75.7	78.0	61	96	62	0	0	6.51	2.42	60.0	16.88	.05	10.55	.0	.0	.0
San Juan	9	80.1	69.5	86.0	75.0	78.1	--	--	--	----	----	7.49	2.78	67.80	-----	----	-----	---	----	----
Santa Isabel (1953)	28	83.0	64.9	86.9	72.0	76.7	8	96	57	0	0	4.54	.48	32.66	12.37	.05	6.62	.0	.0	.0
RHODE ISLAND							72	102	-23							0.00	12.13			
Block Island	110	38.0	25.7	75.3	62.9	49.9	9	91	-1	1026	5843	3.67	2.55	38.63	9.73	T	6.63	3.7	20.4	11.0
Providence(U)(1952)	12	37.6	23.0	82.6	64.4	51.4	f	f	f	1076	5607	3.75	2.83	39.63	f	f	f	f	f	f
Providence	55	36.8	20.6	80.0	61.9	49.4	6	97	-9	1125	6125	3.75	2.83	39.63	11.12	.39	5.47	8.8	33.5	14.7
SOUTH CAROLINA							75	111	-13							0.00	13.25			
Charleston (U)	9	61.4	39.2	89.4	70.8	65.2	17	103	14	472	1973	8.04	2.05	48.14	17.31	.08	8.84	T	.1	2.1
Charleston	41	61.4	39.2	89.4	70.8	65.2	15	---	--	472	1973	8.04	2.05	48.14	17.31	.04	----	---	----	----
Columbia (U)	332	57.0	38.7	90.2	71.3	64.4	f	f	f	538	2284	5.74	2.00	41.58	f	f	f	f	f	f
Columbia	217	58.1	35.9	91.9	70.8	64.0	12	107	4	566	2435	6.56	2.25	46.15	16.72	.29	7.66	.1	1.1	8.8
Florence	146	56.3	36.3	91.1	70.6	63.6	12	108	11	588	2507	6.45	2.27	45.33	13.68	.00	6.36	T	.6	4.8
Greenville	1018	51.6	35.0	87.9	68.8	61.0	6	101	1	673	3060	4.81	3.04	47.65	9.74	.52	5.79	.4	2.1	6.4
Spartanburg	801	52.1	34.7	88.7	69.1	61.2	16	104	3	670	3044	4.70	2.97	46.66	10.33	.13	6.85	.8	2.7	7.1
SOUTH DAKOTA							70	120	-58							0.00	8.00			
Huron	1282	24.8	2.1	89.5	61.3	45.7	20	110	-34	1597	7902	3.06	.45	17.54	7.12	T	4.15	6.3	36.6	10.7
Rapid City	3165	33.1	9.1	85.8	58.8	46.1	17	109	-27	1361	7535	3.36	.32	17.10	7.35	.01	3.17	5.9	36.8	16.3
Sioux Falls	1420	24.4	4.0	87.9	61.6	45.8	14	108	-27	1575	7848	4.25	.67	25.24	7.94	T	4.32	5.5	41.0	18.9
TENNESSEE							77	113	-32							0.00	11.00			
Bristol	1519	48.5	28.6	85.5	64.0	56.4	14	102	-5	818	4148	5.14	2.39	41.24	9.73	.41	3.10	3.2	11.0	16.2
Chattanooga	670	51.6	31.9	89.6	67.0	60.0	20	106	1	725	3384	6.05	2.69	53.60	13.59	.34	5.25	1.1	2.8	6.7
Knoxville	950	49.8	31.1	89.1	67.6	59.3	18	103	-2	760	3590	4.83	2.53	45.51	11.74	.20	5.08	1.8	7.4	12.1
Memphis (U)	271	49.3	34.5	89.4	73.2	62.4	f	f	f	716	3006	5.38	2.50	46.81	f	f	f	f	f	f
Memphis	263	50.3	32.9	91.1	71.3	61.8	18	106	-11	726	3137	5.59	2.55	49.42	12.29	.04	4.94	1.6	2.8	5.2
Nashville	577	48.9	30.9	90.6	69.3	60.1	20	107	-15	778	3513	5.28	2.52	45.03	13.92	.28	4.65	3.2	8.6	9.2
Oak Ridge (R)	905	48.8	29.2	88.3	65.1	57.8	12	105	0	806	3885	6.08	2.42	53.72	13.27	.41	4.73	1.2	3.7	6.6
Oak Ridge Area	886	48.7	30.4	87.8	65.6	58.1	15	103	0	787	3823	5.64	2.77	52.38	12.84	.48	7.75	---	---	----
TEXAS							82	120	-23							0.00	38.20			
Abilene	1759	55.1	31.4	94.6	71.5	64.1	20	109	-9	673	2657	3.68	.88	22.55	13.19	.00	5.10	1.5	3.6	5.0
Amarillo	3590	48.9	21.6	91.8	63.8	56.6	19	108	-14	921	4345	3.25	.62	21.12	9.81	.00	6.75	3.8	12.7	12.2
Austin	615	59.8	40.0	94.4	73.7	68.2	18	109	-2	484	1713	4.37	1.67	35.18	9.93	.00	4.69	.8	1.0	7.0
Big Spring (1952)	2569	55.8	33.0	94.6	70.7	64.6	51	117	-7	639	2480	2.78	.60	17.39	12.89	.00	6.77	.8	2.7	3.5
Brownsville	16	69.6	51.4	92.5	75.1	73.6	20	104	22	219	617	5.13	1.11	27.62	17.12	T	8.18	T	T	T
Corpus Christi	41	66.3	47.4	92.5	75.0	71.7	21	104	18	299	924	4.70	1.39	28.00	14.54	.00	7.68	.1	.1	1.1
Dallas	476	55.3	36.0	95.4	75.6	66.5	19	111	2	607	2272	4.97	1.83	34.42	13.85	T	9.18	1.1	1.7	3.3
Del Rio (1956)	1091	62.2	41.6	93.3	76.1	69.8	51	111	11	419	1407	2.51	.80	18.62	13.71	.00	8.88	.4	.7	4.7
El Paso	3920	55.8	30.9	93.5	69.0	63.3	20	107	-6	670	2641	1.32	.27	7.83	6.29	.00	2.89	1.6	4.0	7.3
Fort Worth Meacham Fld. (1952)	688	54.9	35.5	95.0	74.2	65.9	15	110	-2	622	2361	4.84	1.75	32.29	16.97	T	6.03	1.5	2.9	4.5
Fort Worth Amon Carter	544	54.9	35.6	95.2	74.9	66.0	6	109	7	619	2338	4.92	1.88	33.69	12.64	.11	5.91	.9	1.9	3.8
Galveston (U)(1957)	7	59.8	49.2	87.4	78.6	70.1	86	101	8	356	1211	5.44	2.98	45.29	26.01	.00	14.35	T	.2	15.4
Galveston	5	60.4	48.2	88.7	77.9	70.1	9	97	18	362	1233	5.82	3.14	47.98	25.06	T	8.53	T	T	.2

State and Station	Relative humidity (percent) January 7:00 am EST	January 1:00 pm EST	January 7:00 pm EST	July 7:00 am EST	July 1:00 pm EST	July 7:00 pm EST	Wind Speed (mph) Mean hourly January	Mean hourly July	Fastest mile	Sunshine (percent of possible) January	July	Annual mean number of days, Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperature Max 90° and above	Min 32° and below	Min Zero and below
PACIFIC AREA (Cont'd.)																					
Ponape (R)	85	76	78	96	80	81	---	---	--	---	--	4	70	291	301	0	29	0	45	0	0
Truk, Moen Is.																					
Wake Island	74	65	70	82	72	75	13.8	12.6	--	---	--	127	158	80	191	0	6	0	6	0	0
Yap (R)	87	78	77	91	80	77	---	---	--	---	--	8	66	291	261	0	11	0	68	0	0
PENNSYLVANIA																					
Allentown	78	62	70	81	52	64	11.2	7.1	--	---	--	90	117	158	126	7	34	32	20	128	2
Erie	--	--	--	--	--	--	12.0	7.1	46	---	--	66	101	198	162	30	37	13	3	134	2
Harrisburg	72	59	65	78	51	62	8.2	6.1	68	45	69	84	107	174	126	10	33	23	25	105	*
Park Place (U) (1953)	86	74	78	82	63	77	---	---	--	---	--	83	104	178	138	15	25	104	2	145	5
Philadelphia(U)(1954)	74	65	68	75	56	66	10.9	8.7	88	45	64	109	122	134	123	6	27	10	14	76	*
Philadelphia	76	60	68	79	52	65	10.4	8.2	73	47	63	89	116	160	120	5	27	29	26	92	0
Pittsburgh(U)	77	67	63	77	53	60	11.7	8.7	73	32	64	85	128	152	151	11	41	25	16	102	2
Pittsburgh	78	67	72	82	54	62	10.9	8.1	51	36	65	64	110	191	153	10	38	16	9	122	2
Pittsburgh Allegheny (1952)	81	67	74	81	53	61	11.7	8.4	64	31	61	67	120	178	156	12	42	31	13	114	2
Reading (U)	71	--	--	75	--	--	11.6	8.5	80	44	63	93	107	165	125	9	33	6	21	90	*
Scranton (U)	f	f	--	f	f	--	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Scranton	77	65	71	81	57	66	9.2	7.6	60	34	54	67	116	182	144	14	37	28	10	142	3
Shippingport (1957)	g76	g64	--	g80	g55	--	3.3	2.0	63	--	--	---	- -	---	144	5	40	21	10	126	1
Williamsport	77	63	70	85	52	65	8.6	5.1	--	--	--	70	117	178	145	10	--	--	18	130	4
PUERTO RICO																					
San Juan (U)	65	65	78	81	67	79	9.1	9.5	80	67	65	55	203	107	209	0	49	0	9	0	0
San Juan	f	f	f	f	f	f	f	f	f	f	f	f	f	f	---	--	--	--	--	---	--
Santa Isabel (1953)	78	59	76	61	58	67	6.7	7.4	--	--	--	105	175	85	99	0	70	0	35	0	0
RHODE ISLAND																					
Block Island	--	--	--	--	--	--	---	---	--	--	--	101	110	154	112	7	17	77	*	82	*
Providence(U)(1952)	--	--	--	--	--	--	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Providence	71	59	65	80	58	71	12.0	10.3	90	53	60	108	102	155	135	11	31	27	7	128	2
SOUTH CAROLINA																					
Charleston (U)	87	56	75	90	65	82	9.9	8.3	--	65	80	96	116	153	121	*	60	31	48	31	0
Charleston	87	55	76	88	64	82	---	---	--	--	--	---	---	---	---	--	--	--	--	---	--
Columbia (U)	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Columbia	85	55	70	85	52	66	7.2	6.8	--	63	72	125	103	137	112	*	59	24	87	51	0
Florence	83	57	68	86	61	72	---	---	--	--	--	119	109	137	109	*	56	25	74	41	0
Greenville	74	54	61	84	52	65	9.8	8.1	70	57	63	103	105	157	117	*	51	25	56	51	0
Spartanburg	--	--	--	--	--	--	9.2	6.8	--	--	--	---	---	---	114	*	49	24	50	50	0
SOUTH DAKOTA																					
Huron	79	72	75	86	51	49	11.6	11.1	77	54	77	106	114	145	94	13	43	14	30	172	35
Rapid City	71	60	66	70	42	40	9.6	10.1	66	55	72	108	117	140	95	11	48	15	32	167	20
Sioux Falls	72	63	69	83	51	50	11.2	9.4	70	--	--	104	106	155	92	12	45	19	28	169	29
TENNESSEE																					
Bristol	85	65	71	88	56	67	6.9	4.1	--	--	--	90	112	163	134	3	47	37	23	94	*
Chattanooga	84	62	68	87	56	64	7.2	5.3	82	40	63	108	113	144	118	2	57	33	60	71	0
Knoxville	83	65	70	84	55	63	8.6	6.4	71	35	60	100	112	153	126	3	49	26	48	68	*
Memphis (U)	--	--	--	--	--	--	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Memphis	81	66	72	85	56	60	11.8	7.7	54	43	74	120	100	145	101	1	50	11	72	56	*
Nashville	83	67	73	86	55	60	9.1	6.0	73	37	63	105	110	150	120	3	55	15	66	71	*
Oak Ridge (R)	--	--	--	--	--	--	4.9	3.7	--	--	--	112	95	158	127	2	56	34	44	78	*
Oak Ridge Area	--	--	--	--	--	--	5.7	3.8	--	--	--	---	---	---	120	--	--		39	76	*
TEXAS																					
Abilene	76	54	55	76	44	39	13.1	11.5	109	64	83	152	97	116	65	1	42	6	111	45	*
Amarillo	71	51	52	77	43	42	12.8	12.1	84	67	76	160	107	98	67	4	50	23	72	111	1
Austin	82	63	62	89	50	47	9.9	8.8	57	47	79	120	117	128	83	*	41	21	113	18	*
Big Spring (1952)	--	--	--	--	--	--	---	---	--	--	--	175	109	81	54	1	40	11	110	65	*
Brownsville	89	65	76	92	55	65	12.2	11.8	57	48	81	97	138	130	70	0	23	24	115	1	0
Corpus Christi	88	67	75	93	58	67	12.1	11.7	70	49	86	115	118	132	74	*	34	24	100	5	0
Dallas	81	62	62	79	50	46	10.2	9.9	65	47	78	143	96	126	81	1	43	7	102	33	0
Del Rio (1956)	81	58	53	80	50	41	7.8	9.7	62	53	75	153	118	94	61	*	24	6	118	14	0
El Paso	63	44	38	59	36	29	10.4	10.1	70	75	78	194	98	73	44	1	38	1	102	51	*
Fort Worth Meacham Fld. (1952)	n79	n60	n61	n80	n49	n47	12.4	10.6	61	54	76	139	104	122	84	1	45	10	97	34	*
Fort Worth Amon Carter	80	61	63	76	44	41	12.8	11.5	73	--	--	152	97	116	78	*	45	12	110	2	*
Galveston (U)(1957)	87	77	83	82	69	74	11.4	9.6	91	50	72	143	124	98	98	*	48	20	13	4	0
Galveston	85	74	79	83	69	72	13.7	11.9	--	--	--	111	120	134	90	0	50	30	35	2	*

See reference notes at end of table.

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temp. Normal (1921-1950) January Daily maximum	January Daily minimum	July Daily maximum	July Daily minimum	Annual	Temp. Extremes Length yrs	Record highest	Record lowest	Normal degree days (1921-1950) January	Seasonal	Precip. Normal (1921-1950) Wettest month	Driest month	Annual	Precip. Extremes Wettest month	Driest month	Maximum in 24 hours	Snow, sleet Mean total January	Seasonal	Extreme Maximum in 24 hours	Rel. humidity January 7:00 a m EST	January 1:00 p m EST	January 7:00 p m EST	July 7:00 a m EST	July 1:00 p m EST	July 7:00 p m EST	Wind speed (m p h) Mean hourly January	July	Fastest mile	Sunshine (percent of possible) January	July	Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperature Max 90 and above	Min 32 and below	Min Zero and below
TEXAS (Cont'd.)																																									
Houston (U)	41	61.9	45.7	92.3	75.2	70.0	21	105	10	378	1276	4.84	2.81	45.37	17.64	0.01	10.83	0.3	0.3	3.0	86	65	72	92	58	65	10.8	8.3	73	46	68	96	123	146	103	*	56	16	89	6	*
Houston	50	62.6	44.0	92.2	72.9	68.9	17	---	--	394	1388	4.91	2.70	46.93	22.31	T	----	---	---	----	85	66	73	90	58	66	---	---	--	--	--	---	---	---	--	--	--	--	---	---	
Laredo	500	68.8	46.4	99.7	75.7	74.3	16	110	18	270	781	3.18	.85	19.49	8.62	.00	5.55	.1	.2	2.0	82	58	53	83	45	40	10.0	15.4	61	--	--	127	116	122	58	*	29	13	171	4	0
Lubbock	3243	51.8	25.7	92.0	66.6	59.5	13	107	-9	812	3587	3.36	.53	18.89	7.80	.00	5.14	1.9	6.8	8.0	73	50	50	77	46	39	13.0	12.3	70	--	--	173	100	92	58	3	43	13	88	103	*
Midland	2854	56.6	31.8	94.2	69.7	64.2	12	109	-1	645	2565	2.14	.62	16.20	4.99	.00	3.64	1.7	2.5	5.9	70	44	44	71	43	37	8.4	9.0	58	--	--	172	94	99	47	1	38	14	111	58	*
Palestine (U) (1952)	491	57.2	39.6	92.0	73.0	66.5	71	108	-6	531	1980	4.69	1.76	40.54	17.25	T	12.06	.8	1.8	9.0	82	64	65	87	54	58	8.0	6.2	45	46	79	132	123	110	94	1	46	12	73	22	*
Port Arthur (U)(1952)	5	60.9	46.5	90.0	76.1	69.5	36	102	11	381	1340	6.48	3.25	53.24	24.25	.00	17.76	.2	.3	2.7	--	--	--	--	--	--	11.0	9.0	91	47	68	125	124	116	108	*	72	20	56	6	0
Port Arthur	16	61.7	44.0	90.7	72.6	68.1	6	100	23	406	1517	6.80	2.93	55.21	18.71	.06	7.53	T	.5	2.9	86	69	76	93	64	71	12.9	8.9	72	43	64	89	131	145	106	*	68	40	82	10	0
San Angelo	1903	57.2	37.3	94.4	71.0	66.2	12	107	1	556	2107	2.96	.95	19.83	9.20	.00	6.03	1.2	2.4	5.1	72	50	46	74	43	37	10.7	10.0	69	--	--	164	95	106	51	*	38	6	112	42	0
San Antonio	792	60.9	40.3	95.1	73.2	68.8	17	106	0	462	1579	3.52	1.40	27.93	15.78	.00	6.97	.4	.5	4.7	81	61	59	88	48	43	9.1	8.9	74	46	77	111	116	138	78	*	38	23	118	18	*
Victoria	110	64.1	46.2	92.8	76.8	71.2	13	107	12	352	1126	4.13	1.97	35.66	13.43	.01	6.30	.1	.4	3.4	85	63	69	93	52	60	11.3	9.2	72	--	--	98	124	143	89	*	44	26	116	9	0
Waco	500	57.1	37.5	95.4	74.6	67.3	17	108	-5	557	2025	4.15	1.38	32.95	13.37	.00	7.18	.9	1.2	7.0	82	64	64	83	50	46	12.5	11.2	64	--	--	132	103	130	78	*	48	13	109	27	*
Wichita Falls	1020	51.7	29.4	94.8	72.7	63.1	16	110	-12	756	3025	3.86	1.31	26.64	12.03	.00	5.61	1.9	5.4	5.2	77	57	59	75	47	43	11.3	10.5	92	--	--	163	96	106	68	1	47	12	107	60	*
UTAH							69	116	-50							0.00	4.50																								
Blanding (1952)	6036	38.1	15.0	87.3	57.3	49.6	46	110	-23	1190	6138	1.47	.58	12.77	7.01	.00	----	---	---	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	---	---	--
Milford	5028	36.0	11.5	92.5	55.5	49.0	11	104	-28	1277	6445	1.06	.45	8.44	1.98	.00	1.20	11.9	39.0	16.3	82	68	65	59	26	23	11.5	9.0	--	--	--	153	104	108	55	13	33	7	59	179	14
Salt Lake City (U) (1953)	4260	36.6	21.1	91.7	64.7	53.0	80	105	-20	1119	5463	1.91	.59	15.81	5.81	.00	2.72	12.5	55.3	15.3	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	31	106	1
Salt Lake City	4220	35.9	17.0	92.3	60.8	51.3	31	106	-30	1194	5866	1.76	.61	14.74	4.90	.00	2.41	13.6	51.7	15.4	80	70	72	55	27	23	7.5	9.5	71	48	82	134	107	124	87	17	35	10	53	134	4
VERMONT							72	105	-50							0.00	8.77																								
Burlington	331	27.6	8.2	82.4	58.4	44.5	16	101	-30	1460	7865	3.75	1.53	32.22	11.54	.56	3.59	18.6	70.3	14.0	80	69	77	76	54	66	10.3	8.2	72	35	63	61	107	197	152	20	23	14	9	157	21
VIRGINIA							69	110	-29							0.00	11.20																								
Cape Henry (U)(1952)	16	49.4	35.5	84.8	70.6	59.7	79	104	5	698	3307	5.31	2.48	41.64	16.82	.00	7.18	2.0	7.1	12.0	80	69	76	82	68	80	13.1	9.6	134	50	67	131	117	117	119	3	39	23	19	37	0
Lynchburg	947	46.6	28.7	86.1	65.9	56.6	15	103	2	846	4153	4.35	2.37	39.57	11.36	.61	4.98	3.8	12.6	14.5	76	57	65	84	56	71	9.0	7.0	56	44	60	104	111	150	126	4	43	44	28	80	0
Norfolk (U)	11	50.7	35.4	86.7	70.7	60.7	f	f	f	679	3119	6.05	2.45	43.26	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Norfolk	26	50.0	33.0	86.0	68.9	59.2	11	103	11	729	3454	6.05	2.45	43.26	12.83	.36	6.79	2.2	4.7	11.4	77	60	71	82	58	73	11.5	8.3	78	59	67	109	108	148	115	2	40	28	37	46	0
Richmond (U)	162	48.4	30.7	87.3	68.4	56.6	f	f	f	787	3720	5.38	2.41	42.17	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Richmond	162	48.1	28.4	87.8	67.2	57.7	30	104	-12	828	3955	5.64	2.49	42.89	18.87	.35	8.79	4.3	11.0	21.6	82	58	71	84	55	73	8.2	6.9	68	49	69	101	108	156	117	3	40	31	45	83	1
Roanoke	1174	46.6	29.2	86.8	65.0	56.6	12	104	3	840	4152	4.91	2.56	41.58	9.12	.42	4.95	5.1	13.8	10.7	72	54	62	82	52	65	9.8	6.3	--	--	--	97	117	151	124	7	42	28	43	84	0
WASHINGTON							93	118	-42							0.00	12.00																								
Ellensburg (1952)	1727	32.6	15.6	84.7	54.3	47.9	12	103	-28	1268	6542	1.47	.14	8.53	3.13	T	1.14	13.2	38.5	11.2	--	--	--	--	--	--	5.8	17.2	--	--	--	110	99	156	81	14	10	36	20	160	9
Kelso	17	43.6	31.1	75.8	50.2	50.7	6	96	-1	856	5239	6.74	.67	41.06	10.75	.05	3.06	10.3	16.9	7.7	89	84	80	93	65	56	---	---	--	--	--	57	83	225	161	5	--	--	3	75	*
North Head (1952)	194	46.5	38.0	61.2	53.4	50.7	65	97	11	704	5211	9.03	.85	54.34	22.28	.00	4.29	2.7	5.2	8.0	87	80	84	92	87	84	16.4	14.0	113	28	49	67	90	208	194	--	3	44	*	11	0
Olympia	190	43.3	30.6	76.3	49.2	50.0	18	103	-1	868	5501	8.66	.66	45.74	19.84	.00	4.93	8.0	16.3	13.7	90	86	80	91	61	46	7.1	5.6	--	--	--	54	91	220	161	5	4	92	5	84	*
Omak (1952)	1228	27.8	14.9	87.9	54.2	47.4	43	114	-26	1352	6806	1.52	.34	11.27	5.31	.00	2.21	8.6	29.3	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	59	--	--	--	---	---	--
Port Angeles (1952)	11	43.7	36.5	63.9	51.0	49.0	6	80	11	772	5850	4.34	.44	23.03	7.15	.09	3.34	6.3	9.4	5.6	82	78	77	89	79	76	9.7	13.8	--	--	--	62	84	219	141	5	4	40	0	16	0
Seattle (U)	14	45.2	36.2	75.1	56.1	53.2	26	100	11	753	4438	5.34	.52	31.92	10.93	T	3.31	5.0	8.6	11.5	85	80	73	85	62	46	10.1	7.9	65	27	62	71	93	201	153	3	6	--	2	16	0
Seattle(Boeing Fld.)	14	45.0	33.0	76.2	54.1	52.2	16	---	--	806	4785	5.72	.58	34.28	15.43	T	----	---	---	----	86	80	74	86	63	47	---	---	--	--	--	---	---	---	---	--	--	--	---	---	--
Seattle-Tacoma	386	43.0	31.4	75.0	52.8	50.7	15	97	0	862	5275	5.68	.58	33.80	12.92	T	3.41	7.7	15.8	21.4	86	84	81	90	68	49	11.3	9.7	--	--	--	53	82	230	162	5	8	54	1	4	*
Spokane	2357	30.2	19.6	82.4	56.8	47.1	12	102	-24	1243	6852	2.21	.36	14.92	5.71	T	1.67	22.3	60.3	13.0	84	80	79	65	39	27	8.0	7.8	56	26	82	87	90	188	118	20	11	46	15	141	7
Stampede Pass (R)	3958	27.5	19.8	67.2	46.5	39.9	16	90	-11	1280	9149	14.66	1.29	93.60	29.06	.26	7.01	88.8	457.6	36.2	93	92	91	87	66	60	---	---	94	--	--	68	58	239	205	84	9	252	*	190	4
Tacoma (U) (1952)	127	44.2	34.4	73.7	54.9	51.8	56	98	7	797	4866	5.90	.61	35.20	18.87	.00	3.79	5.7	12.1	16.0	92	82	81	87	61	50	7.9	7.6	61	21	61	73	107	185	150	4	5	30	*	32	0
Tatoosh Island (R)	101	44.9	39.0	59.2	51.7	49.3	57	88	14	713	5724	12.04	1.99	75.75	22.57	.02	5.91	3.7	7.5	12.0	85	83	83	95	89	87	19.9	9.9	94	26	48	60	80	225	196	3	5	59	0	8	0
Walla Walla (U)	949	37.7	26.3	89.3	63.0	54.2	45	112	-16	1023	4848	1.86	.28	15.07	4.52	.00	2.02	8.2	20.6	14.0	n75	75	n74	n50	34	n22	5.2	5.4	67	24	86	122	90	153	107	7	11	14	37	66	2
Yakima	1061	35.9	17.8	89.9	52.9	50.2	13	104	-25	1181	5845	1.10	.18	7.21	3.25	.00	1.27	10.9	25.2	8.5	84	76	73	70	34	25	5.4	7.5	--	--	--	111	90	164	70	9	8	20	34	154	6
WEST INDIES																																									
St. Croix (1953)	53	82.5	69.1	88.2	75.5	79.1	6	95	62	0	0	5.84	2.05	42.35	15.23	.17	7.76	.0	.0	.0	76	66	80	77	70	84	12.7	13.0	--	--	--	39	216	110	196	0	43	0	27	0	0
Swan Island (1954)	28	82.5	73.3	87.4	77.4	80.7	12	92	64	0	0	9.25	1.00	53.82	27.61	.02	10.77	---	---	----	80	72	80	85	75	81	10.5	9.4	40	--	--	95	159	111	157	0	45	0	19	0	0
WEST VIRGINIA							69	112	-37							0.00	19.00																								
Charleston	950	46.3	26.5	87.3	63.5	55.8	12	102	-5	887	4417	5.45	2.81	45.00	10.45	.39	4.17	7.0	21.3	15.1	77	63	69	88	63	67	8.0	5.4	--	--	--	57	116	192	153	6	46	106	27	99	*
Elkins (1958)	1970	42.8	21.5	82.5	57.4	50.4	60	99	-28	1017	5773	5.26	2.86	44.04	11.10	.26	5.45	10.9	47.1	18.8	82	65	77	94	61	76	6.3	3.7	72	33	56	69	116	180	170	19	45	67	3	132	5
Huntington (U)	565	48.0	28.0	88.6	65.2	57.4	19	105	-2	837	4073	4.82	2.43	41.79	8.93	.22	4.23	4.4	14.7	10.3	--	--	--	--	--	--	---	---	--	--	--	---	---	---	133	6	--	--	47	90	*
Parkersburg (U)	615	42.7	26.1	86.2	65.1	54.9	71	106	-27	949	4750	4.18	2.12	39.11	12.05	.07	4.81	6.7	23.8	18.3	82	66	74	80	52	67	7.2	5.1	66	30	63	110	103	152	138	7	44	11	23	97	2
Petersburg(U)(1953)	1013	44.6	23.0	88.0	60.6	53.8	13	102	-14	967	4966	3.48	1.64	30.77	17.15	.36	7.41	5.9	20.7	11.6	76	51	60	90	53	68	---	---	--	--	--	83	105	177	125	6	40	36	34	116	1
WISCONSIN							69	114	-54							0.00	11.72																								
Green Bay	689	24.5	7.7	81.1	58.7	43.6	10	99	-31	1516	8259	3.57	1.26	26.51	6.50	T	3.68	8.2	41.9	9.3	76	70	74	86	58	63	10.7	8.4	109	47	65	97	100	168	119	15	38	31	7	168	26
La Crosse	652	25.0	6.3	85.1	62.8	46.2	9	103	-37	1528	7650	3.87	1.11	28.92	9.16	.02	3.84	7.8	43.4	15.7	77	66	71	86	58	59	8.8	7.8	60	--	--	94	97	174	111	10	44	22	14	153	23
Madison (U)	938	26.7	11.8	82.2	64.0	46.9	87	107	-29	1417	7300	4.11	1.27	30.71	10.69	T	5.31	9.6	37.9	12.9	--	--	--	--	--	--	---	---	--	--	--	---	---	---	115	11	--	--	8	143	18
Madison	857	27.9	10.3	85.7	60.2	46.6	20	102	-37	1423	7417	4.02	1.13	30.00	10.93	.06	5.25	9.1	39.8	10.8	76	67	73	83	52	58	10.8	8.5	77	48	72	99	97	169	115	12	39	22	20	156	20
Milwaukee (U)	620	30.0	16.0	80.1	64.4	47.7	--	---	--	1302	6944	3.36	1.42	28.87	-----	----	----	---	---	----	--	--	--	--	--	--	---	---	--	--	--	---	---	---	---	--	--	--	---	---	--
Milwaukee	672	29.2	14.5	81.2	61.4	46.8	19	101	-24	1336	7205	3.33	1.27	27.57	9.87	.15	5.28	12.6	40.8	12.5	77	70	74	81	58	64	13.3	9.9	73	41	70	96	101	168	118	12	36	26	10	139	11
WYOMING							100	114	-63							0.00	5.50																								
Casper	5319	31.8	12.8	86.3	55.8	45.1	20	104	-40	1324	7638	2.32	.65	14.09	5.75	T	3.09	9.6	70.5	20.6	67	56	60	66	30	26	17.8	10.5	--	--	--	106	114	145	91	22	38	8	25	173	16
Cheyenne	6131	37.1	13.8	82.6	53.6	44.9	24	100	-34	1225	7562	2.46	.52	16.25	5.35	T	2.68	6.5	58.0	16.5	62	48	56	73	35	40	14.3	9.6	69	62	69	104	136	125	102	19	53	25	10	179	13

See reference notes at end of table.

NORMALS, MEANS AND EXTREMES

State and Station	Elevation ground (feet)	Temperature (°F) Normal (1921-1950) January Daily maximum	January Daily minimum	July Daily maximum	July Daily minimum	Annual	Extremes Length yrs	Record highest	Record lowest	Normal degree days (1921-1950) January	Seasonal	Precipitation (inches) Normal (1921-1950) Wettest month	Driest month	Annual	Extremes Wettest month	Driest month	Maximum in 24 hours	Snow, sleet Mean total January	Seasonal	Extreme Maximum in 24 hours
WYOMING (Cont'd.)																				
Lander	5563	28.0	5.6	84.4	56.3	43.2	13	101	-31	1494	8303	2.57	0.49	14.18	6.88	T	3.56	7.2	94.1	23.1
Rock Springs (1953)	6741	27.8	8.2	83.7	53.8	42.5	22	98	-33	1457	8473	1.10	.41	8.82	3.71	T	2.80	6.4	44.6	8.9
Sheridan	3942	32.8	7.4	86.1	55.0	44.5	19	106	-31	1392	7903	2.64	.61	16.75	9.54	0.07	3.84	9.2	68.6	26.7

State and Station	Relative humidity (percent) January 7:00 a.m. EST	January 1:00 p.m. EST	January 7:00 p.m. EST	July 7:00 a.m. EST	July 1:00 p.m. EST	July 7:00 p.m. EST	Wind Speed (m.p.h.) Mean hourly January	Mean hourly July	Fastest mile	Sunshine (percent of possible) January	July	Annual mean number of days Sunrise to sunset Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, sleet 1.0 inch or more	Thunderstorms	Heavy fog	Temperature Max 90° and above	Min 32° and below	Min Zero and below
WYOMING (Cont'd.)																					
Lander	66	57	57	57	34	29	6.4	7.6	77	66	78	124	127	114	71	23	33	2	20	189	19
Rock Springs (1953)	73	65	66	58	27	26	13.6	10.1	--	--	--	102	121	142	84	16	40	7	7	196	19
Sheridan	73	62	66	73	37	35	7.7	7.4	84	57	76	99	117	149	107	23	39	6	27	182	22

Data from airport or from airport and Urban site records combined.
U indicates Urban, R indicates Rural sites.
Data for this table are based on records through 1959 except as indicated in notes.
Date in Parenthesis after station name indicates last year included in summarization of data.
Normal values are based on the period 1921-1950, and are means adjusted to represent observations taken at the present standard location.

Degree days are based on a daily average of 65°F.
Fastest mile is the speed of the wind recorded in the shortest time on an automatic recording wind instrument.
Clear day averages 0-3 tenths sky cover, partly cloudy 4-7 tenths and cloudy 8-10 tenths.
Heavy fog includes data formerly referred to as "Dense" or "Thick." The upper visibility limit for heavy fog is 1/4 mile.
* Less than one-half.
\- No record.
a sun below horizon continuously November 26 to January 16.
† Mt. Washington excluded.

\+ Airport data
\# Number of days Maximum 70 F or above (Alaskan stations).
T trace, an amount too small to measure
n relative humidity reported 30 minutes later
ø sun below horizon continuously November 18 to January 24
m for period of record ending in February 1955.

e estimated amounts during typhoon.
k noon, local time
f combined records city office and airport
¢ occurrences between 5 p.m. and 8 a.m., reported by unofficial observers.
g 8:00 a.m. and 2:00 p.m., EST.
p relative humidity reported one hour later.

ELEVATIONS—STATION PRESSURE

YEAR 1959

State and station	Ft.
ALABAMA	
Birmingham	700
Huntsville	662
Mobile	221
Montgomery	218
ALASKA	
Anchorage	132
Annette	110
Barrow	13
Bethel	38
Cold Bay	103
Cordova	40
Fairbanks	454
Juneau	24
King Salmon	49
Kotzebue	16
McGrath	338
Nome	22
Northway	1721
St. Paul Island	28
Yakutat	31
ARIZONA	
Flagstaff	7018
Phoenix	1107
Prescott	5022
Tucson	2555
Winslow	4883
Yuma	141
ARKANSAS	
Fort Smith	463
Little Rock	357
Texarkana	368
CALIFORNIA	
Bakersfield	492
Bishop	4145
Blue Canyon	5283
Burbank	725
Eureka (U)	60
Fresno	327
Los Angeles (U)	512
Los Angeles	104
Mt. Shasta (U)	3587
Oakland	7
Red Bluff	353
Sacramento	25
Sandberg (R)	4523
San Diego	87
San Francisco (U)	----
San Francisco	18
Santa Maria	238
COLORADO	
Alamosa	7543
Colorado Springs	6170
Denver	5292
Grand Junction	4602
Pueblo	4690
CONNECTICUT	
Bridgeport	17
Hartford	159
New Haven	13
DELAWARE	
Wilmington	80
DISTRICT OF COLUMBIA	
Washington (U)	----
Wash. Nat'l AP	112
FLORIDA	
Apalachicola (U)	35
Daytona Beach	41
Fort Myers	12
Jacksonville (U)	----
Jacksonville	31
Key West	21
Lakeland (U)	----
Miami (U)	----
Miami	25
Miami Beach	----
Orlando	119
Pensacola (U)	56
Tallahassee	68
Tampa	35
West Palm Beach	21
GEORGIA	
Athens	811
Atlanta	1173
Augusta	182
Columbus	394
Macon	370
Rome	643
Thomasville	273
Savannah	65
HAWAII	
Hilo	36
Honolulu	15
Lihue	148
IDAHO	
Boise	2739
Idaho Falls 46W (R)	4939
Idaho Falls 42NW (R)	----
Lewiston	1436
Pocatello	4478

State and station	Ft.
ILLINOIS	
Cairo (U)	357
Chicago	623
Moline	606
Peoria	609
Rockford	732
Springfield	636
INDIANA	
Evansville	431
Fort Wayne	857
Indianapolis	823
South Bend	773
IOWA	
Burlington	702
Des Moines	860
Dubuque	699
Sioux City	1138
Waterloo	878
KANSAS	
Concordia (U)	1392
Dodge City	2509
Goodland	3688
Topeka	987
Wichita	1358
KENTUCKY	
Lexington	989
Louisville	525
LOUISIANA	
Baton Rouge	76
Lake Charles	32
New Orleans (U)	53
New Orleans	3
Shreveport	249
MAINE	
Caribou	628
Portland	103
MARYLAND	
Baltimore (U)	----
Baltimore	123
Frederick	----
MASSACHUSETTS	
Blue Hill Obs.	640
Boston	124
Nantucket	12
Pittsfield	1169
MICHIGAN	
Alpena	609
Detroit	730
Detroit (Willow Run)	777
Escanaba (U)	612
Flint	766
Grand Rapids	707
Lansing	883
Marquette (U)	734
Muskegon	633
Sault Ste. Marie	614
MINNESOTA	
Duluth	1133
International Falls	1126
Minneapolis	919
Rochester	1021
St. Cloud	1043
MISSISSIPPI	
Jackson	331
Meridian	375
Vicksburg (U)	247
MISSOURI	
Columbia	784
Kansas City	963
St. Joseph	----
St. Louis (RFC)	564
St. Louis	564
Springfield	1324
MONTANA	
Billings	3570
Glasgow	2086
Great Falls	3657
Havre (U)	2507
Helena	4123
Kalispell	----
Miles City	----
Missoula	3263
NEBRASKA	
Grand Island	1856
Lincoln (U)	----
Norfolk	1551
North Omaha	1323
North Platte	2821
Omaha	1105
Scottsbluff	3958
Valentine	2590
NEVADA	
Elko	5078
Ely	6262
Las Vegas	1869
Reno	4527
Winnemucca	4339
NEW HAMPSHIRE	
Concord	289
Mt. Washington Obs.	6267

State and station	Ft.
NEW JERSEY	
Atlantic City (U)	52
Newark	30
Trenton (U)	190
NEW MEXICO	
Albuquerque	4972
Clayton	5052
Raton	6376
Roswell	3566
NEW YORK	
Albany	97
Binghamton	1638
Buffalo	768
New York Central Park	156
New York (U)	314
New York	52
Rochester	523
Schenectady	217
Syracuse	596
NORTH CAROLINA	
Asheville (U)	2253
Cape Hatteras (R)	11
Charlotte	779
Greensboro	886
Raleigh	376
Wilmington	38
Winston-Salem	978
NORTH DAKOTA	
Bismarck	1677
Devils Lake (U)	1478
Fargo	940
Williston (U)	1878
OHIO	
Akron	1052
Cincinnati (U)	627
Cincinnati Obs.	----
Cincinnati	877
Cleveland	762
Columbus (U)	----
Columbus	822
Dayton	1003
Sandusky (U)	629
Toledo	692
Youngstown	1186
OKLAHOMA	
Oklahoma City	1214
Tulsa	674
OREGON	
Astoria	22
Burns (U)	4162
Eugene	373
Meacham	4056
Medford	1329
Pendleton	1495
Portland	154
Roseburg	510
Salem	201
Sexton Summit (R)	3841
PACIFIC AREA	
Canton Island	11
Koror (R)	109
Johnston Island	10
Majuro	10
Ponape (R)	151
Truk (Moen Island)	8
Wake Island	13
Yap (R)	56
PENNSYLVANIA	
Allentown	385
Harrisburg	378
Philadelphia (U)	----
Philadelphia	114
Pittsburgh (U)	----
Pittsburgh	842
Reading (U)	323
Scranton	948
Shippingport	----
Williamsport	525
RHODE ISLAND	
Block Island	118
Providence	159
SOUTH CAROLINA	
Charleston (U)	----
Charleston	48
Columbia	225
Florence	151
Greenville	1040
Spartanburg	824
SOUTH DAKOTA	
Huron	1301
Rapid City	3259
Sioux Falls	1427
TENNESSEE	
Bristol	1525
Chattanooga	762
Knoxville	980
Memphis (U)	----
Memphis	399
Nashville	546
Oak Ridge	914

State and station	Ft.
TEXAS	
Abilene	1738
Amarillo	3676
Austin	605
Brownsville	57
Corpus Christi	20
Dallas	512
Del Rio (U)	944
El Paso	3778
Fort Worth	576
Galveston (U)	----
Galveston	54
Houston (U)	138
Houston	62
Laredo	418
Lubbock	3241
Midland	2862
Port Arthur	34
San Angelo	1908
San Antonio	693
Victoria	117
Waco	508
Wichita Falls	1030
UTAH	
Milford	5097
Salt Lake City	4357
VERMONT	
Burlington	403
VIRGINIA	
Lynchburg	937
Norfolk	30
Richmond	164
Roanoke	1176
WASHINGTON	
Olympia	200
Seattle (U)	----
Seattle	388
Seattle-Tacoma	----
Spokane	1929
Stampede Pass (R)	3967
Tatoosh Island (R)	86
Walla Walla (U)	991
Yakima	1076
WEST INDIES	
San Juan, P. R. (U)	----
San Juan, P. R.	62
WEST VIRGINIA	
Charleston	989
Elkins	----
Huntington (U)	----
Parkersburg (U)	637
WISCONSIN	
Green Bay	617
La Crosse	672
Madison	974
Milwaukee	681
WYOMING	
Casper	5290
Cheyenne	6144
Lander	5352
Sheridan	3790

These are the elevations to which station pressure values in the monthly Climatological Data, National Summary, pertain. They are the elevations (in feet above mean sea level) of the barometer as of January 1, 1900, or at the time of establishment of station subsequent to that date. Average monthly station pressures continue to be reduced to these elevations to provide homogeneity of data over a long period of time.

GENERAL SUMMARY OF TORNADOES—1959

Compiled by L. V. Wolford
Office of Climatology, U. S. Weather Bureau, Washington D. C.

This 1959 summary of tornadoes, compiled from the monthly publication Storm Data, shows a total of 589 tornadoes occurring on 156 days, a loss of 58 lives, and 698 personal injuries. In addition, 530 funnel clouds aloft, 71 waterspouts remaining over water surfaces, and 12 dust devils were observed. The 1959 total of 589 tornadoes was exceeded in 2 previous years, 1955 and 1957. However, of the 589 twisters, 69 moved over open country with no damage resulting, leaving a total of 520 damaging tornadoes. The death toll of 58 was much less than the average of 211; only 6 of the 44 years of record had lower totals, and in each of those years the number of tornadoes reported was less than in 1959.

Seven of the year's tornadoes crossed states' boundaries. The St. Louis, Mo., tornado on February 10 crossed the Mississippi River into Illinois, but the greater portion of damage and all loss of life were confined to Missouri. In the other boundary-crossing tornadoes, damage was not unusually severe and only 2 deaths were reported. On March 14, a twister moved for 20 miles from Fulton County, Arkansas, into Howell County, Missouri, with one death occurring in Arkansas. Another storm originated southwest of Ionia, Kans., on May 4 and traveled for 49 miles to near Superior, Nebr. Two tornadoes in September and 2 in October crossed states' boundaries. On September 26, a 21-mile path was observed in Arkansas and Tennessee, and on the 27th a twister caused one death in Kansas as it moved from Craig County, Oklahoma, to Labette County, Kansas. In October, one on the 4th began east of Dallas, Tex., and traveled to Yuba, Okla., the other on the 8th originated near McHenry, Ill., and moved to Franksville, Wis.

Six tornadoes appear to have been associated with the passage of hurricane Gracie on September 29 and 30. During the afternoon of the 29th, 2 tornadoes occurred in north-central North Carolina, and another struck on the northern coast of South Carolina on the early morning of the 30th; damage was mostly light and no loss of life was reported. The other 3, occurring in central Virginia between 4 and 6 p.m., on the 30th were more disastrous, causing heavy property damage, 12 deaths, and 13 personal injuries.

Tornadoes were reported during each month of 1959. May exceeded all other months, with 225 occurrences on 28 days, the 13th, 14th, and 16th being the only days during that month on which no tornadoes were reported. These storms were particularly active on May 4, with 46 the greatest number for a single day during the year observed. Although much below the May total, June recorded the second highest total of 73 tornadoes, followed by July with 62, September 54, March 42, August 37, April 30, February and October 19 each, January 15, November 11, and December 2.

Thirty-nine states experienced tornadic storms during the year. Eighty-three were recorded in Texas for the highest total in any state, followed by 70 in Oklahoma, 66 in Kansas, and 44 in Nebraska. Thus, about 44 percent of the Nation's tornadoes occurred in these 4 states. Alaska, California, Colorado, Michigan, New Hampshire, and West Virginia each had one tornado, and Delaware, the District of Columbia, Hawaii, Massachusetts, Nevada, New Jersey, Oregon, Pennsylvania, Rhode Island, Utah, Vermont, Washington, and Puerto Rico reported none.

The yearly death toll of 58 resulted from tornadoes on 12 days during 7 months and in 12 states. Twenty-one deaths occurred in February for the highest monthly total of the year, followed by 14 in September, 9 in March, 8 in May, 3 in January, 2 in June, and 1 in April. Missouri suffered the greatest loss of life, with 21 deaths occurring during the St. Louis tornado on February 10 for the greatest number resulting from 1 tornado and the greatest number on a single day. Virginia reported the second greatest death total of 12 from 2 tornadoes on September 30. The 7 deaths in Oklahoma were caused by a single tornado on May 9 and the 6 in Texas resulted from 1 tornado on March 31. Arkansas and Kentucky each reported losses of 3 lives and Florida, Illinois, Kansas, Mississippi, Nebraska, and Wyoming 1 each.

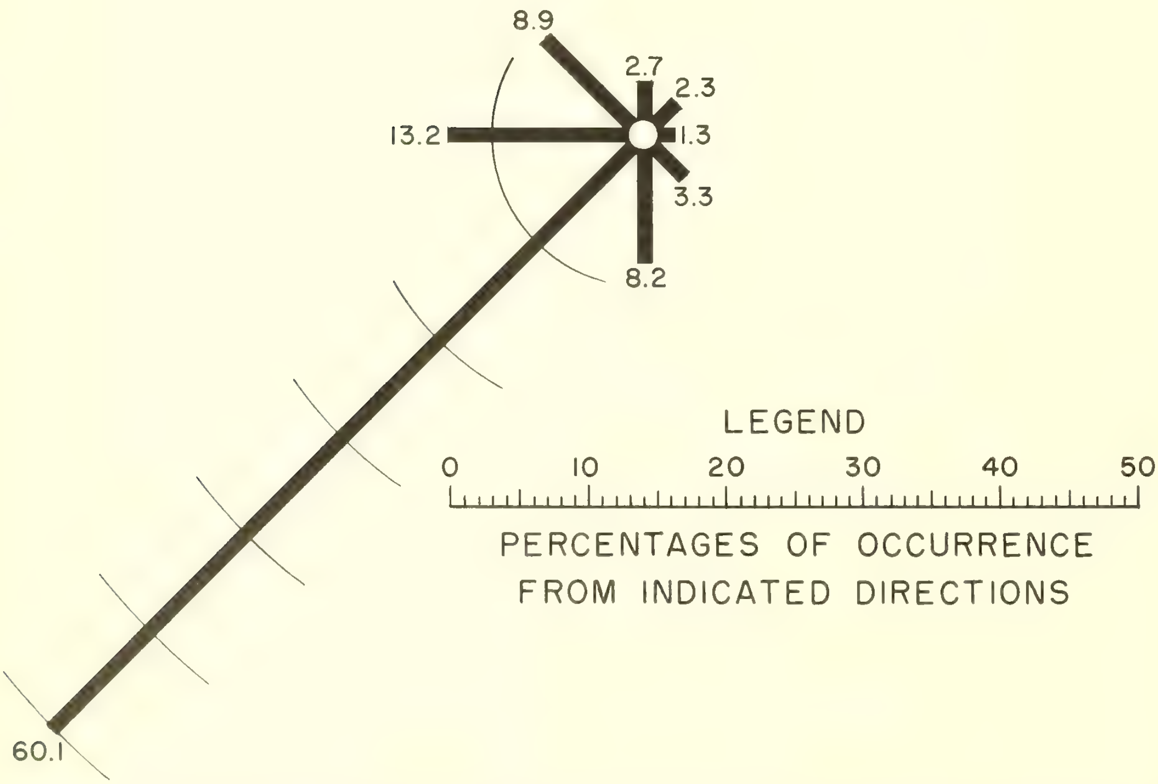
The St. Louis, Mo., tornado on February 10 was the most outstanding one of the year, both from a monetary standpoint and in regard to the loss of life. Property damage was estimated at over \$10 million, 21 lives were lost, and 345 persons suffered injury as a result of this tornado. On June 17, a tornado at Miami, Fla., caused property losses of several million dollars, but no loss of life was reported although 77 persons were injured. Another tornado on September 30 at Ivy, Va., resulted in a loss of 12 lives, and one on May 9 at Stonewall, Okla., caused 7 deaths, but damage in each case did not exceed \$500,000.

Tornado paths during the year were generally short, averaging only slightly over 7 miles in length, much below the past 10-year average of 13 miles. The average width of 235 yards for 1959 is only slightly below the 10-year average of 250 yards. The lengths of paths were given on only 369 tornadoes, with 71 merely reported as short, and 33 others moved for distances of less than 1/2 mile. Thus, about 28 percent probably traveled over paths of less than 1/2 mile. Fifty-five percent of those reported during the year moved for distances of 1/2 to 10 miles, making about 83 percent with paths of 10 miles or less and the remaining 17 percent over 10 miles long. The median length was 2 miles, compared to the median length of 5 miles for the 1916-58 period. Only three tornadoes, reporting the length of path, traveled for over 40 miles. A tornado on May 10 traversed portions of four counties in Iowa for a 50-mile path, the longest reported during 1959. The boundary-crossing storm on May 4 traveled for 49 miles from southwestern Jewell County, Kansas, to south-central Nuckolls County, Nebraska. On March 14, a twister crossed 2 counties in Missouri, leaving a path of 45 miles, the third longest reported during the year. A very small area of 100 feet long and 100 feet wide in Hutchinson County, Texas, was struck by a tornado on May 17, making this the shortest reported 1959 path. Narrower paths, however, of only 5 yards wide were observed in both Maine and Oklahoma. Tracks of the 1959 tornadoes are presented below.

Tornadoes in 1959 were reported during each hour of the day and night; 83-1/2 percent occurred between noon and midnight and 16-1/2 percent between midnight and noon. The greatest activity was between 3 and 4 p.m., with an average of 11-4/10 percent, followed closely by the hour between 4 and 5 p.m., with 11-2/10 percent, and 5 and 6 p.m., with 10-4/10 percent. Thus, about one-third of all

the tornadoes were reported as occurring in the 3 hours between 3 and 6 p.m. Only 2 of these storms, or 3/10 percent, struck between 5 and 6 a.m., for the hour of least frequency.

About 60 percent of the year's tornadoes traveled from the southwest to the northeast, the prevailing direction of movement of these storms. Slightly over 13 percent came from the west and about 9 percent from the northwest, making approximately 82 percent moving from a general westerly direction. About 8 percent came from the south and nearly 3 percent from the north, with the remaining 7 percent traveling from easterly directions. See the Tornado Rose for 1959 accompanying this article.



TORNADO ROSE FOR THE UNITED STATES, GIVING THE PERCENTAGE OF TORNADOES MOVING FROM THE INDICATED DIRECTIONS DURING 1959.

TORNADO SUMMARY

YEAR 1959

State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
ALA.													
Number			2	1	3		1						7
Days			2	1	2		1						6
Deaths			0	0	0		0						0
Injuries			0	0	5		3						8
ALASKA													
Number											1		1
Days											1		1
Deaths											0		0
Injuries											0		0
ARIZ.													
Number								1			1		2
Days								1			1		2
Deaths								0			0		0
Injuries								0			0		0
ARK.													
Number			5	2		1			1				9
Days			2	2		1			1				6
Deaths			3	0		0			0				3
Injuries			20	0		0			15				35
CALIF.													
Number		1											1
Days		1											1
Deaths		0											0
Injuries		0											0
COLO.													
Number					1								1
Days					1								1
Deaths					0								0
Injuries					0								0
CONN.													
Number					2			1					3
Days					2			1					3
Deaths					0			0					0
Injuries					0			0					0
DEL.													
(None)													
D. C.													
(None)													
FLA.													
Number				3	3	5	4			3			18
Days				1	2	4	4			2			13
Deaths				1	0	0	0			0			1
Injuries				11	2	77	0			0			90
GA.													
Number		2		3	1	1	3						10
Days		2		2	1	1	3						9
Deaths		0		0	0	0	0						0
Injuries		0		2	0	0	7						9
HAWAII													
(None)													
IDAHO													
Number			1						1				2
Days			1						1				2
Deaths			0						0				0
Injuries			0						0				0
ILL.													
Number		3	5	1	5	1	3	3	14	2			37
Days		1	3	1	4	1	2	3	3	2			20
Deaths		0	0	0	0	0	0	0	1	0			1
Injuries		1	3	0	0	0	0	0	1	1			6
IND.													
Number		4		2	2		2	1	4	1			16
Days		1		1	2		2	1	3	1			11
Deaths		0		0	0		0	0	0	0			0
Injuries		0		0	0		0	0	0	0			0
IOWA													
Number					22	2	1						25
Days					9	2	1						12
Deaths					0	0	0						0
Injuries					6	0	0						6
KANS.													
Number		1	1		47	4	3	1	7	1		1	66
Days		1	1		11	3	3	1	5	1		1	27
Deaths		0	0		0	0	0	0	1	0		0	1
Injuries		0	0		1	0	0	0	3	0		0	4
KY.													
Number	1	2											3
Days	1	1											2
Deaths	3	0											3
Injuries	0	6											6

State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
LA.													
Number	1	1	1	3	1	3		1					11
Days	1	1	1	3	1	3		1					11
Deaths	0	0	0	0	0	0		0					0
Injuries	0	1	0	1	0	2		0					4
MAINE													
Number								7					7
Days								5					5
Deaths								0					0
Injuries								0					0
MD.													
Number							2						2
Days							2						2
Deaths							0						0
Injuries							0						0
MASS.													
(None)													
MICH.													
Number										1			1
Days										1			1
Deaths										0			0
Injuries										0			0
MINN.													
Number					4	4	5		1				14
Days					3	3	2		1				9
Deaths					0	0	0		0				0
Injuries					0	0	0		0				0
MISS.													
Number	10		2	1	1	4	1				2		21
Days	2		1	1	1	3	1				2		11
Deaths	0		0	0	0	1	0				0		1
Injuries	2		0	0	0	0	0				0		2
MO.													
Number		3	2		7	1	1		8	1		1	24
Days		2	1		5	1	1		3	1		1	15
Deaths		21	0		0	0	0		0	0		0	21
Injuries		346	0		0	0	0		7	0		0	353
MONT.													
Number						2							2
Days						2							2
Deaths						0							0
Injuries						0							0
NEBR.													
Number					26	9	3	5	1				44
Days					8	5	3	4	1				21
Deaths					1	0	0	0	0				1
Injuries					5	0	0	0	0				5
NEV.													
(None)													
N. H.													
Number								1					1
Days								1					1
Deaths								0					0
Injuries								0					0
N. J.													
(None)													
N. MEX.													
Number				1	7	3	5						16
Days				1	5	2	4						12
Deaths				0	0	0	0						0
Injuries				0	0	0	0						0
N. Y.													
Number						1	2						3
Days						1	2						3
Deaths						0	0						0
Injuries						0	0						0
N. C.													
Number	2					3	3		2	1			11
Days	1					2	1		1	1			6
Deaths	0					0	0		0	0			0
Injuries	0					0	0		0	1			1
N. DAK.													
Number					1	3	1	5	1				11
Days					1	2	1	3	1				8
Deaths					0	0	0	0	0				0
Injuries					0	0	0	1	0				1
OHIO													
Number		1		2	4		1	1		1			10
Days		1		1	2		1	1		1			7
Deaths		0		0	0		0	0		0			0
Injuries		6		0	0		0	0		0			6

TORNADO SUMMARY

YEAR 1959

State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
OKLA.													
Number		2	16	3	35	1	3	5	2	2	1		70
Days		1	4	2	11	1	1	3	2	2	1		28
Deaths		0	0	0	7	0	0	0	0	0	0		7
Injuries		0	14	0	25	0	0	1	0	2	0		42
OREG. (None)													
PA. (None)													
R. I. (None)													
S. C.													
Number				1		1			2				4
Days				1		1			2				4
Deaths				0		0			0				0
Injuries				0		0			0				0
S. DAK.													
Number					4	4	2	1					11
Days					4	3	2	1					10
Deaths					0	0	0	0					0
Injuries					3	0	0	0					3
TENN.													
Number	1		1						1				3
Days	1		1						1				3
Deaths	0		0						0				0
Injuries	3		1						7				11
TEX.													
Number			7	4	31	14	10	2	4	5	6		83
Days			4	2	13	7	10	2	4	3	3		48
Deaths			6	0	0	0	0	0	0	0	0		6
Injuries			50	0	8	0	0	0	0	5	3		66
UTAH (None)													

State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
VT. (None)													
VA.													
Number				2	1		4	1	3	1			12
Days				2	1		2	1	1	1			8
Deaths				0	0		0	0	12	0			12
Injuries				0	0		0	0	13	0			13
WASH. (None)													
W. VA.													
Number				1									1
Days				1									1
Deaths				0									0
Injuries				12									12
WIS.													
Number					17	4	2	1	4	2			30
Days					7	4	1	1	3	1			17
Deaths					0	0	0	0	0	0			0
Injuries					6	0	3	0	3	2			14
WYO.													
Number					1	2							3
Days					1	2							3
Deaths					0	1							1
Injuries					0	1							1
Puerto Rico (None)													
TOTALS													
Number	15	20	43	30	226	73	62	37	56	21	11	2	596
		*19	*42		*225				*54	*19			*589
Days	† 2	† 5	†11	†12	† 28	†25	†24	†18	†15	†10	† 4	† 2	†156
Deaths	3	21	9	1	8	2	0	0	14	0	0	0	58
Injuries	5	360	88	26	61	80	13	2	49	11	3	0	698

* Corrected for boundary-crossing tornadoes.
† Tornado days for country as a whole.

NUMBER OF TORNADOES, TORNADO DAYS, AND RESULTING LOSSES BY YEARS 1916-59

Year	Number tornadoes	Number tornado days	Total deaths	Most deaths in a single	Total property losses†	Number of tornadoes causing losses† in category 5	category 6	category 7 & over
1916	90	36	150	30	6	7	1	0
1917	121	38	509	101	7	21	9	0
1918	81	45	135	36	7	20	5	0
1919	64	35	206	59	7	10	2	0
1920	87	50	498	87	7	14	10	0
1921	105	55	202	61	7	22	3	0
1922	108	64	135	16	7	27	5	0
1923	102	59	109	23	6	21	1	0
1924	130	57	376	85	7	26	11	1
1925	119	65	794	689	7	34	2	1
1926	111	57	144	23	6	28	0	0
1927	163	62	540	92	7	42	9	1
1928	203	79	92	14	7	40	7	0
1929	197	74	274	40	7	48	4	0
1930	192	72	179	41	7	38	6	0
1931	94	57	36	6	6	14	1	0
1932	151	67	394	37	7	23	1	1
1933	258	96	362	34	7	46	9	0
1934	147	77	47	6	6	10	3	0
1935	180	77	70	11	6	29	0	0
1936	151	71	552	216	7	17	5	1
1937	147	75	29	5	6	24	0	0
1938	213	76	183	32	7	29	6	0
1939	152	75	87	27	7	21	3	0
1940	124	62	65	18	7	13	2	0
1941	118	57	53	25	6	24	1	0
1942	167	66	384	65	7	42	10	0
1943	152	61	58	5	7	28	8	0
1944	169	68	275	100	7	50	9	0
1945	121	66	210	69	7	21	10	1
1946	106	65	78	15	7	29	7	0
1947	165	78	313	169	7	46	7	1
1948	183	68	140	33	7	62	11	2
1949	249	80	212	58	7	54	13	0
1950	199	88	70	18	7	47	9	0
1951	272	113	34	6	7	35	11	2
1952	236	98	230	57	7	53	19	0
1953	437	136	516	116	8	63	18	7
1954	549	159	35	6	7	63	8	1
1955	593	153	125	80	7	74	13	1
1956	532	155	83	25	7	83	24	1
1957	864	154	191	44	8	129	26	3
1958	565	166	66	19	7	70	8	1
1959	589	156	58	21	7	70	4	1
Total	9,756	3,568	9,299	-	-	-	-	-
Avg.	221.7	81.1	211.3	-	-	-	-	-
Median	158	70	147	-	-	-	-	-

NOTE.--The above estimated losses are based on values at time of occurrence.

† Storm damages in categories:
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 and over

This tabulation does not include funnel clouds that remained aloft or funnels on water surfaces only.

NUMBER OF FUNNEL CLOUDS ALOFT 1959

State	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Ala.	1			1	1			1					4
Alaska													0
Ariz.											1		1
Ark.			1	1	1		2	1					6
Calif.		1		1									2
Colo.													0
Conn.													0
Del.													0
D.C.													0
Fla.		2	1	1	5	2	10	3	11	2	2	1	40
Ga.						3	1	2					6
Hawaii													0
Idaho					5					1			6
Ill.					3		1		2				6
Ind.		2			6	7	2	2	1				20
Iowa					3	7		1					11
Kan.					25	3	11	2	5				46
Ky.								1					1
La.			2	1	1	3	4	1	5	2			19
Maine													0
Md.							1						1
Mass.								1					1
Mich.		1			2								3
Minn.				3	9	4	3	6					25
Miss.				3	1		2	1	1				8
Mo.		2	3	6	19	8	10	8	20	3			79
Mont.						2	1	1	1				5
Nebr.					8	4							12
Nev.													0
N. H.													0
N. J.													0
N. Mex.						2		5					7
N. Y.													0
N. C.						1							1
N. Dak.						2	3						5
Ohio					2								2
Okla.		4	9	5	17	1	12		6	1			55
Oreg.													0
Pa.													0
R. I.													0
S. C.						1	1			1			3
S. Dak.					2	3	3						8
Tenn.						1							1
Tex.			8	11	29	26	22	7	14	5	2		124
Utah													0
Vt.													0
Va.							2						2
Wash.													0
W. Va.													0
Wis.					11	2		2	2	1		1	19
Wyo.					1								1
Puerto Rico													0
Total	1	12	24	33	151	82	91	45	68	16	5	2	530

HAILSTORM LOSSES †

YEAR 1959

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama					4		4	3						
Alaska														
Arizona														
Arkansas					a 3	(c)	5	4	3	3	(n)	(n)	3	3
California							4	b 6			b 4	b 4		
Colorado									3	3		3	5	4
Connecticut									2	4				
Delaware														
District of Columbia														
Florida									4	5				
Georgia							b f 4	b f 5	b f 4	b f 3	b f 3	b f 4		
Hawaii														
Idaho														4
Illinois														
Indiana										3		b h 3		5
Iowa									a 5	(c)	3	4	b 3	5
Kansas					3		(n)	(n)	f 5	f 5	f h 5	f h 5	f 5	f 4
Kentucky							3	3					b f 3	b f 4
Louisiana					4		(n)	(n)					3	
Maine														
Maryland										b 2				
Massachusetts												(g)	(n)	(n)
Michigan														
Minnesota									a b 3	(c)	3	4		5
Mississippi								4						
Missouri														
Montana								1			f 5	f 5		
Nebraska									6	6	f 6	f 7	f 6	f 7
Nevada														

HAILSTORM LOSSES †

Section	August		September		October		November		December		Crop season April–Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
Alabama											4	3	4	3	4
Alaska											0	0	0	0	0
Arizona											0	0	0	0	0
Arkansas			f 2	f 2							5	4	a f 5	f 3	f 5
California			(n)	(n)							b 4	b 6	b 4	b 6	b 6
Colorado											5	4	5	4	5
Connecticut											2	4	2	4	4
Delaware											0	0	0	0	0
District of Columbia											0	0	0	0	0
Florida			(n)	(n)							4	5	4	5	5
Georgia											b f 4	b f 5	b 4	f 5	b f 5
Hawaii											0	0	0	0	0
Idaho	b f h (n)	b f (n)									b f (n)	b f 4	b f (n)	b f 4	b f 4
Illinois			4	4							4	4	4	4	4
Indiana											0	b h 5	0	b h 5	b h 5
Iowa	f 3	f 3	b f 4	b f 4							a b f 5	b f 5	a b f 5	b f 5	b f 5
Kansas	(n)	(n)	b 4	b 4	3						b f h 5	b f h 5	b f h 5	b f h 5	b f h 5
Kentucky				4							b f 3	b f 4	b f 3	b f 4	b f 4
Louisiana											(n)	(n)	4	(n)	4
Maine			(n)	(n)			f (n)				(n)	(n)	f (n)	(n)	(n)
Maryland											0	b 2	0	b 2	2
Massachusetts	b f h (n)	b f (n)					f (n)				b f h (n)	b f (g)	b f h (n)	b f (g)	b f (g)
Michigan											0	0	0	0	0
Minnesota	3	6	3								a b 3	b 6	a b 3	b 6	b 6
Mississippi											0	4	0	4	4
Missouri											0	0	0	0	0
Montana		4									f 5	f 5	f 5	f 5	f 5
Nebraska	4	5	3	2							f 6	f 7	f 6	f 7	f 7
Nevada											0	0	0	0	0

HAILSTORM LOSSES †

YEAR 1959

Section	January Property	January Crops	February Property	February Crops	March Property	March Crops	April Property	April Crops	May Property	May Crops	June Property	June Crops	July Property	July Crops
New Hampshire												(n)	b f (n)	b (n)
New Jersey										2				
New Mexico									2	4	2	5		4
New York									b h 5		(n)	(n)		(n)
North Carolina							5	5	f h 4	f 4		6	(n)	5
North Dakota											(n)	(n)		b f 4
Ohio									3	2			4	7
Oklahoma	(n)		(n)		(n)		b f 4	b f 6	b 4	b 4	a f h (n)	a h (n)	b f 4	b f 5
Oregon									1	4				
Pennsylvania														
Rhode Island														
South Carolina								1		1	3	4		
South Dakota									a h 4	(c)	3	4	(n)	f 5
Tennessee					3		2						(n)	(n)
Texas					a 4	(c)	5	5	6	6	f 5	b 5	5	5
Utah									4					
Vermont														3
Vriginia									(n)	(n)				
Washington										4				
West Indies													(n)	(n)
West Virginia														
Wisconsin									4				(n)	(n)
Wyoming									1			5		
Total	(n)		(n)		a 4	(c)	b f 5	b f 6	a b f h 6	b f h 6	a b f h 6	b f h 7	b f h 6	b f 7

HAILSTORM LOSSES †

Section	August Property	August Crops	September Property	September Crops	October Property	October Crops	November Property	November Crops	December Property	December Crops	Crop season April–Sept. Property	Crop season April–Sept. Crops	Total Property	Total Crops	Total Property and crops
New Hampshire											b f (n)	b (n)	b f (n)	b (n)	b f (n)
New Jersey											0	2	0	2	2
New Mexico	b f 3	b f 3									b f 3	b f 5	b f 3	b f 5	b f 5
New York	(n)	(n)			h 4						b h 5	b h (n)	b h 5	b h (n)	b h 5
North Carolina	(n)	5									f h 5	f 6	f h 5	f 6	f h 6
North Dakota	5	5									5	b f 5	5	b f 5	b f 5
Ohio	(n)	4									4	7	4	7	7
Oklahoma	f 5	f 6	4	4					b f h (n)		a b f h 5	b f h 6	a b f h 5	b f h 6	b f h 6
Oregon											1	4	1	4	4
Pennsylvania											0	0	0	0	0
Rhode Island											0	0	0	0	0
South Carolina											3	4	3	4	4
South Dakota	b f 5	b f 5									a b f h 5	b f 5	a b f h 5	b f 5	b f h 5
Tennessee	f (n)	f (n)									f 2	f (n)	f 3	f (n)	f 3
Texas			(n)	4		b 5					f 6	b 6	a f 6	b 6	b f 6
Utah	2		1	4							4	4	4	4	4
Vermont											0	3	0	3	3
Virginia	b (n)	b (n)									b (n)	b (n)	b (n)	b (n)	b (n)
Washington											0	4	0	4	4
West Indies							(n)	(n)			(n)	(n)	(n)	(n)	(n)
West Virginia											0	0	0	0	0
Wisconsin	b 5	(n)									b 5	(n)	b 5	(n)	b 5
Wyoming	(n)	(n)	4								4	5	4	5	5
Total	b f h 5	b f 6	b f 4	b f 4	h 4	b 5	f (n)	(n)	b f h (n)		a b f h 6	b f h 7	a b f h 6	b f h 7	b f h 7

a Includes Crop Damage.
b With rain.
c Additional losses occurred.
f With wind.
g Damage reported as slight.
h With lightning.
n Losses occurred; amount not reported.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

HAILSTORMS LOSSES FOR PAST YEARS

Year	Property (exclusive † of crops)	Crops †	Total †
1933	-	-	7
1934	-	-	7
1935	-	-	7
1936	6	7	7
1937	6	7	7
1938	6	7	7
1939	5	6	6
1940	6	7	7
1941	6	7	7
1942	6	7	7
1943	6	7	7
1944	7	7	8
1945	6	7	7
1946	7	7	7
1947	6	8	8
1948	7	8	8
1949	7	7	7
1950	7	7	7
1951	7	7	8
1952	7	7	7
1953	7	7	7
1954	7	8	8
1955	7	7	8
1956	7	8	8
1957	7	8	8
1958	7	8	8
1959	6	7	7

* Storm damages are placed in categories varying from 1 to 9 as follows:

1	Less than $50	4	$5,000 to $50,000	7	$5,000,000 to $50,000,000
2	$50 to $500	5	$50,000 to $500,000	8	$50,000,000 to $500,000,000
3	$500 to $5,000	6	$500,000 to $5,000,000	9	$500,000,000 to $5,000,000,000.

NOTE.--The above estimated losses are based on values at time of occurrence.

WINDSTORM LOSSES †

(Windstorms other than tornadoes)

YEAR 1959

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama	b f h 4				4									
Alaska	6						3						6	
Arizona											b 4		a b f 6	f (c)
Arkansas			3		f 5		f 4		b f 5		a b f h 5	b f (c)		
California	a b 6	(c)	a b 5	(c)					4		3		2	
Colorado	4						4		b f h 3	3	f 2	f 3	f 4	f 5
Connecticut	a 5	(c)			b h 4		4							
Delaware											4			
District of Columbia														
Florida	(d)				3		3		3		4			
Georgia	d h 5				a b 5	(c)	b f 5	5	b f h 5	f 5	b f h 3	b f 4	b h 4	
Hawaii	a b 6	(c)												
Idaho							4		4				4	3
Illinois	e 6		5		3				b h (d)				h 4	
Indiana			4		4		4		b h 4				4	
Iowa									5		f 4	f 4	5	b f 3
Kansas			f (d)		e h (d)		f 3		b f 6	4	b f h 5	f 5	b f h 5	f 5
Kentucky	4	3	4						4				f 4	f 4
Louisiana							b f 5		b 5	b 5	4	3		
Maine					e 5								h 3	
Maryland											4		a b h 5	(c)
Massachusetts	4		4		b e 5				b f h 5				b h 4	
Michigan					e 6				b h 4	b 4	a h 5	(c)		
Minnesota							k 4		a b 4	(c)			b f 5	b f 6
Mississippi					f 4		f 4				4			
Missouri					5		4							
Montana											b f 5	f 5		
Nebraska					e 6		3	3	b f 5	b f 3	f 6	f 7	b f 6	b f 7
Nevada					3								4	

WINDSTORM LOSSES†

(Windstorms other than tornadoes)

YEAR 1959

Section	August		September		October		November		December		Crop season April–Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
Alabama											0	0	b f h 4	0	b f h 4
Alaska					4		b 4		6		6	0	b 6	0	b 6
Arizona	b 5				b 6	b 6					a b f 6	f (c)	a b f 6	b f 6	b f 6
Arkansas	a 3	(c)		f 3			b 3				a b f h 5	b f (c)	a b f h 5	b f (c)	b f h 5
California			b 5	b 6	e 5	e 5	6	5	e 4	e 3	b 5	b 6	a b e 6	b e 6	b e 6
Colorado							3				f 4	f 5	b f h 4	f 5	b f h 5
Connecticut					b 5		b h 4		4		b 5	0	a b h 5	(c)	b h 5
Delaware											4	0	4	0	4
District of Columbia											0	0	0	0	0
Florida	3		(d)	(d)			b (d)				4	(d)	b 4	(d)	b 4
Georgia			a h 4	(c)	b h 5						b f h 6	b f 5	b f h 6	b f 5	b f h 6
Hawaii											0	(c)	a b 6	(c)	b 6
Idaho	a b f h 4	f (c)									a b f h 4	f 3	a b f h 4	f 3	b f h 4
Illinois				6		4					6	0	e 6	0	e 6
Indiana					3						b h 4	0	b h 4	0	b h 4
Iowa	b f 4	b f 4	b f 6	b f 6	4	3	e 4				b f 6	b f 6	b f e 6	b f 6	b f e 6
Kansas	h (d)	(d)							(d)		b f h 6	f 5	b e f h k 6	f 5	b e f h k 6
Kentucky	b 4		f 4	f 4							b f 4	f 4	b f 4	f 4	b f 4
Louisiana	a b 4	b (c)			b 6						a b f 5	b 5	a b f 6	b 5	b f 6
Maine	b f h 5	b f 4					f 3		4		b f h 5	b f 4	b e f h 5	b f 4	b e f h 5
Maryland	e 4										a b h 5	(c)	a b h 5	(c)	b h 5
Massachusetts	b f h 6	b f 4			b 5		b f h 4		5		b f h 6	b f 4	b e f h 6	b f 4	b e f h 6
Michigan	4										a h 5	b 4	a e h 6	b 4	b e h 6
Minnesota	b f 5	b f 4			3				5		a b f 5	b f 6	a b f k 5	b f 6	b f k 6
Mississippi											f 4	0	f 4	0	f 4
Missouri											4	0	5	0	5
Montana			4								b f 5	b f 5	b f 5	b f 5	b f 5
Nebraska	f 4	f 5	3	2	4	7	4	6	b e k 4	b e k 6	b f 6	b f 7	b e f k 6	b f k 7	b e f k 7
Nevada	4		b 6								b 6	0	b 6	0	b 6

WINDSTORM LOSSES†

(Windstorms other than tornadoes)

YEAR 1959

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
New Hampshire	b 4				b e 5									
New Jersey							b 3				3		2	
New Mexico			a 4	(c)	a 4	(c)							3	
New York	e 5		e i j 3		b e 6						3		a b f 5	(c)
North Carolina	4				b 5		b f 5	b f 5	b f h 5	b f 5	b h 5	b f 6	b f h 5	b f h 5
North Dakota											4	4	b f 5	
Ohio					7		(d)				5	4		
Oklahoma	e f (d)		f 3		b f 4		b f 4	b f 6	b f 5		b f h 5		b f 5	b f 5
Oregon			e 5	1							2	1		
Pennsylvania	b e 7				b 5						3			
Rhode Island									3					
South Carolina	4				b 4			1					b 5	b 5
South Dakota							k 4		f 4				f 4	f 5
Tennessee	f 5		4		a f 5	(c)	f (d)		(d)				b f h (d)	f (d)
Texas	3		k 5	2	f 6		f 4		a b f 5	f 4	b f 5	b f 6	f 6	b f 4
Utah					4								4	
Vermont	4		3		e 4				4		b f h 4	b f 4	b h 5	b (c)
Virginia	a b e 5	(c)			(d)								a b 4	(c)
Washington			e 4				k 4	5					k 3	k 5
West Indies														
West Virginia	3						5							
Wisconsin					b e i 4				4		a b 4	b (c)		
Wyoming														
Total	a b e f h 7	3	a b e i j k 5	2	a b e f h i j 7	(c)	b f k 5	b f 6	a b e f h 6	b f 5	a b f h k 6	b f 7	a b f h k 6	b f h k 7

WINDSTORM LOSES†

(Windstorms other than tornadoes)

YEAR 1959

Section	August		September		October		November		December		Crop season April–Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
New Hampshire	b h 4				b 6						b h 4	0	b e h 6	0	b e h 6
New Jersey	b f 3	b f 3									b f 3	b f 3	b f 3	b f 3	b f 3
New Mexico											3	0	a 4	(c)	4
New York	b f h 5		b h 5		b h 5		b i 4		b e i j 6		a b f h 5	(c)	a b e f h i j 6	(c)	b e f h i j 6
North Carolina	a f h 5	a f 5									a b f h 6	b f h 5	a b f h 6	b f h 5	b f h 6
North Dakota	b f 4	b f 5	4								b f 5	b f 5	b f 5	b f 5	b f 5
Ohio											5	4	7	4	7
Oklahoma	b f h 5	b f 6	b 4				b h 4		b f h 4		b f h 5	b f 6	b e f h 5	b f 6	b e f h 6
Oregon			5	4	5	2	5	4	h 4	2	5	4	e h 5	4	e h 5
Pennsylvania											0	0	b e 7	0	b e 7
Rhode Island					b 5				e 5		3	0	b e 5	0	b e 5
South Carolina											b 5	b 5	b 5	b 5	b 5
South Dakota	b f h 5	b f 5	a h 4	(c)					e 5		a b f h k 5	b f 5	a b f h k 5	b f 5	b f h k 5
Tennessee	f (d)	f (d)					4				b f h (d)	f (d)	a b f h 5	f (d)	b f h 5
Texas	a b k 5	b k (c)	b f 3	b f 6	a 5	(c)	5	5			a b f k 6	b f k 6	a b f k 6	b f k 6	b f k 6
Utah			f 4	f 4	6	1					f 4	f 4	f 6	f 4	f 6
Vermont	h 4				b 4		b 4		4		b f h 5	b f 4	b e f h 5	b f 4	b e f h 5
Virginia											a b 4	(c)	a b e 5	(c)	b e 5
Washington			b 5	b 4			4		3		b k 5	b k 5	b e k 5	b k 5	b e k 5
West Indies											0	0	0	0	0
West Virginia											5	0	5	0	5
Wisconsin	h 4		b 5	b 5							b 5	b 5	b e h i 5	b 5	b e h i 5
Wyoming											0	0	0	0	0
Total	a b f h k 6	a b f k 6	a b f h 6	b f 6	a b e h 6	b e 7	b f h i 6	6	b e f h i 6	b e k 6	a b f h k 6	b f h k 7	a b e f h i j k 7	b e f h k 7	b e f h i j k 7

a Includes crop damage.
b With rain.
c Additional losses occurred.
d Losses occurred; amount not reported.
e With snow.
f With hail.
g Damage reported as small.
h With lightning.
i With sleet.
j Freezing rain.
k Dust.

† Storm damages are placed in categories varying from 1 to 9 as follows:
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

WINDSTORM LOSSES PAST YEARS

(Windstorms other than tornadoes)

Year	Total loss of life	Total property loss †	Year	Total loss of life	Total property loss †
1916	65	7	1938	630	8
1917	25	6	1939	60	6
1918	79	7	1940	251	7
1919	344	7	1941	43	7
1920	42	6	1942	68	7
1921	65	7	1943	61	7
1922	133	7	1944	448	8
1923	68	7	1945	85	7
1924	78	7	1946	70	7
1925	88	7	1947	117	8
1926	357	8	1948	52	8
1927	64	7	1949	102	8
1928	1,947	8	1950	210	8
1929	46	7	1951	289	8
1930	49	7	1952	137	8
1931	17	7	1953	118	8
1932	306	7	1954	292	9
1933	156	8	1955	301	8
1934	109	7	1956	196	8
1935	461	7	1957	553	8
1936	121	7	1958	129	8
1937	43	7	1959	145	7
				Total 9,020	

† Storm damages are placed in categories varying from 1 to 9 as follows
1 Less than $50
2 $50 to $500
3 $500 to $5,000
4 $5,000 to $50,000
5 $50,000 to $500,000
6 $500,000 to $5,000,000
7 $5,000,000 to $50,000,000
8 $50,000,000 to $500,000,000
9 $500,000,000 to $5,000,000,000.

NOTE.--The above estimated losses are based on values at time of occurrence.

NORTH ATLANTIC TROPICAL CYCLONES, 1959

Compiled by Howard C. Sumner
Marine Section, Office of Climatology, U. S. Weather Bureau

Eleven tropical cyclones were detected over the waters of the North Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico during 1959. The winds in 7 of these storms reached hurricane force at some stage of their development. Of the 11 storms 7, including 3 with hurricane force winds, reached the coastline of the United States and 1 passed inland on the Mexican coast south of Tampico. Of those that did not reach the continent, two ran their entire course over the open waters of the North Atlantic Ocean, and one moved through the Lesser Antilles into the Caribbean Sea.

The loss of life in the United States attributed to tropical cyclones for the 1959 season totaled 24 persons, 22 of these deaths being listed for hurricane Gracie. An additional 33 lives were lost in the unnamed hurricane of June 17-21 when fishing boats capsized off the north coast of Nova Scotia. Total damage in the United States resulting from these storms has been estimated at about \$24 million. Except for loss of the fishing boats mentioned above damage outside the United States was minor.

The tracks of all North Atlantic tropical cyclones detected during 1959 are indicated in figure 1.

TROPICAL STORM ARLENE, MAY 28-JUNE 2

Arlene, one of the rare North Atlantic tropical storms which have occurred in May and the earliest of record to reach the Louisiana coast, moved inland during the late afternoon of May 30. Forming in the central Gulf of Mexico on May 28, the storm developed beneath a low pressure center aloft which had been under observation for several days as it drifted into the Gulf from the western Caribbean. After development of a circulation in the vicinity of 26°N., 88°W., the storm moved northwestward for about 12 hours and then westward during the following 12 hours. During the night of May 29-30, the center remained nearly stationary in a location about 100 miles south of the central Louisiana coast. On the following morning the storm began a northward drift that carried the center over the coastline in the vicinity of Franklin, La., where residents experienced a calm between 6:20 and 6:30 p.m. c.s.t., on the 30th.

Both the lowest barometric pressure, 999.7 millibars (29.52 inches), and the highest winds, 55 m.p.h. with gusts to 75 m.p.h., were observed at Patterson, La. Highest tides were 3 feet above normal at Weeks Island and Point Au Fer, La. At Galveston, Tex., moderate sea swells broke on the bar at a rate of 7 to 8 per minute from the east-southeast on May 29 and at the same rate from the east on May 30.

Total damage from Arlene has been estimated at about \$500 thousand, the greatest part of which resulted from flooding of homes in Jefferson Parish, La.

Wind damage was light and confined mostly to the vicinity of Franklin, La., in St. Mary Parish, where uprooted trees brought down power lines and there was considerable damage in loss of roof shingles and downed TV antennas.

Heavy rains began over Louisiana late on the 30th with amounts of 10 to 12 inches falling in the Schriever-Houma-Paradis-Kenner area during the night of May 30-31. Amounts as high as 5 inches were recorded along the path of the storm as it moved into Alabama, where flash flooding resulted in considerable damage to property and crops. Damage in Alabama has been estimated at \$100 thousand, about evenly divided between crop losses and damage to highways and bridges. Although cautionary advices against swells and undertow were issued for the benefit of bathers, one man was drowned in the surf at Galveston on May 30.

TROPICAL STORM BEULAH, JUNE 15-18

The first indication of the existence of this tropical storm came during the night of June 15-16 when the SS HONDO reported 50 knot winds from the northeast, with heavy rain and high seas, from the area near 23°N., 96°W. Forward movement of the storm was slow as it drifted west-northwestward, then south-southwestward, on which course it moved inland over the Mexican coast between Tampico and Tuxpan late on June 18.

The lowest pressure, 987 millibars (29.15 inches), and highest estimated surface wind, 70 m.p.h., were reported by aircraft reconnaissance on June 16. This short-lived storm weakened steadily during June 17 and 18 and, aside from an eye that was still recognizable from aircraft, it had lost all other characteristics of a tropical storm by the time it moved inland.

Tides were 2 to 3 feet above normal along the Texas coast and seas were rough along the Gulf coast. Aside from the tides, this storm brought no unusual weather conditions to coastal areas of the middle and western Gulf States.

UNNAMED HURRICANE, JUNE 17-21

The first indication of formation of this hurricane was on the morning of June 17 when a weak closed circulation developed near 25°N., 87°W. on an unstable easterly wave that, for the previous 2 days, had been moving northwestward through the east-central Gulf of Mexico. While this tropical depression was still about 350 miles west of Miami a tornado moved across that city. Striking at about 10 p.m. e.s.t., on the 17th, it lasted 20 to 30 minutes and caused an estimated \$1.5 million in damage and many injuries, but no deaths. At about the same time a tornado formed north of West Palm Beach, lasted about 20 minutes, and traveled over a sparsely inhabited area without causing any serious damage. The torrential rains that accompanied the tropical cyclone as it moved across Florida, about midway on the peninsula, caused considerable damage to beaches and crops, particularily in the Fort Myers area.

After passing off the Florida east coast the storm deepened steadily and at 3 p.m. e.s.t., on the 19th the SS ATLANTIC UNION reported a low barometer reading of 993 millibars (29.32 inches), falling, and west-southwesterly winds occasionally reaching 80 knots. Winds were still near 50 knots, with gusts over 60 knots, when the storm reached the Northumberland Strait area of northern Nova Scotia, where high waves capsized several fishing boats with a reported loss of 33 lives.

HURRICANE CINDY, JULY 5-12

Hurricane Cindy initially developed as a small low pressure area in a weak frontal zone over the

Atlantic east of Florida. As the disturbance moved northeastward gradual development of tropical characteristics and strong winds occurred and by July 7 the disturbance had reached storm intensity. The initial advisory, carrying gale warnings and ordering a hurricane watch from south of Cape Hatteras, N. C., to north of Charleston, S. C., was issued at 6:30 p.m. e.s.t.

At this time the storm was nearly stationary about 190 miles east of Charleston and the highest winds were estimated at 60 to 65 m.p.h. During the night of July 7-8 the storm drifted erratically toward the west.

At this stage the storm was under close surveillance by Navy reconnaissance aircraft and Air Defense Command land-based radar. As movement continued to be toward the coast and there were indications of intensification, the hurricane watch and gale warnings were extended southward to Beaufort, S. C., at 11:00 a.m. e.s.t., on July 8. Later in the day the storm just reached hurricane intensity when the highest winds in squalls near the center were 70 to 75 m.p.h. Hurricane warnings were ordered for the coastal area between Georgetown, S. C., and Beaufort at 2:00 p.m. e.s.t., on July 8.

At about 9:30 p.m. e.s.t., the center moved inland over the southern part of Bull Bay, north of Charleston, S. C., attended by winds of whole gale force, heavy rains, and a 4-foot storm tide.

Heavy rain accompanied the storm as it curved and passed northeastward over the Carolinas and out over the North Atlantic in the vicinity of Norfolk. Continuing on a course to the northeast, the center passed over Cape Cod, skirted the New England coast, and moved out over the Gulf of St. Lawrence. Cape Cod reported gusts of 50 to 60 m.p.h.

Losses from wind, tide, and rain were relatively minor, consisting mostly of roof damage and downed trees and power lines. A number of tornadoes which attended passage of the storm over North Carolina and Virginia caused some damage to buildings. Although there was some flooding of streams in the Carolinas, the heavy and widespread rainfall was for the most part beneficial, ending a long period of dry weather. One death was reported when an automobile struck a fallen tree near McClellanville, S. C. For detailed meteorological information on Cindy see table 1.

HURRICANE DEBRA, JULY 22-27

This hurricane developed in an easterly wave and was apparent as a disturbance in the Gulf of Mexico near 27°N., 92°W., late on July 22. The system drifted west-northwestward across the northern Gulf until it reached a position south of Galveston, where on the morning of the 24th rapid intensification began, with winds of hurricane force developing during the afternoon. Moving slowly, the center passed inland a short distance northeast of Freeport, Tex., where the strongest winds were reported. At the Brazos River Floodgate, 5 miles west of Freeport, a peak gust of 105 m.p.h., from the west was observed at 11:00 p.m. c.s.t., on July 24. San Leon, on Galveston Bay, reported a peak gust of 90 m.p.h. from the east at 8:00 a.m. c.s.t., on the 25th.

The lowest pressure reported during the storm was 984.4 millibars (29.07 inches) from the Coast Guard Cutter CAHOONE late on July 24. The lowest land station pressure was 986.5 millibars (29.13 inches) recorded at Dickinson, Tex., at 5:45 a.m. c.s.t., on July 25. After passing inland the storm continued on a slow northward course during the remainder of the day.

The eye was centered over Dickinson, Tex., from 7:00 to 8:30 a.m. c.s.t., and over Kemah from 8:00 to 9:00 a.m. c.s.t., on the 25th. At 3:30 p.m. c.s.t., the center was located about 5 miles northeast of Cleveland, Tex., where the eye was still distinguishable but in the process of breaking up. Over eastern Texas the storm began to disintegrate into an area of heavy rains and squalls. At 10:00 p.m. c.s.t., of the 25th the remnants of the storm were located near Lufkin with highest winds about 35 m.p.h. After passing near Tyler, Tex., about 10:00 a.m. c.s.t., on the 26th, the dissipating storm continued northward into Oklahoma.

Torrential rains fell during the passage of Debra, with resultant flooding at Hitchcock, La Marque, Texas City, and Dickinson. The heaviest rainfall was reported some distance east of the center over Orange County, where the CHURN Station at Orange Tex., reported 14.42 inches and a cooperative station 14.76 inches. At Dickinson, Tex., for the 48 hours ending at 7:00 a.m., July 25, the amount was 13.40 inches. For a 24-hour period, prior to the 7:00 a.m., observation on the 25th the measurement was 10.82 inches. At San Leon, Tex., the combined fall for July 24 and 25 was 12.81 inches.

Since Debra developed near the coast and moved directly inland there was little time and fetch for development of exceptionally high or extensive tides. Waters in Galveston Bay rose about 6 feet above normal during the height of the storm. The highest tide reported was 7.9 feet above mean sea level at Morgan Point at the north end of Galveston Bay. This reading was taken by the Corps of Engineers from a well-defined water mark inside a building and is considered reliable. During the 25th a 10-mile stretch of the Gulf Freeway between Galveston and Houston was flooded.

Total damage in Brazoria, Galveston, and the eastern portions of Harris County has been estimated at $7 million. There was no loss of life, although a number of persons were temporarily reported as missing. Ten persons suffered minor injuries. For detailed meteorological information on Debra see table 2.

TROPICAL STORM EDITH, AUGUST 17-19

This tropical storm formed in an easterly wave east of the Windward Islands. Evidence of such a disturbance was apparent in the falling pressures and heavy shower activity over the Lesser Antilles on August 17. Later on that date a reconnaissance aircraft was dispatched and at 2200 G.M.T., located the center near 14.0°N., 57.7°W. with central pressure 1007 millibars (29.74 inches) and highest estimated wind 30 knots in squalls north of the center.

With intensification anticipated, the first advisory was issued by the San Juan Office at 0100 G.M.T., August 18 and a hurricane watch was placed in effect for Puerto Rico and the Virgin and Leeward Islands.

On the 18th, when the storm reached the vicinity of Guadeloupe, reconnaissance aircraft estimated winds at 48 knots in the northeast quadrant and

45 knots in the southern semicircle. Raizet Airport on Guadeloupe later reported a maximum wind of 34 knots from the south at 9:10 a.m. A.s.t.

After crossing the island chain between Guadeloupe and Dominica, the storm weakened as it moved out over the Caribbean Sea on a westerly course and by 1100 G.M.T. on August 19 had completely degenerated. No loss of life has been reported as a result of this storm and no reports of damage have been received from any of the land areas affected.

HURRICANE FLORA, SEPTEMBER 9-13

Surface ship and reconnaissance aircraft reports on September 10 indicated that a tropical storm had formed and was centered about 1,250 miles southeast of Bermuda.

Intensification began during the night of September 10-11, and by mid-morning of the 11th squalls of hurricane force were occurring near the center. At 1600 G.M.T., hurricane Flora was located by aircraft reconnaissance near 30°N., 40°W. moving on a northeastward course at about 20 m.p.h. with a central pressure of 994 millibars (29.35 inches).

After a gradual acceleration in forward movement to about 40 m.p.h. and a turn to a more east-northeastward direction, the storm reached the vicinity of 37°N., 29°W. at 1600 G.M.T., September 12. Thereafter it decreased rapidly in intensity as it moved into and merged with an extratropical Low north of the Azores.

HURRICANE GRACIE, SEPTEMBER 20-OCTOBER 2

Hurricane Gracie, the most intense tropical cyclone to enter the southeastern United States since hurricane Hazel in 1954, passed inland near Beaufort, S. C., late in the morning of September 29 with winds estimated at well over 100 m.p.h., near the center. The most severe damage occurred in Charleston County, S. C., with an estimated property loss of $7 million, while the rest of the State had a property loss of about $6 million. Damage in Georgia, North Carolina, and Virginia is estimated to total more than $1 million. Latest reports indicate 22 deaths attributed to Gracie -- 7 in South Carolina, 3 in Georgia, and 12 in Virginia in a tornado associated with the storm.

The easterly wave in which hurricane Gracie developed was detected on September 16 midway between the Lesser Antilles and Africa. It was under continuous observation by reconnaissance aircraft after the 18th as it moved westward at 15 to 20 m.p.h., passing north of the Lesser Antilles and Puerto Rico on the 19th. On the 20th a tropical depression developed in the wave and moved westward just north of Hispanola. The disturbance slowed and turned northward on the 21st, moving to near San Salvador in the southeastern Bahamas, where the circulation developed rapidly, reaching tropical storm intensity by 7:00 p.m. e.s.t., September 21 and hurricane force by 7:00 p.m. e.s.t., September 22. During the next 4 days the storm meandered slowly northward, then northwestward and northward again. It remained almost stationary for several hours late on the 24th and then drifted slowly eastward on the 25th and 26th. Maximum winds up to 100 m.p.h., in squalls very near the center were reported briefly on the 23d. Maximum winds decreased to 85 m.p.h., and later to near 75 m.p.h., on the succeeding 2 days. By early on the 26th, highest winds had decreased to an estimated 70 to 75 m.p.h. Late on the 26th, after looping briefly to the south, movement toward the west began, and during the next 36 hours continued to be slow. Maximum winds increased to near 90 m.p.h., during this time, and a sea-level pressure of 981 millibars (28.97 inches) was reported by reconnaissance aircraft in the eye of the storm on the afternoon of the 27th.

The unusually slow movement during the first week of this storm is without parallel and resulted from the absence of any well-defined steering current in the area surrounding the storm. In general, winds at all levels in the southwestern Atlantic during the entire week were extremely light and variable. On the 28th, the rate of motion of the storm center toward the west-northwest increased to near 12 m.p.h. Reconnaissance aircraft reported steadily increasing maximum winds, estimated at 105 m.p.h., and later at 125 m.p.h., and an expanding area of hurricane winds.

A hurricane watch for the coastal section between Savannah, Ga., and Wilmington, N. C., was initiated on the 28th at 11:00 a.m. e.s.t., and hurricane emergency warnings were issued for the same area at 2:00 p.m. e.s.t., as it became apparent that Gracie would strike the coast. Heavy rain and squalls began along the Carolina and Georgia coasts during the night, and gale force winds started during the early morning hours of the 29th.

As the storm neared the coast moving toward the northwest, reconnaissance aircraft reported a minimum pressure of 951 millibars (28.08 inches) just offshore at 10:30 a.m. e.s.t. The center crossed the coast over St. Helena Sound and Edisto Island, about 10 miles east of Beaufort, S. C., and some 35 miles southwest of Charleston, between 11:00 a.m. and 12 noon e.s.t., and hurricane force winds were experienced along the immediate coast for about 125 miles, from northeast of Charleston to near Savannah.

At the Marine Corps Auxiliary Air Station near Beaufort the lowest observed surface pressure over land, 950 millibars (28.053 inches), maximun 5-minute wind speed of 97 m.p.h., and wind gusts of 138 m.p.h., were observed. Maximum estimated wind gusts of 130 m.p.h., at the Municipal Yacht Basin in Charleston and 125 m.p.h. along Kiawah Island were reported.

The storm center became diffuse after passing inland, moved west of Walterboro to near Bamberg, then turned north-northwestward and northward toward Columbia, passing some 10 miles west of that place about 10:00 p.m. e.s.t. Maximum winds decreased rapidly as the storm seemed to fill immediately after passing inland. Hurricane winds were estimated to extend inland near the storm center to the Orangeburg-Bamberg area, and gale force winds to near Columbia.

Wind damage in the Beaufort area was the worst in history. Thousands of trees were broken off or blown down and while only a few buildings were completely blown down, virtually all suffered some damage. In other coastal areas damage was extensive. Electrical power and telephone services were disrupted from several hours to several days in central and southern South Carolina and southeastern Georgia.

Continuing northward with diminishing intensity, the storm passed a short distance west of Charlotte, N. C., about 5 a.m. e.s.t., September 30 and into southwestern Virginia. In this area, cold air

from the west entered the circulation and the storm assumed extratropical characteristics. Passing northward through West Virginia, northeastward across western Pennsylvania and southern New York, and eastward through extreme southern Vermont and New Hampshire into the Atlantic, the storm dissipated on October 2 southeast of Nova Scotia. Winds ranged up to 35 m.p.h., in Virginia and West Virginia and speeds were generally lower along the remainder of the path.

Tides were unusually high along the entire South Carolina coast. The height of 5.9 feet above mean sea level, recorded on the Coast and Geodetic Survey tide gage in downtown Charleston, is considered a representative measurement of the actual high tide. Numerous higher values, ranging from 8 to near 12 feet, were reported from exposed beaches, but many cases show some local effects of wave breaking and run-up action where the height of wave crests was superimposed on the actual tide height. These values would thus be upper estimates of general flooding in the immediate beach areas.

The peak tides in the Charleston area came within an hour of normal low tide. Had the normal high tide and storm surge coincided flooding would have been much more severe.

Rainfall ranged from 3 to 8 inches over all of South Carolina, almost 4 inches in the Savannah area, and over 3 inches in the eastern border counties of Georgia to near Augusta. Over North Carolina and Virginia 2 to 4 inches fell generally in central and western sections and totals of 8 to 10 inches were reported in local areas. Totals ranged from 1-1/2 to 3 inches in Pennsylvania, western New York, and the Adirondacks, to 2 inches in the Catskills, and 1/2 to 1 inch in other sections of New York and New England.

Widespread moderate flooding developed along streams in many low sections of eastern, southern, and central South Carolina, and some flash floods occurred on small streams in North Carolina, Virginia, and West Virginia. Rainfall from North Carolina northward was beneficial, however, in relieving very dry conditions which were reaching serious proportions in many areas. Heavy crop damage resulted from wind and rain in South Carolina and southeastern Georgia. Cotton and corn, ready for harvest, were severely damaged, and the pecan crop also suffered heavily.

An intense squall line developed in southwestern Virginia on the afternoon of the 30th, and spawned a series of destructive tornadoes, one of which caused the deaths of 12 persons at Ivy, near Charlottesville. Two other small tornadoes were observed in western North Carolina on the afternoon of the 29th but caused only minor damage. For detailed meteorological information on Gracie see table 3.

HURRICANE HANNAH, SEPTEMBER 27-OCTOBER 8

This storm was first located by aircraft reconnaissance at 6:00 p.m. e.s.t., September 28 as a fully developed hurricane about 600 miles southeast of Bermuda with winds estimated up to 85 m.p.h. near the center.

Moving along a westerly course, Hannah increased in intensity and by the evening of the 30th winds near the center reached 125 m.p.h., with the central pressure dropping to 959 millibars (28.32 inches). After 1200 G.M.T., September 30, the movement of the hurricane turned to the northwest and late on October 1 it recurved to the northeast, thus relieving the threat to the east coast of the United States. At 0900 G.M.T., October 3, the USCGC OWASCO at 34.2°N., 65.4°W. reported a wind of 95 knots from the south-southeast. At the nearest approach to the mainland the storm was about 350 miles east-southeast of Cape Hatteras, N. C.

A later increase in forward speed in an eastward direction carried the center to a location approximately 200 miles south-southwest of the Azores by 0400 G.M.T., October 7. During the following 2 days the storm moved northward, then northwestward, and merged with an extratropical disturbance in the area south of Greenland.

From the time of her detection, Hannah posed a serious threat to shipping and as a result the hurricane was tracked continuously by Air Force and Navy reconnaissance planes.

TROPICAL STORM IRENE, OCTOBER 6-8

This tropical storm had its beginning in a squally area which was centered some 300 miles south of New Orleans, La., at 3:00 p.m. c.s.t., October 6 when winds up to 35 m.p.h., were observed in some of the heavier squalls. On the 7th this circulation reached tropical storm intensity with winds of 40 to 55 m.p.h., in squalls east of the center. At 4:00 p.m. c.s.t., the center was located about 150 miles south of Mobile, Ala., moving toward the north-northeast at about 15 m.p.h. The storm never became well-organized and crossed the coastline in the vicinity of Pensacola about 6:00 a.m. c.s.t., on the 8th accompanied by squalls and gusty winds of 40 to 50 m.p.h.

The fastest mile at Pensacola (City Office) was 28 m.p.h., from the southeast at 3:42 a.m. c.s.t., on the 8th. The lowest sea level pressure was 1003.6 millibars (29.64 inches) and the highest tide there was 3.4 feet above mean low water, which is 1.6 feet above normal. Higher tides were reported from the Cedar Keys area, some distance east of the storm path. The peak gust at the Municipal Airport at Pensacola was 55 m.p.h., in a squall at 12:10 a.m. c.s.t., and gusts of 41 m.p.h., occurred as the storm moved inland. Rainfall was heavy over northwest Florida, with total amounts of 6 to 7 inches recorded at several stations during the 3-day period, October 6 to 9. There were no deaths or injuries reported and damage was minor, being confined mainly to unharvested crops.

HURRICANE JUDITH, OCTOBER 17-21

Squally conditions, with winds 25 to 35 m.p.h., and gusts of 40 to 50 m.p.h., were noted during the period October 15-17 in the area from approximately 15°N., 78.5°W. northward to the Cuban coast and northeastward to the southwestern tip of Haiti. By 7:00 a.m. e.s.t., October 17, a small tropical disturbance had formed and was located in the Yucatan Channel near the western tip of Cuba. Winds to 35 m.p.h., and gusts somewhat higher prevailed up to 200 miles to the east of the center. over western Cuba, and in the extreme southeast Gulf of Mexico. By 5:00 p.m. e.s.t., the center had moved north-northeastward to a point about 200 miles west-southwest of Key West, Fla., and

gale warnings were hoisted along the west coast of Florida. At 6:00 p.m. e.s.t., the SS ESSO GREENVILLE observed a wind of 65 knots (74 m.p.h.) from the southwest and a barometric pressure of 1004.1 millibars (29.65 inches). Emergency hurricane warnings were ordered at 8:30 p.m. e.s.t., from the Florida west coast from Punta Gorda to Cedar Keys. Although winds just in excess of hurricane force were reported from ships in a small area around the center while the storm was some 100 miles at sea, there was a sharp decrease in winds as the center approached the coast and moved inland between Fort Myers and Venice. At this stage sustained winds had dropped to about 35 m.p.h., and no gusts in excess of 56 m.p.h., were reported over land. The storm reached the east coast of Florida in the vicinity of Fort Pierce.

A band of heavy rain extended across central Florida about a hundred miles on each side of the track followed by the storm center. At scattered locations in this area precipitation amounts of 4 to 7 inches were recorded during the 2-day rain associated with storm passage. These amounts, coming on the heels of an abnormally wet summer and consequent high ground water levels, caused some local flooding and washouts, along with inundation and damage to early planted crops. There were no deaths, and only one serious injury was reported when a pole toppled and struck a car.

After passing out over the Atlantic movement to the eastward and east-northeastward accelerated to about 45 m.p.h. By the morning of October 19 hurricane force winds were again reported near the center. At 5:00 a.m. e.s.t., on that date aircraft reconnaissance reports indicated winds of 80 m.p.h. near the center with gales extending outward 300 miles in the southeast semicircle and 150 miles to the northwest. Hurricane Judith gradually lost intensity and, when located by reconnaissance at 11:00 a.m. e.s.t., October 21 was moving slowly eastward in a frontal zone with no winds above gale force observed.

There were no deaths reported in Judith and damage was minor.

TROPICAL CYCLONE DATA

HURRICANE CINDY

JULY 5-12, 1959

Station	Date	Pressure (inches)		Wind (miles per hour)				Rainfall (inches)	Remarks
	July	Low	Time *	Fastest Mile	Time*	Gusts	Time *		
SOUTH CAROLINA									
Charleston (WBAS)	8	29.69	11:20p.	25 W #	10:59p.	47 N	12:45p.	2.17	Highest tide 6.6 feet above mean low water at 3:00 p.m. on the 10th
McClellanville	8					60-65 E			Damage negligible
Columbia (WBAS)	9	29.89	6:40a.	28 NNW#	6:20a.	45 NNW	6:20a.	5.82	$50,000 damage from collapse of Pool Mill Dam
Florence (WBAS)	9	29.85	6:00p.	19 S#		28		.66	No damage to crops from rain or winds
NORTH CAROLINA									
Wilmington (WBAS)	8	30.04	4:00a.	24 NE	9:04a.	48 S	9:32p.†	.79	No distructive winds or tides
Raleigh (WBAS)	10	29.82	5:30a.	20 NNE#	6:04a.	32 WNW	5:25p.	2.12	No casualties reported
VIRGINIA									
Norfolk (WBAS)	10	29.67	3:05p.	45	4:11p.	46	3:44p.	.56	
Richmond (WBAS)	10	29.83	2:00p.	17 NW	2:53p.	26 NNE	2:49p.	1.10	
NEW JERSEY									
Atlantic City (WBAS)	10					36 N	9:30p.	6.46	No significant damage

* Eastern Standard Time
† July 9, 1959
# Highest 1 Minute Wind

TABLE 1

TROPICAL CYCLONE DATA

HURRICANE DEBRA

JULY 22-27, 1959

Station	Date	Pressure (inches)		Wind (miles per hour)				Rainfall (inches)	Remarks
	July	Low	Time *	Fastest Mile	Time*	Gusts	Time*		
TEXAS									
Anahuac (CHURN)†	25	29.57	10:30a.	50 SSE	10:45a.	65 SSE	10:45a.	6.95	
Dickinson	25	29.13	5:45a.					13.40	Center over Dickinson 7:00 a.m. to 8:30 a.m.
Freeport (Coast Guard)	25	29.15	1:30a.			89 WSW	1:00a.		Highest tide 2.7 feet above mean sea level
Freeport (Brazos Floodgates)	24	29.21	10:00p.			105 W	11:00p.		High tide 3.4 feet above mean sea level
Galveston (WBO)	25	29.55	5:30a.	57 SE	2:50a.	85 SE	2:55a.	5.88	High tide 2.8 feet above mean sea level at 4:25 a.m. on the 25th
Galveston (WBAS)	25	29.52	4:50a.			81 SE	3:15a.	7.96	
High Island	25	29.74	4:00a.			45 SE	3:00a.		High tide 1.6 feet above mean sea level on the 25th
Houston (WBO)	25	29.51	10:30a.	49 N	9:16a.	60 N	9:21a.	5.31	
Houston (WBAS)	25	29.42	6:55a.	58 NE	6:02a.	82 NE	4:35a.	8.98	Damage mostly to power lines and fallen trees
Jefferson Co. Airport	25	29.75	12:00n.	39 SE	1:15p.	48 SE	10:49a.	7.80	
Matagorda (Colorado Locks)	24	29.73	5:00p.			38 NNW	11:00a.		High tide 0.9 foot above mean sea level at 10:00 a.m. on the 24th
Sabine (Coast Guard)	25	29.74	12:30p.	40 SSE	4:00a.			6.00	
San Leon (CHURN)†	25	29.32	8:30a.	50 SSE	7:45a.	90 SSE	8:00a.	12.81	High tide 3.9 feet above mean sea level at 9:30 a.m. on the 25th
Sargent (CHURN)†	24	29.64	5:00p.			55 NNE	5:00p.		Peak tide estimated at 2.0 feet above mean sea level
Texas City	25	29.38	5:30a.			52 E	2:45a.		High tide 4.9 feet above mean sea level at 5:30 a.m.

* Central Standard Time
† Cooperative Hurricane Reporting Network

TABLE 2

TROPICAL CYCLONE DATA

HURRICANE GRACIE

SEPTEMBER 20-OCTOBER 2, 1959

Station	Date	Pressure		Wind (miles per hour)				Rainfall	Remarks
		Low	Time	Fastest Mile	Time	Gusts	Time		
South Carolina									
Bamberg	29					Est. 75			
Beaufort MCAAS	29	28.05	1230 E	@ 97 WSW	1245 E	138 WSW		4.90	Eye of hurricane passed close to station.
Charleston (WBAS)	29	29.16	1316 E	48 #	1230-1245 E	71 SSE	1348 E	4.29	Record low pressure for September at Charleston.
Charleston Customs House	29			48 NE	0647 E*				
Columbia (WBAS)	29	29.11	2150 E	38 ESE†	2200 E	57 SE	1700&2200 E	5.03	3d lowest pressure of record at Columbia.
Orangeburg	29	28.74	1740 E	Est.60-70	1600-1700E	Est.80-90	1600-1700 E	7.30	
Spartanburg (WBAS)	29	29.30	0230E ø	25 N†		40 N	1800-2200E	4.76	
Walterboro	29					Est.100			
Georgia									
Augusta (WBAS)	29	29.35		35 NW†	--	48		2.60	
Savannah (WBAS)	29	29.27	1200 E	56 NW	--	75	1200 E	3.94	Winds equalled previous September record which occurred in 1928.
North Carolina									
Charlotte (WBAS)	29	29.48	0300E ø	38 NE†	1915 E	48 NE	1915 E	4.89	
Greensboro	30	29.71	0315 E	34 SSE	0839 E	51 SSE	0839 E	3.74	
Raleigh-Durham (WBAS)	30	29.75	1501 E	25 SSE†	1000 E	37 SSE	1000 E	2.01	No damage.
Wilmington (WBAS)	29	29.76	1600 E	43 SE†	1401 E	67 SE	1359 E	1.39	
Winston-Salem (WBAS)	30	29.66	0700 E	42 E†	--	71 E	0343 E	3.34	
Virginia									
Lynchburg (WBAS)	30	29.71		30 SE	--	38	--	3.27	
Richmond (WBAS)	30			30 SE	--			2.78	
Roanoke (WBAS)	30	29.71						3.85	Rain 8.77 inches at Lafayette (just to west), and over 9 inches at Copper Hill to southwest.

* Current failed
† Highest 1-minute wind
\# Highest sustained wind
@ Highest 5-minute wind
ø September 30

TABLE 3

NORTH ATLANTIC TROPICAL CYCLONES, 1959

(Number of cyclone in table correspond to number indicated for the track shown on accompanying chart)

Name	Date	Area where first reported	Coast lines crossed	Highest wind speed reported	Lowest pressure reported *	Place of dissipation reported	Intensity	Remarks
1 ARLENE	May 28-June 2	Central Gulf of Mexico	Louisiana	55 m.p.h. at Patterson, La.	999.7 mb. (29.52 in.) at Patterson, La.	Interior of South Carolina	Tropical Storm	Damage estimated at $500,000, loss of one life by drowning.
2 BEULAH	June 15-18	Southwestern Gulf of Mexico near 23°N., 96°W.	Mexico	70 m.p.h. by reconnaissance aircraft	987 mb. (29.15 in.)	Mexico	Tropical Storm	Tides were 2 to 3 ft. above normal along the Texas coast.
3 UNNAMED HURRICANE	June 17-21	Central Gulf of Mexico near 25°N., 87°W.	Florida and Nova Scotia	Estimated hurricane force near 37°N., 67°W.	--	East of Newfoundland	Hurricane	High waves capsized fishing boats in the Northumberland Strait area off Nova Scotia with a loss of 33 lives.
4 CINDY	July 5-12	North Atlantic east of northern Florida	South Carolina, Virginia, Massachusetts and New Brunswick	70-75 m.p.h. in squalls off the South Carolina coast.	996 mb. (29.41 in.) reported near 32°N. 78°W.	North of Newfoundland	Hurricane	Minor damage with one death reported.
5 DEBRA	July 22-26	Northwestern Gulf of Mexico near 27°N., 92°W.	Texas	90 m.p.h. with gusts of 105 m.p.h. at Brazos Floodgates near Freeport, Tex.	984.4 mb. (29.07 in.) USCGC CAHOONE, July 24	Western Oklahoma	Hurricane	Damage has been estimated at $7 million with no loss of life reported. The highest tide reported was 7.9 ft. above mean sea level at Morgan Point at the north end of Galveston Bay.
6 EDITH	Aug. 17-19	East of the Windward Islands	None	55 m.p.h. by reconnaissance aircraft	--	Eastern Caribbean Sea	Tropical Storm	No damage or loss of life has been reported.
7 FLORA	Sept. 9-13	North Atlantic 1250 mi. southeast of Bermuda	None	Hurricane force in squalls near the center on Sept. 10-11	994 mb. (29.35 in.)	North of the Azores	Hurricane	
8 GRACIE	Sept. 20-Oct. 2	400 mi. east of the Lesser Antilles	South Carolina	97 m.p.h.-5 min. max. with gusts to 138 m.p.h. at Beaufort (Marine Corps Auxiliary Air Station)	950 mb. (28.05 in.) at Beaufort, S.C. (MCAAS)	Southeast of Nova Scotia	Hurricane	Damage in the United States has been estimated at $14 million with a loss of 22 lives, 7 in South Carolina, 3 in Georgia, and 12 in Virginia, the latter in a tornado associated with the storm.
9 HANNAH	Sept. 27-Oct. 8	600 mi. southeast of Bermuda	None	125 m.p.h. by reconnaissance aircraft on the 30th	959 mb. (28.32 in.)	South of Greenland	Hurricane	Throughout its history Hannah posed a threat to North Atlantic shipping. No casualties reported.
10 IRENE	Oct. 6-8	Gulf of Mexico, 300 mi. south of New Orleans, La.	Florida	40-55 m.p.h. in squalls on the 7th	1003.6 mb. (29.64 in.) at Pensacola, (City Office)	Central Georgia	Tropical Storm	No loss of life or injuries. Damage was minor.
11 JUDITH	Oct. 17-21	Yucatan Channel near the western tip of Cuba	Florida	80 m.p.h. on Oct. 19 northeast of the Bahamas by reconnaissance aircraft	--	Mid-Atlantic Ocean near 35°N. 48°W.	Hurricane	There were no deaths reported and damage was minor.

* Reduced to sea level.

TABLE 4

FIGURE 1 TRACKS OF NORTH ATLANTIC TROPICAL CYCLONES, 1959

NORTH ATLANTIC TROPICAL CYCLONES FOR PAST YEARS

Frequency of Tropical Cyclones (Including Hurricanes) by Months and Years

		May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1886			3	1	2	2	2			10
1887		1		2	2	3	6	1	2	17
1888			1	1	2	2	1	3		10
1889		1	1		1	5	1			9
1890					1					1
1891				1	2	3	4	1		11
1892			1		1	4	3			9
1893			1	1	5	3	1	1		12
1894					2	1	3			6
1895					2	1	3			6
1896				1	1	2	2			6
1897					1	2	2			5
1898					2	5	2			9
1899				1	2	1	2			6
1900					1	3	3			7
1901			1	2	2	3	2			10
1902			2			1	1	1		5
1903				1	1	4	2	1		9
1904			1			1	3			5
1905						3	2			5
1906			[illegible]		1	3	4	1		11
1907			1			2	1			4
1908	Mar. 1			1	1	3	2			8
1909			2	2	2	2	1	1		10
1910					1	2	1			4
1911					2	1	1			4
1912			1	1		1	2	1		6
1913			1		1	1	1			4
1914						1				1
1915				1	2	[illegible]				5
1916			1	2	3	4	3	1		14
1917					2	1				3
1918					3	2				5
1919				1		1		1		3
1920						4				4
1921			1			3	2			6
1922			1			1	2			4
1923					1	1	5			7
1924			1		2	2	[illegible]	1		8
1925						1		1		2
1926				1	2	5	2	1		11
1927					1	3	3			7
1928					2	3	1			6
1929			1			1	1			3
1930					2					2
1931			1	1	2	3	1	1		9
1932		1			3	3	3	1		11
1933		1	1	3	7	5	3	1		21
1934		1	1	1	2	2	3	1		11
1935					3	1	2			6
1936			3	2	6	4	1			16
1937				1	2	6				9
1938					3	1	3	1		8
1939			1		1	1	2			5
1940		1			3	2	[illegible]			8
1941						4	[illegible]			6
1942					3	3	3	1		10
1943				1	2	4	3			10
1944				3	2	4	2			11
1945			1	1	4	3	1			10
1946			1	1	1	1	2			6
1947				1	2	3	3			9
1948		1		1	2	3	1	1		9
1949					3	7	2	1		13
1950					4	3	6			13
1951		1			3	4	2			10
1952	Feb. 1				2	2	2			7
1953		1			3	4	4	1	1	14
1954			1	1	2	4	1	1	1	11
1955				1	4	5	2			12
1956			1	1	1	4	1			8
1957			2		1	4	1			8
1958			1		4	4	1			10
1959		1	[illegible]	2	1	3	2			11
Totals	Feb. Mar. 1 1	10	39	41	134	196	140	26	4	592

Frequency of Tropical Cyclones Reaching Hurricane Intensity by Months and Years

		May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1886			2	1	2	2	1			8
1887				1	2	3	2	1	1	10
1888			1		2		1	1		5
1889		1			1	3				5
1890					1					1
1891				1	2	3	2			8
1892					1	2	1			4
1893			1	1	5	3				10
1894					1	1	3			5
1895					1		1			2
1896				1	1	2	2			6
1897					1	1				2
1898					2	2				4
1899				1	2	1	1			5
1900					1	2				3
1901				1	2					3
1902			1			1	1			3
1903				1	1	3	2	1		8
1904						1	1			2
1905							1			1
1906			1		1	2	2			6
1907										0
1908	Mar. 1			1		2	1			5
1909				1	1	1	1			4
1910						2	1			3
1911					2	1				3
1912						1	2	1		4
1913			1		1	1				3
1914										0
1915					2	2				4
1916			1	2	3	2	2	1		11
1917					1	1				2
1918					2	1				3
1919						1				1
1920						4				4
1921			1			2	1			4
1922						1	1			2
1923					1	1	1			3
1924					2	1	1	1		5
1925								1		1
1926				1	2	4	1			8
1927					1	3				4
1928					2	1	1			4
1929			1			1	1			3
1930					2					2
1931						2				2
1932					3	1	1	1		6
1933			1	1	3	3	1			9
1934			1	1	1	1	1	1		6
1935					2	1	2			5
1936			1	1	3	2				7
1937						3				3
1938					2	1				3
1939					1		2			3
1940					3	1				4
1941						3	1			4
1942					3			1		4
1943				1	1	2	1			5
1944				2	1	3	1			7
1945			1		1	1	1			4
1946				1		1	1			3
1947					2	1	2			5
1948					1	3	1	1		6
1949					2	4	1			7
1950					4	3	4			11
1951		1			2	3	2			8
1952					2	2	2			6
1953					2	3	1			6
1954			1		2	3	1		1	8
1955					3	5	1			9
1956				1	1	1	1			4
1957			1			2				3
1958					3	3	1			7
1959			1	2		3	1			7
Totals	Mar. 1	2	17	23	99	126	65	11	2	346

TOTAL NUMBER OF TROPICAL CYCLONES, LOSS OF LIFE AND DAMAGE

	Total number tropical cyclones*		Total number hurricanes		Loss of Life		Damage by categories**	
Year	In all areas	Reaching U.S.Coast	In all areas	Reaching U.S.Coast	Total all areas	In United States	Total all areas	In United States
1886	10	7	8	6				
1887	17	4	10	3				
1888	10	6	5	3				
1889	9	4	5	2				
1890	1	0	1	0				
	47	21	29	14				
1891	11	4	8	2				
1892	9	3	4	0				
1893	12	7	10	6				
1894	6	3	5	2				
1895	6	4	2	1				
	44	21	29	11				
1896	6	4	6	4				
1897	5	4	2	1				
1898	9	6	4	3				
1899	6	4	5	3				
1900	7	3	3	1		6000		7
	33	21	20	12				
1901	10	6	3	2		10		6
1902	5	3	3	1		#		#
1903	9	2	8	2		9		6
1904	5	3	2	2		#		6
1905	5	2	1	0		#		#
	34.	16	17	7				
1906	11	6	6	4		285		7
1907	4	3	0	0		#		#
1908	8	2	5	1		#		#
1909	10	7	4	3		404		7
1910	4	2	3	2		13		6
	37	20	18	10				
1911	4	2	3	2		17		6
1912	6	4	4	2		12		6
1913	4	3	3	2		#		#
1914	1	1	0	0		#		#
1915	5	4	4	3		600		8
	20	14	14	9				
1916	14	8	11	6		107		7
1917	3	1	2	1		5		5
1918	5	2	3	1		34		6
1919	3	2	1	1		287		7
1920	4	3	4	2		2		6
	29	16	21	11				
1921	6	2	4	2		5		6
1922	4	1	2	0		0		#
1923	7	4	3	2		0		4
1924	8	3	5	2		2		3
1925	2	2	1	1		6		3
	27	12	15	7				
1926	11	4	8	4		269		8
1927	7	1	4	0		0		#
1928	6	3	4	2		1836		7
1929	3	2	3	2		3		6
1930	2	1	2	0		0		2
	29	11	21	8				
1931	9	2	2	0		0		#
1932	11	5	6	2		0		#
1933	21	7	9	5		63		7
1934	11	5	6	3		17		6
1935	6	2	5	2		414		7
	58	21	28	12				
1936	16	7	7	3		9		6
1937	9	4	3	0		0		4
1938	8	4	3	[illegible]		600		8
1939	5	3	3	1		3		3
1940	8	3	4	2		51		[illegible]
	46	21	20	[illegible]				
1941	6	4	4	2		10		7
1942	10	3	4	2	17	8	7	7
1943	10	4	5	1	19	16	7	7
1944	11	4	7	3	1076	64	8	8
1945	10	5	4	3	29	7	8	8
	47	20	24	11				
1946	6	4	3	1	5	0	7	7
1947	9	7	5	3	72	53	8	8
1948	9	4	6	3	24	3	7	7
1949	13	3	7	2	4	4	8	8
1950	13	4	11	3	27	19	7	7
	50	22	32	12				
1951	10	1	8	0	244	0	7	6
1952	7	2	6	1	16	3	6	6
1953	14	6	6	2	3	2	7	7
1954	11	4	8	3	720+	193	9	9
1955	12	5	9	3	1518+	218	9	9
	54	18	37	9				
1956	8	2	4	1	76	21	8	7
1957	8	5	3	1	475	395	[illegible]	8
1958	10	1	7	0	49	2	7	7
1959	11	7	7	3	57	24	7	7
	37	15	21	5				
Total	592	269	346	146				
Median	8	4	4	2				

** This is a new form of presentation of storm damage estimates. The Weather Bureau has for some time recognized the fact that without detailed expert appraisal of damage all figures published are merely approximations to fact. Since errors in dollar estimates vary in proportion to the total damage, storms are placed in categories varying from 1 to 9 as follows:

1 Less than \$50	4 \$5000 to \$50,000	7 \$5,000,000 to \$50,000,000
2 \$50 to \$500	5 \$50,000 to \$500,000	8 \$50,000,000 to \$500,000,000
3 \$500 to \$5000	6 \$500,000 to \$5,000,000	9 \$500,000,000 to \$5,000,000,000

Blank spaces indicate no figures available.

* Including hurricanes.
\# Not reported in literature, believed minor.
\+ Additional deaths for which figures are not available.

EASTERN NORTH PACIFIC TROPICAL CYCLONES, 1959

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Twelve tropical cyclones occurred in the eastern North Pacific Ocean, in the area between the Equator and 40°N. and between 140°W. and the west coast of North and Central America, during the 1959 season. Three of the tropical cyclones reached hurricane intensity, 2 in September and 1 in October. The 12 tropical cyclones this season compare with 12 in 1958, 9 in 1957, 11 in 1956, 6 in 1955, 10 in 1954, and with 6 as a long-term average for tropical cyclones in this area. The relatively large average number of storms in recent years (10), compared with the long-time average (6), is probably due to better observational data and, to a slight extent, to an improved understanding of tropical disturbances by forecasters.

The track patterns of the storms this season could be divided essentially into two groups. One group of six originated and remained within 300 mi. of the coastline while moving northwestward. Another group of five formed more than 600 mi. off the coastline and moved westward. Four of these five, it was noted, dissipated while moving southwestward. The most unusual track is that of the October 18-21 storm. This storm formed about 300 mi. off the Mexican coast near 20°N. and moved eastward. It looped sharply in a counterclockwise manner while offshore, and dissipated.

Three of the tropical cyclones, two of them of hurricane strength, reached land. The September 3-11 storm, a hurricane, passed very near La Paz, Mexico. No reports of loss of life or damage to property were received in connection with this storm. The October 22-27 storm, the most severe hurricane of the season, struck Manzanillo, Mexico on the 27th, with a loss of life reported to be 900-1000, in Manzanillo, Minitatlan, and nearby communities.

Cyclones with winds between 34 kt. and 63 kt. are classified as tropical storms and with winds of 64 kt. or greater as hurricanes. All times are reported in G.M.T. A summary of each of the tropical cyclones originating in the eastern North Pacific Ocean follows:

TROPICAL STORM, JUNE 10-12

The first tropical storm of the season to appear on the weather charts of the eastern North Pacific Ocean apparently originated on the Intertropical Convergence Zone as a tropical depression about 0000 June 10 near 17°N., 106°W. It moved north-northwestward at about 6 kt. and intensified. The VALIANT HOPE, reporting 45 kt. winds from the east and heavy rain at 1800 June 10, gave the first positive evidence of the cyclone developing to tropical storm intensity. The storm continued northward at about 6 kt. with little change in intensity until 1200 June 11, then weakened and accelerated rapidly, passing inland near Mazatlan, Mexico and dissipating. No information is available about loss of life or property damage in the Mazatlan area.

TROPICAL STORM, JUNE 26-28

This tropical storm probably developed along the Intertropical Convergence Zone about 0000 June 26, near 16.5°N, 104°W. The LOCH GARTH, with an east-southeast wind of 30 kt., gave the first indication of the existence of a circulation of tropical storm intensity. The storm moved northwestward at about 5-6 kt. for about 12 hr., when it reached its maximum intensity. The strongest winds reported were 50 kt. from the MASSMAR at 1200 June 26. The storm then moved on a track toward the west-northwest, gradually weakening and accelerating to a forward speed of 15 kt. The track taken by this storm was more typical of storms in July. The tropical storm became a weak depression near 21°N., 114°W. by 1200 of the 28th.

TROPICAL STORM, JULY 16-22

The first tropical storm appearing in the eastern North Pacific Ocean during July developed in a low pressure area along the Intertropical Convergence Zone about 0000 July 16. Reports of 45 kt. winds from the HORIZON at 1200 July 16 gave the first positive indication of a circulation of tropical storm intensity. The storm moved northwestward and gradually accelerated. The ANNA CATHERINA, near 16°N., 122°W. at 1800 July 17, reported 55 kt. winds from the southeast. Further acceleration to a forward speed of 20 kt. occurred during the next 24 hr. as the storm took a more westerly path. The PINE RIDGE, moving east at 4 kt., reported passing through the eye of the storm soon after encountering northeasterly winds of 50 kt. at 19.6°N., 130.3°W. at 2100 July 18. The tropical storm then moved on a path almost due west while weakening and decelerating. At 2130 July 22, reconnaissance aircraft reported only 30 kt. surface winds in the storm near 20.5°N., 141°W. The storm subsequently degenerated into an easterly wave.

TROPICAL STORM, JULY 21-25

The origin of this tropical storm is uncertain. A tropical depression was first suspected near 16°N., 119°W. about 1800 July 21. The storm probably intensified slowly as it moved on a west-northwestward track, attaining a forward speed of about 10 kt. At 0000 July 24, the PACIFICUS reported an easterly wind of 35 kt. near 19.5°N., 127.5°W. and at 0100 the same vessel reported nearly a 4 mb. drop in pressure in 1 hr. to a reading of 1004.3 mb. At this time the maximum windspeeds associated with this storm were estimated to be about 50 kt. No reports were received near the center during the remainder of the life of the storm. The rather sketchy evidence available indicates that the storm weakened while moving on a westward, then west-southwestward path, finally dissipating by 0000 July 26 near 17°N., 134°W.

TROPICAL STORM, JULY 28-30

The last tropical storm for the month of July was very weak, with windspeeds probably barely reaching the tropical storm category of 34 kt. The storm probably originated as a weak tropical depression about 1800 July 28 along the Intertropical Convergence Zone near 12°N., 98°W. The storm moved northwestward at about 10 kt. with perhaps slight intensification. No reports were received in the vicinity of the storm until the PACIFICUS reported 25 kt. winds while passing

through the southwest portion of the storm between 0600 and 0900 July 30. The strongest winds (about 40-45 kt.) and highest seas associated with the storm occurred to the northeast and well away from the center of the circulation. This storm appeared to weaken and die shortly after 1200 July 30.

TROPICAL STORM, AUGUST 4-6

Little is known about the origin of this storm. It first appeared on the weather chart of 1200 August 4 as a weak depression near 25.5°N., 130.5°W. The storm is believed to have developed in an easterly wave, then moved toward the west-northwest at about 9 kt. while slowly deepening. It probably reached its maximum intensity at the northernmost point of its track near 27°N., 134.5°W., 0600 August 5. Strongest winds reported were northerly, 40 kt., from the ALLIANCE near 27°N., 136.5°W. in the northwest quadrant of the storm, 0000 August 5. The lowest pressure reported was 1010.2 mb. from the same ship at 27.5°N., 134.8°W., 0600 August 5. The storm then curved toward the west-southwest and weakened to a tropical depression by 0600 August 6. Further degeneration to an easterly wave occurred during the following 24 hr.

TROPICAL STORM, AUGUST 19-21

This storm first appeared as a weak LOW on the Intertropical Convergence Zone near 18°N., 110°W., 0600 August 19. It moved northwestward at 9 to 12 kt. to a position near 23°N., 117°W., 1200 August 21. Maximum intensity was probably barely enough for the storm to be classified as a tropical storm. The strongest wind reported was north 25 kt. from a vessel (name unknown) at 21.9°N., 117.3°W., 0000 August 21. The lowest pressure reported was 1006.9 mb. by the ATAMI MARU, 0000 August 20 at 19.5°N., 114.2°W. The storm weakened to a tropical depression by 1800 August 21 near 23°N., 117°W. and recurved toward the north. It continued weakening as it moved northward along the coast of Lower California, and remnants of this storm contributed moisture for some rainfall that fell in southern California on August 23.

TROPICAL STORM, AUGUST 26-29

This storm originated along the Intertropical Convergence Zone. The first evidence of its existence were reports from the LASALLE of northerly winds 25 kt. at 1800, followed by northerly winds of 55 kt. and heavy rain at 2100 August 26 at 17.7°N., 129.0°W. It is likely that the storm weakened soon after this report. Its movement was westward at about 5 kt. to near 17.8°N., 131.9°W., 0000 August 28, then southwestward at about 7-8 kt. The storm probably weakened to the category of a tropical depression by the time it reached 16°N., 134°W. about 0300 August 29.

HURRICANE, SEPTEMBER 3-11

This storm, the first hurricane in the eastern North Pacific in 1959, appeared on the weather charts along the Intertropical Convergence Zone at 2100 September 3, near 12.5°N., 92.5°W., as a result of radar weather observations from the ORSOVA. The report indicated the diameter of the storm center as 25 mi. and the movement of the storm as west-northwestward at 20 kt. The vessel reported a wind of 35 kt. from the east-southeast.

The storm appeared to decelerate and intensify slowly as it moved first toward the west-northwestward and then toward the northwestward to a position near 16°N., 101.5°W. at 1200 September 5. Maximum windspeeds at this time were estimated to be 60 kt., a speed confirmed by a U. S. Navy vessel at 1900 September 5 at 17.3°N., 102.8°W.

The storm continued to decelerate to a forward speed of 5-6 kt. and probably weakened. The SALLY MAERSK gave a good fix on the storm position when it reported a wind shift from east-northeast 35 kt. to west-southwest 45 kt. between 0300 and 0500 September 8 near 18.7°N., 107.8°W. By 0000 September 9, the storm had turned to an almost northerly course while accelerating slightly, and had regenerated to full hurricane strength as it bored its way into the heavily-traveled shipping lanes along the west coast of Mexico. Numerous ships reported 60 kt. winds; 70 kt. and 75 kt. were reported by the ATAGO MARU and by the SANTA FE, respectively.

Continuing north-northwestward at about 12-15 kt. the hurricane passed over the southern tip of Lower California. La Paz, Mexico reported 70-80 kt. winds and a minimum station pressure of 988 mb. shortly before 1800 September 9. Turning northwestward, the storm weakened while crossing the mountainous terrain of Lower California. An Air Force reconnaissance plane located the storm at 28°N., 113.9°W., along the west coast of Lower California, at 2313 September 10. The observer reported the eye breaking up, perhaps splitting. The storm weakened to a tropical depression by 0600 or 1200 September 11, and dissipated soon afterwards as it moved northward along the west coast of Lower California. Remnants of this storm contributed moisture for light showers that occurred in the extreme southwestern portion of the United States.

HURRICANE, SEPTEMBER 21-26

This hurricane probably originated, as most eastern North Pacific tropical storms do, as a tropical depression along the Intertropical Convergence Zone. Intensification to the tropical storm category is believed to have taken place by 1200 September 21 near 16°N., 119°W. The HAICHANG reported south winds of 40 kt. and a pressure of 999.7 mb. at 16.2°N, 120°W. and the VENNACHAR reported north-northeast winds of 40 kt. to the northwest of the storm at 0000 September 22.

The storm appeared to move northwestward and then north-northwestward while intensifying to hurricane strength and decelerating to a forward speed of about 7 kt. At 2006 September 24 an Air Force 55th Reconnaissance Squadron aircraft reported 70 kt. maximum surface winds and a central pressure of 967 mb. at 22.2°N., 122.6°W. The storm then turned sharply to the west and then to the west-southwest and weakened very rapidly. Another Air Force reconnaissance observation at 1958 September 25 near 21°N., 127°W. found no evidence of an eye. The storm is thought to have entirely dissipated near 20°N., 128°W. about 0600 September 26.

TROPICAL STORM, OCTOBER 18-21

This storm first made its appearance on the weather charts near 19°N., 11.5°W. at 2100 October 18, probably originating along the Intertropical Convergence Zone. The storm moved eastward at 6 kt. on October 19, then curved toward the northeast and north with some intensification on October 20. The SYGMA and the TEXAS TRADER reported 40 kt. winds at 0000 October 21. Reports from these vessels provided a fair fix on the storm, estimated to be near 20.5°N., 107.7°W. with 50 kt. maximum winds at 0000 October 21. The storm subsequently curved sharply toward the southwest, with a slow forward speed, and weakened rapidly. The storm is believed to have degenerated completely by 0000 October 22 near 19.5°N., 109°W.

HURRICANE, OCTOBER 22-27

The last, and by far the most damaging, of the tropical cyclones this season in the eastern North Pacific Ocean, first appeared on the weather charts October 22, at 1800, near 13°N., 95.5°W. as a result of a report of east-northeast winds of 35 kt. from the RUTH LYKES. The point of origin of this storm is uncertain but it probably occurred several degrees east of 95°W.

The storm moved westward and northwestward, following a course nearly parallel to the coast of Mexico. During October 23 and 24 the forward speed of the storm was about 9 kt. Highest windspeeds reported were 40 kt., including two reports from vessels directly in the path of the storm. Maximum windspeeds accompanying the storm at this time were estimated to be 55 kt. On the 25th and 26th, the forward speed of the storm appears to have been somewhat slower--about 6 kt. The storm reached a position near 17.7°N., 106°W. or about 130 mi. southwest of Manzanillo at 1200 October 26. No evidence of intensification appeared up to this time. The highest windspeeds reported by vessels between the storm and the coast of Mexico near Manzanillo during the period from 0600 to 1800 October 26, were 35 kt. Between 1200 of the 26th and 0000 of the 27th, the storm probably curved rather sharply northward and eastward, with rapid intensification.

At 0000 of the 27th at 18.5°N., 105°W, the HIVEMARU reported south-southeast winds of 70 kt., rapidly falling barometer, and a sea of 30 ft., the first positive evidence that the storm had reached hurricane intensity. Further intensification evidently occurred as the storm moved east-northeastward at about 6 kt. toward Manzanillo. At 0600 of the 27th the MEXICO MARU reported 100 kt. winds at 18.9°N., 104.9°W. Reports received after the storm from the MARY BARBARA, at a position just outside Manzanillo harbor on the 27th, indicated a minimum barometer reading of 958 mb. at 1115, passage of the eye of the storm by 1150, south-southeast winds estimated at 140 kt. at 1200, shifting to south-southwest, estimated at 150 kt. by 1210. See article on page 66 of this issue for the MARY BARBARA's encounter with this hurricane. The CACALILAO, in Manzanillo harbor, indicated a minimum barometer reading of 964 mb. before 1210 with east-southeast winds estimated at 135 kt. at 1210, shifting to southwest 60 kt. by 1330 and to west 100 kt. by 1435. Salvaged wind instruments in Manzanillo, according to newspaper accounts, showed winds reached a speed of 146 m.p.h. or 127 kt. Windspeeds experienced in Manzanillo may have been higher.

Newspaper accounts, several days after the storm, reported the storm to be one of the worst in the recent history of Mexico. Wind, floods, and landslides caused by torrential rains, are reported to have caused about 340 deaths in Manzanillo, about 400 in the village of Minatitlan, and about 220 in scattered communities elsewhere. Five small Mexican merchant ships, one Mexican Naval vessel, and the 1800-ton Mexican vessel SINALOA were reported lost with a considerable number of deaths. No monetary estimates of damage to property caused by the hurricane are available.

ERRATA:

The legend for "Tracks of Eastern North Pacific Storms, 1958" on page 88 of CDNS ANNUAL 1958, Volume 9, No. 13 is reversed. Each open circle "O" should indicate a position at 1200 GMT; each dark circle "●" should indicate a position at 0000 GMT.

EASTERN NORTH PACIFIC TROPICAL CYCLONES, 1959

Storm No.	Date	Approximate area where first reported	Coast lines crossed	Highest wind speed reported	Lowest pressure reported	Place of dissipation reported	Intensity	Remarks
I	June 10-12	17°N., 106°W.	Mexican Coast near Mazatlan	SS VALIANT HOPE 10th-1800Z 45 knots	1003 mb. SS SHOSEI 11th-0300Z	Near Mazatlan	Tropical Storm	No reports of loss of life or property damage available.
II	June 26-28	16.5°N., 104°W.	None	SS MASSMAR 26th-1200Z 50 knots	1006 mb. SS MASSMAR 26th-1200Z	21°N., 114°W.	Tropical Storm	
III	July 16-22	11°N., 119°W.	None	SS CATHERINA 17th-1800Z 55 knots	977 mb. SS PINE RIDGE 18th 2200Z	20.5°N., 141°W.	Tropical Storm	Point of origin uncertain.
IV	July 21-25	16°N., 119°W.	None	SS PACIFICUS 24th-0000Z 35 knots	1004 mb. SS PACIFICUS 24th-0100Z	17°N., 134°W.	Tropical Storm	
V	July 28-30	12°N., 98°W.	None	SS PACIFICUS 30th-0600Z 25 knots	1022 mb. SS PACIFICUS 30th-0900 Z	14°N., 101°W.	Tropical Storm	
VI	Aug. 4-6	25°N., 130°W.	None	SS ALLIANCE 5th-0000Z 40 knots	1010 mb. SS ALIANCE 5th-0600Z	25.5°N., 139°W.	Tropical Storm	
VII	Aug.19-21	18°N., 110°W.	None	(UNKNOWN) 21st-0000Z 25 knots	1007 mb. ATAMI MARU 20th-0000Z	23°N., 117°W.	Tropical Storm	
VIII	Aug.26-29	18°N., 129°W.	None	SS LASALLE 26th-2100Z 55 knots	995.6 mb. SS LASALLE 26th-2100Z	16°N., 134°W.	Tropical Storm	Point of origin uncertain.
IX	Sept. 3-11	12.5°N., 92.5°W.	Several crossings of coastal line of lower Calif., Mexico	SS SANTA FE 9th-0300Z 75 knots	987 mb. 9th-1600Z La Paz, Mexico	31°N., 116°W.	Hurricane	No reports received about loss of life or property damage.
X	Sept. 21-26	16°N., 119°W.	None	USAF 55th Reconnaissance Squadron 24th-2006Z 70 knots	967 mb. 22.2°N., 122.6°W. by reconnaissance aircraft	20°N., 128°W.	Hurricane	
XI	Oct. 18-21	19°N., 112°W.	None	SS SYGMA and SS TEXAS TRADER 21st-0000Z near 20.7°N., 107.7°W.	1003 mb. SS SYGMA 21st-0000Z	19.5°N., 109°W.	Tropical Storm	
XII	Oct. 22-27	13°N., 95.5°W.	Mexican Coast near Mazanillo	127 knots from salvaged wind instruments in Manzanillo SS MARY BARBARA in Manzanillo Harbor estimated 150 knots	958 mb. SS MARY BARBARA 27th-1105Z	Northeast of Manzanillo	Hurricane	900 to 1000 lives lost at Manzanillo, Minitatlan and nearby communities. 7 Mexican vessels sunk. Property damage unknown.

TRACKS OF EASTERN NORTH PACIFIC TROPICAL CYCLONES, 1959

CENTRAL NORTH PACIFIC TROPICAL CYCLONES, 1959

Rue E. Rush
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There were three tropical cyclones (including hurricanes) in the Central North Pacific during 1959. The first, Clara (July 16-22), is described in the accompanying article on Tropical Cyclones in the Eastern North Pacific, 1959. The second, Dot, occurred during the first week in August and is described below. Patsy, the third storm, originated in the Western North Pacific (west of 180°) during September. It is, accordingly, described in the accompanying article Typhoons of the Western North Pacific, 1959, although it moved slightly east of 180°.

Dot was originally detected August 1, about 1200 mi. east-southeast of Hilo, Hawaii, on the basis of a report from the SS SONOMA. A plane of the U. S. Air Force 55th Reconnaissance Squadron penetrated the storm on August 2 and found winds of 120 kt. near the center. Thereafter, as the hurricane moved toward Hawaii, the Air Force continued to track it and made three "fixes" on its location each day.

Following its discovery, Dot moved almost due westward at about 9 kt., maintaining maximum winds in excess of 100 kt. On August 3, it turned to a west-northwesterly direction and increased its speed to about 12 kt. On the night of August 4-5, it passed south of the island of Hawaii, the eye being about 90 mi. from the southern tip of that island at closest approach.

As the storm approached the island of Hawaii, high surf appeared along the Puna and Kau (southeast) coasts, and as it passed the island, high surf set in on the Kona (southwest) coast. Wave damage on Hawaii included washing out a park area and a road along the southeast coast and damage to waterfront hotels and seawall in the Kona area, along with numerous shifting of loose rocks along coastal areas in the southwest. Some slight crop damage from flooding occurred, but the maximum 24 hr. precipitation amounts did not exceed 9 in., which is not particularly excessive for this island. Damage estimates ranged from $100 thousand to $200 thousand.

The storm curved to the northwest on August 5, and slowed to about 10 kt. It passed well to the south of Maui, Lanai, and Molokai. No substantial damage was reported from any of these islands. Increased rainfall and moderately high surf were the only effects.

On August 6 the storm turned more to the north-northwest, on a course directly toward Kauai. Rains, totaling 5 to 7 in. in a few hours, caused minor flood damage as the storm passed Oahu, the most populous of the Hawaiian Islands. The eye was about 75 mi. to the southwest at its nearest approach to Oahu. High surf on the Waianae (western) coast also caused some damage. Wind damage was also largely confined to the Waianae coast. Total damage was estimated at $100 thousand.

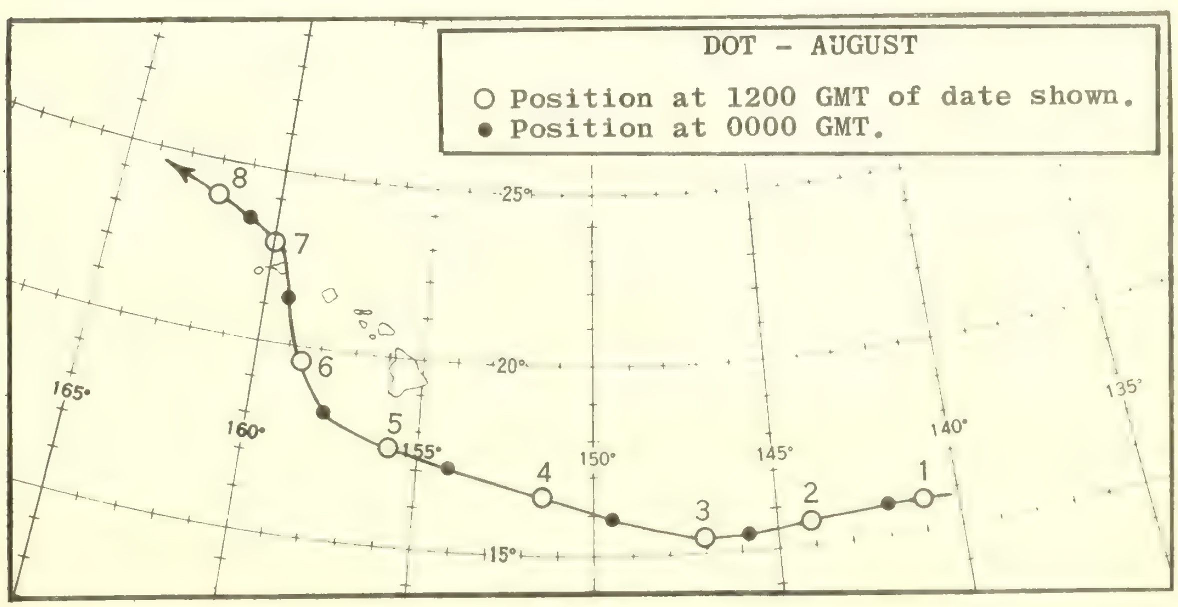
Early in the evening of August 6, Dot passed directly across Kauai. Maximum winds were estimated in excess of 90 kt. with an 87 kt. observed wind at Kilauea Lighthouse (on the northern part of the island). Terrain affected the winds considerably on Kauai, and the greatest damage occurred in areas where acceleration of north-northeast winds took place.

Wind, flooding, and high surf all contributed to the estimated $6 million in damage on Kauai. Extensive building damage, trees blown down, roads washed out, seawall and breakwater damage, and severe agricultural losses in sugar cane, pineapple, and fruit trees all contributed to the total. The eastern half of the island sustained nearly all the loss. Not a single life was lost, nor were there any severe injuries as a result of the storm.

On August 7, hurricane Dot turned to the west-northwest and dissipated quickly.

Among characteristics of the storm were the unusually large eye diameter, 35 to 40 mi., throughout the known track and the fact that the eye never became elongated in the direction of movement, even just prior to dissipation.

TRACK OF CENTRAL NORTH PACIFIC TROPICAL CYCLONE DOT, 1959



WESTERN NORTH PACIFIC TROPICAL CYCLONES, 1959

Based on the Annual Typhoon Report, 1959,
Prepared by the Joint Typhoon Warning Center,
Fleet Weather Central, Guam, M. I.

For the purposes of this summary, the western North Pacific is defined as the area extending from the east coast of the mainland of Asia eastward to 180 degrees and from the equator to the pole. In this area during 1959 there were 17 typhoons (tropical cyclones with windspeeds of 64 kt. or greater). All of the typhoons originated wholly in the western North Pacific and they represent all the typhoons detected anywhere in the area during 1959.

The movement of these typhoons is shown in Figure 1. Pertinent information for each typhoon is summarized in Table I. Additional information for each is given briefly in the succeeding paragraphs. In each instance the typhoon is identified by name and dates, the dates applying to the typhoon period. <u>All dates and times given are for the Greenwich meridian.</u> All distances are given in nautical miles.

TYPHOON TILDA, APRIL 15-21

On April 12, surface analysis indicated the existence of a closed low about 150 mi. south of Truk Island. At 0123 on the 14th, weather reconnaissance aircraft directed into the area located a center at 5.5°N., 148.2°E. Early the following day, it was established that the circulation carried winds of typhoon intensity.

Tilda proceeded to move northwestward at 7 kt., coming within 250 mi. of Guam. At this point, the typhoon turned west-northwestward and began a gradual recurvature to the north. Upon reaching 18.7°N., 137.5°E., Tilda became quasi-stationary for approximately 30 hr. during which time she was fixed 6 times by reconnaissance aircraft with the fixes falling inside a circle 30 mi. in diameter. At the same time, Tilda weakened considerably and by 0000 of the 23d had dissipated approximately 130 mi. southwest of Iwo Jima.

TYPHOON BILLIE, JULY 13-16

As early as July 9, analysis showed a weak, quasi-stationary low located between the islands of Yap and Koror. On the 12th, an eye was found by reconnaissance aircraft and 24 hr. later, surface winds in excess of 65 kt. were observed.

From her inception, Billie moved northwestward at 11 kt. At 0900 on the 15th, the typhoon was located approximately 18 mi. off the northern tip of Taiwan. Billie caused considerable damage there as she moved across the northern tip of the island to the China mainland. Tracking from land data indicated that the typhoon was recurving and would enter the Yellow Sea at approximately 32°N., 122°E. However, the orographic effect was taking its toll and Billie was considerably weakened. By 1800 of the 17th, after passing over North Korea, she had lost her tropical characteristics and had become an extratropical storm.

TYPHOON ELLEN, AUGUST 3-8

On August 1, a well-developed low pressure cell accompanied by a strong easterly wave was evident to the northwest of Guam. A reconnaissance aircraft was directed into the area and at 0535 of the 2d a definite eye with surface winds of 25 kt. was found. Within 24 hr., the circulation had developed into typhoon Ellen.

At 0200 of the 5th, after having moved northwestward at an average speed of 12 kt., Ellen passed abeam of Okinawa at a distance of 10 mi. to the east. The typhoon then moved northward and decelerated, finally stagnating southwest of Kyushu. She remained in this location for approximately 48 hr., blocked from further movement by a strong upper air ridge. By 0900 of the 8th, the ridge aloft had given way and Ellen began to accelerate towards the northeast. This carried her along the southern Japanese coast where she caused considerable damage. By 1100 of the 9th, Ellen reached the open sea east of Japan. By this time, she had become an extratropical low and was moving in excess of 20 kt.

TYPHOON GEORGIA, AUGUST 12-14

For several days, commencing on August 10, a weak, ill-defined low pressure system was forming in the vicinity of Guam. It was not until August 12 that reconnaissance aircraft located a closed eye at 22.4°N., 145.2°E., with maximum observed surface winds of 45 kt. Eight hours after initial detection, the circulation had intensified into typhoon Georgia.

For 24 hr. Georgia moved northwestward at 14 kt., passing within 50 mi. of both Iwo Jima and Peel Island. Then she turned to a more northerly course and accelerated to 25 kt. At 2230 of the 13th, typhoon Georgia, with winds near the center of 75 kt., passed approximately 45 mi. west of Tokyo, causing considerable damage. By 0600 of the 14th, having spent most of her energy crossing the Japanese mainland, Georgia had weakened to an extratropical storm.

TYPHOON IRIS, AUGUST 20-22

The 0000 surface chart of August 19 indicated a weak tropical low centered at approximately 16°N., 128°E. A reconnaissance aircraft was sent to investigate and, at 0200 of the 20th, typhoon Iris was located with winds near the center of 70 kt.

At first, Iris moved west-northwestward at 7 kt., blocked from any pronounced northward movement by a strong HIGH lying across southeastern Asia. However, this HIGH gradually weakaned and Iris started a gradual recurvature toward the northwest. In so doing she passed within 45 mi. of Taiwan, causing damage on that island. Iris then moved on to the coast of China where dissipation was rapid.

TYPHOON JOAN, AUGUST 26-30

On August 23, Guam's upper winds shifted from easterly to northerly and a surface center was apparent north-northeast of the island. At 0325 of the 25th, a circulation was located by reconnaissance aircraft, with maximum observed surface winds of 40 kt. Development was rapid and, within 23 hr., maximum winds had increased to 85 kt.

From the beginning, typhoon Joan assumed and maintained a northwesterly course foresighted for the island of Taiwan. She continued to intensify until 0800 of the 29th when surface winds of 170 kt. were observed and her central pressure lowered

to 891 mb. (26.31 in.). At this time Joan was moving at 17 kt. Six hours later, Joan slammed into the center of Taiwan's east coast. Despite the weakening caused by the high Taiwanese mountains, winds exceeding 50 kt. were reported by numerous stations and there was considerable damage. Joan then entered the China mainland and rapidly dissipated.

TYPHOON LOUISE, SEPTEMBER 1-4

On August 27, while Joan was situated approximately 400 mi. southeast of Taiwan, surface analysis indicated the presence of multiple cells along the intertropical convergence zone from the vicinity of Truk Island eastward. The circulations gradually merged and intensified and, at 0800 of the 1st, typhoon Louise was located. The winds near the center exceeded 65 kt.

From the beginning, Louise proceeded to move north-northwestward at speeds varying from 5 to 14 kt. At 1300 of the 3d, she crossed the northern coast of Taiwan and gradually weakened. Later, at 1200 of the 4th, Louise entered the China coast and began recurving toward the north-northeast. On September 6, after coming under the influence of the westerlies, Louise turned toward the east with continued weakening. By 1200 of the 7th, she had become an extratropical low imbedded in the polar front.

TYPHOON PATSY, SEPTEMBER 6-10

During the first week in September, a strong easterly wave in the vicinity of the 180th meridian was noted moving westerly at approximately 10 kt. It was also observed that the isobaric gradient surrounding the wave had increased, and that the area of strong gradient winds extended as far north as Midway Island. Thus on September 6, based on numerous pilot reports, it was ascertained that the circulation carried winds of typhoon intensity.

At first, typhoon Patsy was steered to the northeast at 15 kt. by a major trough in the westerlies located to the northeast of the typhoon. However, 48 hr. later, another major trough developed in the westerlies, this time to the northwest of Patsy, and subsequently became the dominant trough. Thus Patsy curved to the northwest under the influence of this new major trough. As the trough neared the longitude of the typhoon, Patsy decelerated rapidly and began recurving to the northeast. After making the turn, Patsy moved up the 180th meridian at 12 kt. as the trough stagnated and became stationary. Patsy then weakened rapidly and was transformed into an extratropical system.

TYPHOON SARAH, SEPTEMBER 12-18

On September 11, aircraft reconnaissance located a center approximately 70 mi. east of the island of Guam. At 1000 of the 11th, land radar indicated that this circulation passed just to the north of the island, causing gusty winds and scattered showers. By 0800 of the 12th, the circulation had intensified into typhoon Sarah.

At first, Sarah followed a gradual curve along the 125th meridian as she was steered by an upper air ridge at 26°N. However, after seemingly being on a course headed for the Korean Straits, Sarah took a straight path slightly to the west of Pusan, causing considerable damage to the port and its surrounding areas. The typhoon then accelerated rapidly moving eastward over Hokkaido as she was picked up by the jet stream lying over Japan. During this time, Sarah was weakening rapidly and by 1200 of the 18th, had become an extratropical storm.

TYPHOON VERA, SEPTEMBER 22-27

As early as September 20, surface map analysis indicated a diffuse area of low pressure lying between Guam and Truk. Throughout the 21st, this low pressure area drifted toward the island of Saipan and on September 22, reconnaissance aircraft located a closed eye approximately 110 mi. north-northeast of the island. Later that same day, the system intensified into typhoon Vera.

For the next 2 days, Vera maintained a northwesterly movement, very slowly increasing in speed from 11 to 13 kt. Also during this time, she was intensifying rapidly so that at 0600 of the 23d, reconnaissance aircraft reported a sea level pressure of 896 mb. (26.46 in.) and surface winds of 175 kt. On the 25th, a slow curvature toward the north took place, accompanied by rapid acceleration to a speed of 18 kt. The next day found Vera moving north-northeastward and continuing to accelerate. At approximately 0900 of the 26th, Vera crossed the Japanese coast just to the west of Shiono-Misaki. At this time, Shiono-Misaki reported a 3-hr. pressure drop of 41.8 mb. (1.2 in.) and sustained winds of 60 kt. from the southeast. At the time of passage inland, Vera was moving at a speed of 33-34 kt. She made a rapid transit across central Honshu, passing just to the west of Nagoya, and entered the Sea of Japan at about 1530 of the 26th, at a point due north of Toyama. Her track over the Sea of Japan was quite short-lived, since she was assuming an increasingly easterly component of movement and was now travelling at a speed of 35 kt. Accordingly, at approximately 2000 of the 26th, Vera reentered the coast of Honshu just to the north of Sakata. After a rapid overland passage, Vera regained the open sea and passed into the North Pacific Ocean at about 2300 of the 26th between Hachinohe and Kuji. By this time, rapid weakening was taking place and, by 0600 of the next day, Vera was becoming an extratropical low imbedded in the polar front.

Although Vera reached her peak intensity comparatively early in her lifetime, she maintained this intensity, to a large extent, for a protracted period of time and thereby caused widespread death and destruction when she struck Japan. The upper level charts, particularly the 200 mb. level, show strong divergence aloft over Vera. This divergence accompanied Vera until she reached Japan and came under the influence of the westerlies, and was probably the primary contributing factor in maintaining Vera as an extremely intense typhoon for the greater part of her lifetime.

TYPHOON AMY, OCTOBER 5-6

On October 1, a weak cyclonic circulation on the intertropical convergence zone was observed east of the Philippine Islands. Several days later, on October 3, reconnaissance aircraft reported a weak diffuse center with maximum surface winds of 30 kt. located at 17.5°N., 125°E. This cir-

culation subsequently became typhoon Amy.

Throughout her existence, Amy never developed into an intense typhoon due to the fact that she was always moving toward cold air which was being advected over the East China Sea by a strong Asiatic HIGH. Consequently, by the time she reached latitude 27°N., Amy had degenerated into an extratropical low.

TYPHOON CHARLOTTE, OCTOBER 10-18

As early as October 4, surface analysis indicated the existence of a tropical low just to the southeast of the islands of Yap and Koror. It was not until the 10th, however, that the low intensified into typhoon Charlotte.

For the next several days, Charlotte moved toward the northwest at an average speed of 9 kt. On October 13, as she approached the western extremity of the semipermanent Pacific HIGH, recurvature and deceleration commenced. The next day, Charlotte reached the apex of her curvature and thereupon, began movement toward the north-northeast. At approximately 1200 of the 16th, Charlotte passed within 35 to 40 mi. of the southern tip of Okinawa, causing considerable damage on the island. On the 18th, Charlotte finally came under the influence of the strong westerlies aloft and was rapidly accelerated toward the northeast. An influx of colder air lying to the north and northwest caused steady weakening and, by October 19, Charlotte was imbedded in the polar front as an extratropical low.

TYPHOON DINAH, OCTOBER 15-21

At 2230 of the 14th, reconnaissance aircraft located a closed eye approximately 600 mi. southeast of the island of Guam. Subsequent investigations indicated rapid development to a typhoon at 1800 of the 15th.

At first, typhoon Dinah moved west-northwestward at an average speed of 17 kt., passing approximately 120 mi. to the south of Guam. Upon reaching 135°E. however, Dinah turned sharply northward and decelerated. She then drifted up this meridian to 26°N., where cold air advection caused gradual weakening. By 0000 of the 22d, Dinah had become an extratropical storm and was moving north-northeastward at 30 kt.

TYPHOON EMMA, NOVEMBER 10-13

As early as October 30, it was evident that a new tropical disturbance was forming south of Kwajalein Atoll. Reconnaissance aircraft were sent to investigate and at 0730 of the 5th, after 6 days of tracking, a definite circulation was finally found. Intensification proceeded rather slowly and it was not until 0000 of the 10th that winds of typhoon strength were found near the center.

From the beginning, typhoon Emma started a gradual curvature to the north and moved at an average speed of 11 kt. Once she reached latitude 23°N., however, she came under the influence of a strong westerly flow and quickly accelerated to the northeast. At 1800 of the 12th, the typhoon passed within 35 mi. of Okinawa and caused considerable damage on the island. Following her passage southeast of Okinawa, Emma continued to accelerate and weakened rapidly into an extratropical storm.

TYPHOON FREDA, NOVEMBER 14-17

On November 12, a tropical low was evident to the south of the island of Yap. Reconnaissance aircraft was sent to investigate and at 0120 of the 13th, a closed circulation was found in the area. In less than 24 hr., the system had intensified into typhoon Freda.

From her inception, Freda showed a gradual northward recurvature at a steady speed of 10 to 12 kt. This movement took the typhoon directly over the northern Philippines where she caused considerable damage. However, the orographic effect of the land served to slow and weaken Freda. Then, as she moved northward, she was caught by the zonal westerlies which lay as far south as southern Taiwan. This flow rapidly recurved Freda to the east of Taiwan and then directly over Okinawa. Steady weakening continued so that by 0000 of the 20th Freda was well on her way to becoming an extratropical low.

TYPHOON GILDA, DECEMBER 13-21

At 1800 on the 10th, Truk's pressure showed a decided drop. Based on this information, reconnaissance aircraft were sent to investigate and, at 2130 of the 13th, typhoon Gilda was located with maximum observed surface winds of 65 kt.

Gilda proceeded to move westward at 10 kt. directly for the Philippine Islands. On December 18, she struck the central Philippines, causing considerable damage. The typhoon then moved into the South China Sea where she began to weaken gradually. On December 21, having crossed the South China Sea, Gilda entered the coast of Viet Nam and dissipated rapidly.

TYPHOON HARRIET, DECEMBER 25-31

Harriet was originally identified from analysis of the surface charts of December 21 as a weak tropical low located between Truk and Ponape. Thereafter, the disturbance drifted past Truk and, by December 25, had increased to typhoon intensity.

At first, Harriet moved northwestward at 10 kt. By 1800 of the 26th, she was located some 180 mi. south of Guam, at which point she turned abruptly westward and headed for the Philippine Islands. On December 31, typhoon Harriet smashed into the central Philippines, causing considerable damage. By 0000 of the 2d she had traversed the Islands and was dissipating rapidly over the South China Sea.

EDITOR'S NOTE: Figure 2 shows and lists the named tropical storms (windspeeds from 34 kt. to 63 kt.) and tropical depressions (windspeeds less than 34 kt.) which occurred in the western North Pacific and were not described in the above article.

WESTERN NORTH PACIFIC TYPHOONS, 1959

Name	Dates during Period of Typhoon Winds (GMT)	Islands and Coasts Seriously Affected	Values and Dates (GMT) of: Highest Surface Windspeed[1] (kt.)	Lowest Surface Pressure[1] (mb.)	Lowest 700-mb. Height[1] (ft.)
TILDA	4/15-21		175/19	964/20	8080/17-19
BILLIE	7/13-16	Taiwan, Ryukyu Islands, Southern Japan	100/14	968/14	9270/15
ELLEN	8/3-8	Southern Japan	110/4	964/6-7	9120/7
GEORGIA	8/12-14	Central Japan	120/13	953/13	8960/13
IRIS	8/20-22	Philippines, China	100/21-22	966/22	9130/22
JOAN	8/26-30	Taiwan, China	200/29	891/28	6850/28
LOUISE	9/1-4	Taiwan	125/3	964/3	9120/3
PATSY	9/6-10		150/6	960/6	9250/9
SARAH	9/12-18	Ryukyu Islands, Korea, Southern Japan	170/4	905/14-15	7510/14
VERA	9/22-27	Japan	175/23	896/23	7180/23
AMY	10/5-6		95/6	977/6	9670/6
CHARLOTTE	10/10-18	Okinawa	175/12-14	905/13	7320/13
DINAH	10/15-21		200/19	913/20	7600/20
EMMA	11/10-13	Okinawa	130/11	959/12	8980/12
FREDA	11/14-17	Philippines	125/15-16	936/16	8530/15
GILDA	12/13-21	Philippines	165/17	914/16	7540/16
HARRIET	12/25-31	Philippines	150/28-30	926/28	8140/28

[1]Values reported by reconnaissance aircraft.

TABLE 1

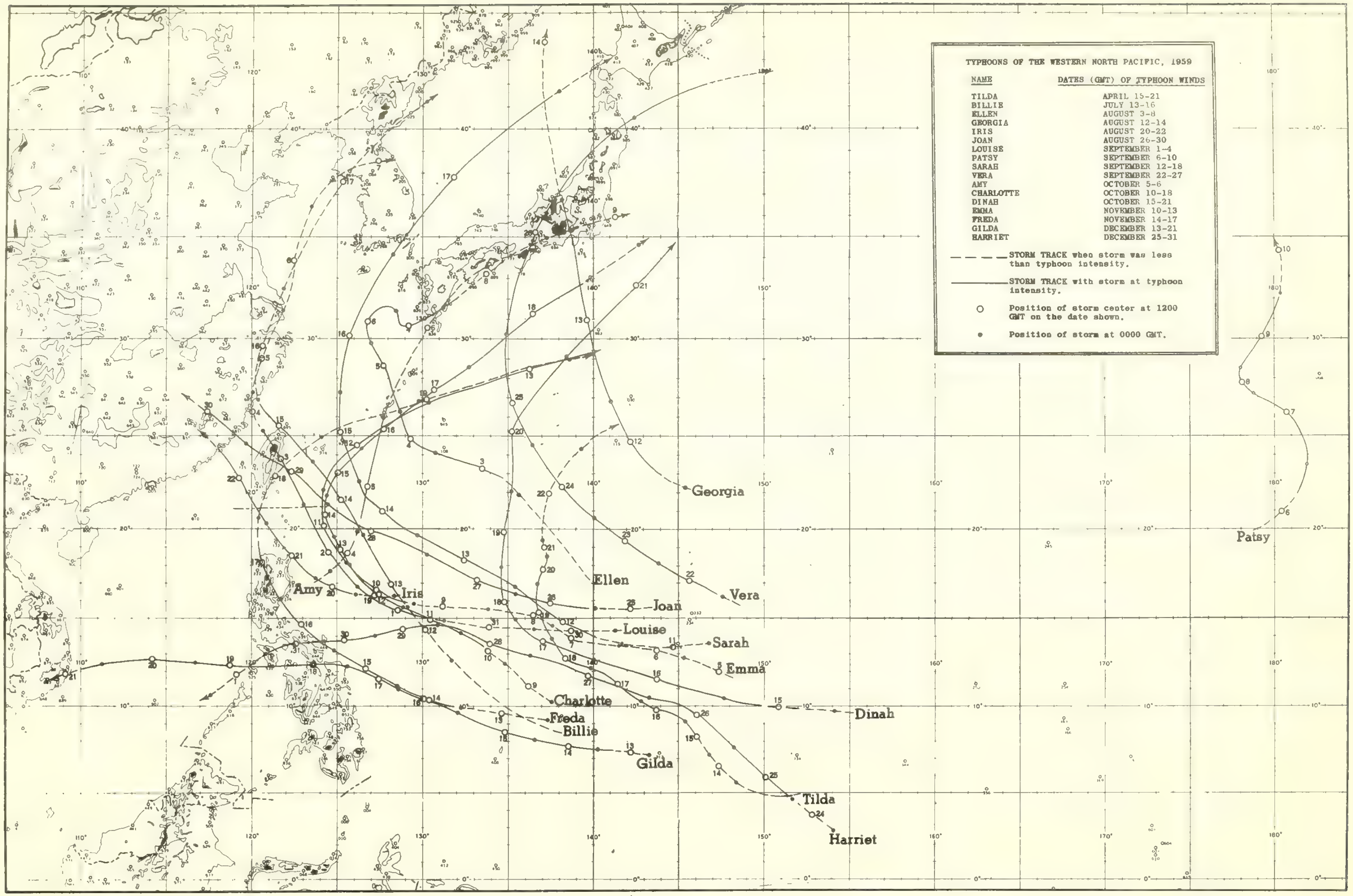


FIGURE 1. TRACKS OF WESTERN NORTH PACIFIC TYPHOONS, 1959

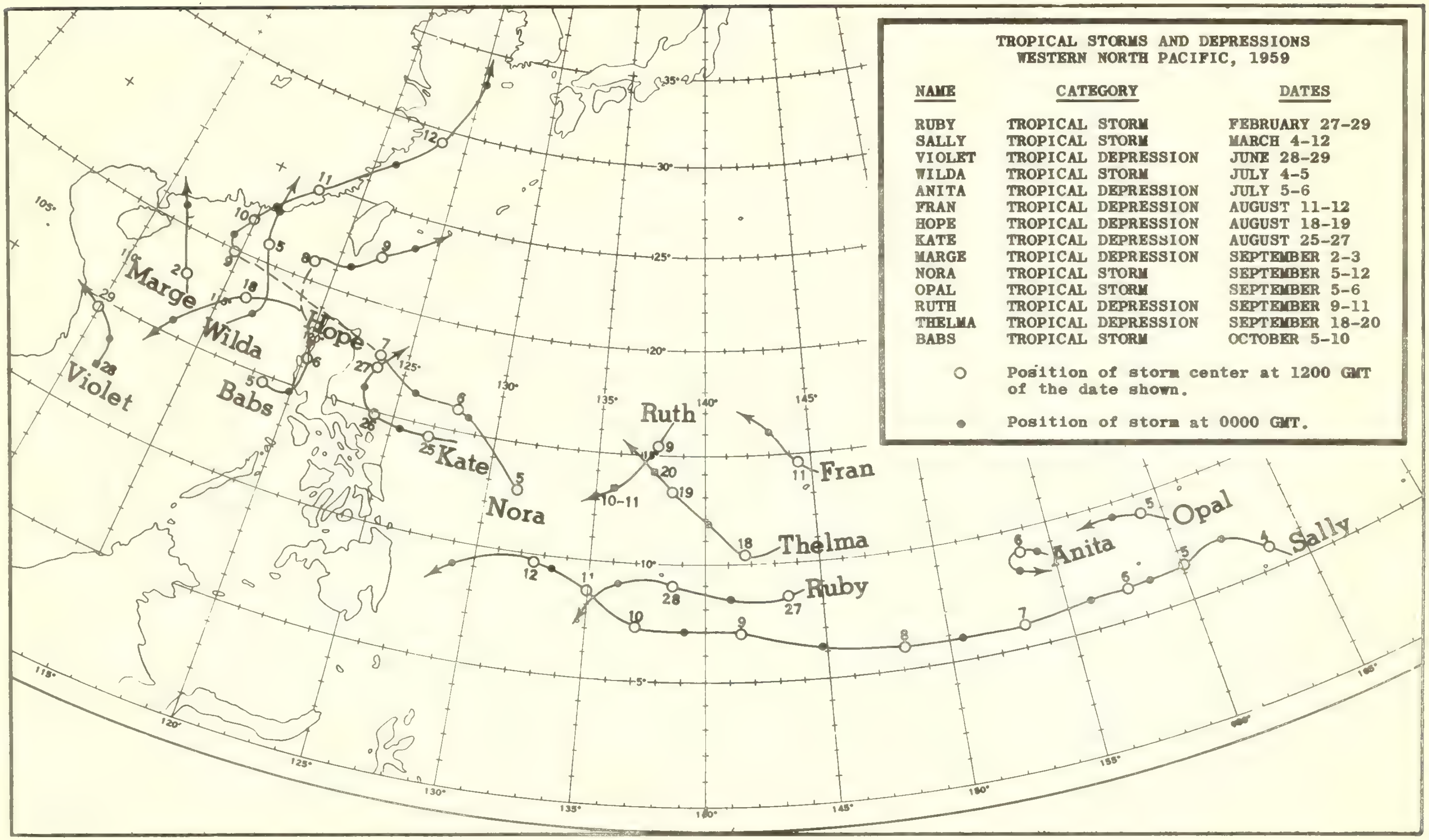


FIGURE 2. TRACKS OF WESTERN NORTH PACIFIC TROPICAL STORMS AND DEPRESSIONS, 1959

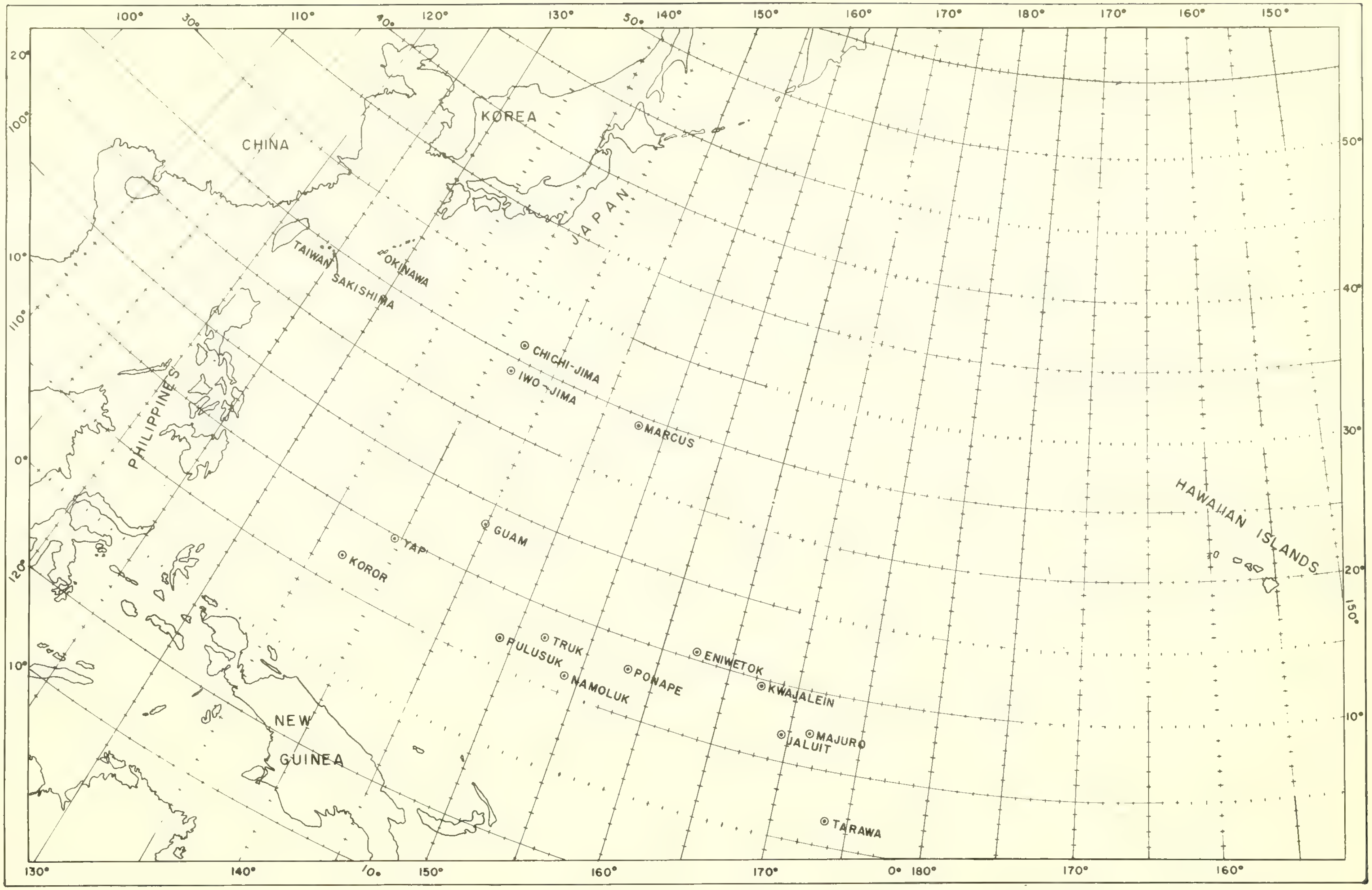


FIGURE 3. WESTERN NORTH PACIFIC STATION LOCATION CHART

GENERAL SUMMARY OF FLOOD LOSSES FOR 1958

Monetary losses from floods in the United States during 1958, estimated at $218,254,900, was the 10th greatest flood loss in 56 years of record. It is one-third less than the national annual average of $350 million based on the 10-year period 1949-1958 (adjusted to the 1958 price index). The total loss of life this year was 47 compared to 82 in 1957, 42 in 1956, and 302 in 1955. It was considerably smaller than the national annual average of 85 lives lost during the last 34 years (1925-1958). The savings resulting from the flood forecasting and warning service was, as compiled from fragmentary information, approximately $35 million.

The most destructive floods during 1958 were the June floods in the Wabash and White River Basins in Indiana. The main damage occurred to crops as flood crests moved down the rivers, overflowing sections of populated cities, spreading out over crops, and destroying them, in most cases too late in the season for replanting. The $48 million crop loss was probably the greatest of all time in this section of the country. The flood that caused the greatest loss of life during 1958 was the flash-flood on the East Nishnabotna River in Iowa which claimed 19 lives. This was one of the most tragic floods in Iowa history and resulted from a series of thunderstorms which dumped over 12 inches of rain in a 3-hour period.

ESTIMATED FLOOD LOSSES FOR 1958 (PROPERTY LOSSES IN THOUSANDS OF DOLLARS)

River and drainage	Urban Property: Residential Fixed	Urban Property: Residential Movable	Urban Property: Commercial Fixed	Urban Property: Commercial Movable	Urban Property: Public	Rural Property: Crops Growing	Rural Property: Crops Stored	Rural Property: Livestock	Rural Property: Other Fixed	Rural Property: Other Movable	Other Property: RR's, bridges, Highways, etc.	Other Property: Public Utilities	Miscellaneous	Unclassified	Total Loss	Lives Lost
ST. LAWRENCE DRAINAGE																
Lake Erie																
St. Marys River	...	10.0	...	...	...	...	...	...	...	...	...	...	...	...	10.0	...
Total	...	10.0	...	...	...	...	...	...	...	...	...	...	...	...	10.0	...
ATLANTIC SLOPE DRAINAGE																
Ramapo River	1.0	2.0	...	...	...	...	...	...	...	...	...	...	...	...	3.0	...
Susquehanna and Chemung Rivers	39.3	0.5	6.5	2.0	7.0	...	...	...	...	...	1.0	...	8.0	...	64.3	...
Rock Creek (D. C. and Maryland)	...	...	...	...	10.0	...	...	...	...	...	90.0	...	...	...	100.0	...
Tar River	17.0	4.5	1.0	1.0	10.0	232.0	...	0.3	15.0	...	1.8	1.0	6.1	...	289.7	...
Neuse River	20.0	2.0	4.0	4.5	8.5	1,453.3	590.9	105.5	323.6	6.2	7.0	...	86.5	...	2,612.0	...
Yadkin River	...	...	...	...	...	...	...	...	...	...	...	...	...	325.0	325.0	...
Pee Dee, Little Pee Dee and Waccamaw Rivers	...	...	...	...	...	...	...	...	...	...	...	...	...	471.0	471.0	...
Catawba, Broad and Congaree Rivers	...	...	1.0	...	...	17.8	...	0.3	10.0	...	...	0.5	0.5	...	30.1	...
Salkehatchie and Edisto Rivers	...	...	...	...	...	...	...	...	...	...	...	...	...	169.0	169.0	...
Savannah and Ogeechee Rivers	...	...	...	...	...	...	...	20.0	...	...	...	...	...	...	20.0	...
Total	77.3	9.0	12.5	7.5	55.5	1,703.1	590.9	126.1	348.6	6.2	99.8	1.5	101.1	965.0	4,084.1	...
EAST GULF OF MEXICO DRAINAGE																
Oostanaula River	...	...	...	...	...	296.4	...	...	...	...	17.1	...	...	...	313.5	...
Tallapoosa River	...	...	...	...	...	21.5	...	...	...	...	2.1	...	...	...	23.6	...
Alabama River	...	...	...	...	...	88.6	...	...	...	...	10.3	...	...	...	98.9	...
Tombigbee and Black Warrior Rivers	...	...	...	...	...	1,047.4	...	...	...	...	58.0	...	...	...	1,105.4	...
Gordons Creek (Hattiesburg, Miss.)	10.0	...	...	20.0	...	...	...	...	...	...	...	...	...	...	30.0	...
Bogue Chitto and Pearl Rivers	57.3	39.0	...	...	531.9	914.3	...	...	138.6	...	38.3	1.0	142.5	...	1,862.9	...
Total	67.3	39.0	...	20.0	531.9	2,368.2	...	...	138.6	...	125.8	1.0	142.5	...	3,434.3	...
MISSISSIPPI SYSTEM																
Upper Mississippi Basin																
Bear and Cascade Creeks (Rochester, Minn.)	...	...	...	...	10.0	...	...	...	...	...	...	...	...	...	10.0	...
Zumbro and Root Rivers	...	...	...	...	7.5	...	...	...	...	...	...	...	...	...	7.5	...
Plum Creek (Carroll County, Ill.)	...	...	...	...	...	125.0	...	5.0	5.0	20.0	...	...	...	...	155.0	...
Middle River (Iowa)	...	...	...	...	...	A 431.0	...	...	B 834.1	...	...	...	...	...	C 1,265.1	...
Iroquois River	10.0	5.0	10.0	20.0	20.0	120.0	5.0	1.0	10.0	2.0	20.0	...	7.0	...	230.0	...
Sangamon River	50.0	10.0	5.0	5.0	10.0	564.9	2.0	4.3	17.3	2.0	100.0	10.0	3.0	...	783.5	...
Illinois River	52.3	5.2	1.0	1.2	1.3	1,217.5	5.0	7.0	2.0	2.0	37.0	7.0	12.0	...	1,350.5	...
Meramec River	...	...	...	1.5	2.0	193.0	10.0	...	7.0	2.0	...	...	...	...	215.5	...
Kaskaskia River	12.0	...	...	...	2.0	3,637.5	10.0	...	...	...	21.0	...	20.0	...	3,702.5	...
Big Muddy River	...	...	...	...	...	7.5	...	...	...	...	...	...	...	...	7.5	...
Mississippi River	...	...	65.0	...	3,000.0	7,797.0	...	...	250.0	5.0	1,751.0	50.0	125.0	...	13,043.0	...
Total	124.3	20.2	81.0	27.7	3,052.8	14,093.4	32.0	17.3	1,125.4	33.0	1,929.0	67.0	167.0	...	20,770.1	...
Missouri Basin																
Sun River (Montana)	...	...	...	...	...	0.3	...	...	...	...	...	...	0.2	...	0.5	...
Gering Drain (Nebraska)	...	...	...	...	...	82.0	...	...	477.5	...	57.0	...	...	...	616.5	...
Elkhorn River	1.0	...	...	...	7.5	10.0	...	7.5	1.4	...	15.0	...	...	...	42.4	...
Nishnabotna River	839.3	...	391.0	...	19.8	2,455.3	...	...	459.1	...	1,341.4	81.7	260.8	...	C 5,848.4	19
Nemaha River and tributaries	...	...	...	...	...	E 838.9	...	...	...	...	44.7	...	...	...	C 883.6	...
Saline River	F 2.1	0.2	0.8	0.5	1.0	E 395.2	...	...	0.5	...	19.0	0.3	...	...	D 419.6	...
Solomon River	...	...	...	...	...	E 115.2	...	...	...	...	4.4	...	...	...	C 119.6	...
Minor tributaries of Smoky Hill River	...	...	...	...	...	E 228.8	...	...	...	...	3.7	...	...	...	C 232.5	...
Republican River and tributaries	623.6	...	266.5	...	69.7	604.5	...	1.0	3.0	...	210.2	...	61.8	...	D 1,840.3	...
Big Blue River and tributaries	28.5	...	41.4	...	50.0	E 453.0	...	...	...	...	66.7	...	...	...	D 639.6	...
Kansas River and minor tributaries	70.9	...	183.2	...	1.3	E 1,516.1	...	...	...	...	191.0	...	18.3	...	D 1,980.8	...
Grand River and tributaries	...	...	...	...	...	E 4,671.2	...	...	...	...	406.6	...	155.9	...	C 5,233.7	...
Chariton River	...	...	...	...	...	E 881.8	...	...	...	...	6.0	...	27.7	...	C 915.5	...
Marais des Cygnes River and tributaries	13.4	...	32.7	...	25.6	E 1,109.8	...	...	...	...	18.2	...	3.0	...	C 1,202.7	...
Osage River and tributaries	...	...	...	...	...	E 7,096.9	...	...	...	...	67.2	...	0.5	...	C 7,164.6	2
Gasconade River and tributaries	...	...	...	...	...	E 2,577.9	...	...	...	...	5.0	...	...	...	C 2,582.9	...
Missouri River and minor tributaries	137.7	...	4,347.1	...	46.1	E11,157.4	...	...	...	...	170.4	...	236.8	...	C 16,095.5	...
Total	1,716.5	0.2	5,262.7	0.5	221.0	34,194.3	...	8.5	941.5	...	2,626.5	82.0	765.0	...	45,818.7	21
Ohio Basin																
Allegheny River	56.6	22.1	1.0	2.6	36.6	20.0	8.0	6.5	10.0	5.0	46.2	...	53.8	...	268.4	1

See footnotes at the end of table.

ESTIMATED FLOOD LOSSES FOR 1958 (PROPERTY LOSSES IN THOUSANDS OF DOLLARS)

River and drainage	Urban Property: Residential Fixed	Urban Property: Residential Movable	Urban Property: Commercial Fixed	Urban Property: Commercial Movable	Urban Property: Public	Rural Property: Crops Growing	Rural Property: Crops Stored	Rural Property: Livestock	Rural Property: Other Fixed	Rural Property: Other Movable	Other Property: RR's, bridges, Highways, etc.	Other Property: Public Utilities	Miscellaneous	Unclassified	Total Loss	Lives Lost
Ohio Basin--Contd.																
Monongahela River	....	....	....	....	....	....	....	....	....	....	....	....	33.0	....	33.0	....
Little Kanawha River	....	....	0.1	....	....	1.5	....	....	....	....	....	....	....	....	1.6	....
Hocking River	....	....	....	....	....	35.5	....	....	1.0	1.2	....	....	....	....	37.7	....
Kanawha Two Mile Creek and other streams in Charleston, W.Va. area	431.0	....	....	162.5	34.0	29.0	....	....	....	....	200.0	21.5	....	....	878.0	1
Grannys Creek (nr. Newton, W. Va.)	....	....	....	....	1.0	0.1	....	....	3.0	0.5	....	....	....	....	4.6	7
Big Sandy River and tributaries	520.0	12.0	338.0	15.0	235.0	....	....	62.0	....	....	412.0	210.0	122.0	....	1,926.0	....
Brashears Creek (Taylorsville, Ky.)	1.0	....	....	....	....	10.0	....	....	....	....	....	....	1.0	....	12.0	....
Wabash and White Rivers	1,370.0	500.0	2,000.0	300.0	....	48,090.0	100.0	50.0	300.0	100.0	2,000.0	100.0	2,250.0	....	57,160.0	....
Ohio and lower Green Rivers	902.4	244.4	1,303.5	372.6	1,093.3	1,527.5	2.7	4.5	108.0	14.5	460.9	227.5	1,665.4	....	7,927.2	1
Total	3,281.0	778.5	3,642.6	852.7	1,399.9	49,713.6	110.7	123.0	422.0	1[illegible]1.2	3,119.1	559.0	4,125.2	....	68,248.5	10
White Basin																
Black and Spring Rivers	0.2	....	....	....	....	3.0	....	7.3	1.6	3.0	4.0	....	....	....	19.1	....
White River	....	....	....	....	....	8.0	....	....	....	....	....	....	....	....	8.0	....
Total	0.2	....	....	....	....	11.0	....	7.3	1.6	3.0	4.0	....	....	....	27.1	....
Arkansas Basin																
Wolf Creek (Colo.)	0.3	....	0.1	....	....	....	....	....	....	....	0.1	0.2	....	....	0.7	....
Verdigris River	....	....	....	....	11.0	18.0	....	....	....	....	14.0	....	....	....	43.0	....
Neosho River	60.0	....	....	....	3.5	50.0	6.0	....	....	....	15.0	....	10.0	....	144.5	....
Illinois River	....	....	....	....	....	8.0	....	0.4	....	....	....	....	....	....	8.4	....
North Canadian River	0.8	1.2	0.7	....	6.0	....	....	1.5	....	....	....	....	1.0	....	11.2	....
Canadian River	....	1.0	....	....	3.0	....	....	0.5	0.5	....	....	....	....	....	5.0	....
Arkansas River	....	....	....	....	....	120.0	....	....	....	....	....	....	....	....	120.0	....
Total	61.1	2.2	0.8	....	23.5	196.0	6.0	2.4	0.5	....	29.1	0.2	11.0	....	332.8	....
Red Basin																
Small streams in southern Arkansas	....	....	....	....	....	....	....	....	....	....	....	....	....	2,000.0	2,000.0	....
Ouachita River	....	....	....	....	....	2,406.0	....	12.0	17.5	581.5	....	....	8.0	8.0	3,033.0	....
Red River	217.2	49.6	445.8	274.4	1,600.4	1,465.0	16.3	38.9	64.9	25.0	970.7	324.4	1,242.5	....	D 6,735.1	....
Total	217.2	49.6	445.8	274.4	1,600.4	3,871.0	16.3	50.9	82.4	606.5	970.7	324.4	1,250.5	2,008.0	11,768.1	....
Lower Mississippi Basin																
St. Francis River	....	....	....	....	....	120.0	....	....	....	....	....	....	1.0	....	121.0	....
Big Sunflower River	....	....	....	170.0	....	7,709.0	....	....	....	....	183.0	....	....	....	8,062.0	....
Yazoo River	....	....	....	50.0	....	2,659.0	....	....	....	....	20.0	....	....	....	2,729.0	....
Big Black River	....	....	....	....	....	812.0	....	....	....	....	....	....	....	....	812.0	....
Mississippi River	....	....	....	....	....	250.0	....	....	....	....	....	....	5.0	....	255.0	....
Total	....	....	....	220.0	....	11,550.0	....	....	....	....	203.0	....	6.0	....	11,979.0	....
WEST GULF OF MEXICO DRAINAGE																
Sabine River	48.0	10.0	150.2	123.6	384.6	321.0	3.6	8.8	14.7	5.6	220.3	73.6	282.0	....	1,646.0	....
Trinity River and tributaries	166.0	60.0	27.0	49.5	625.0	3,075.0	....	260.0	125.0	60.0	580.0	20.0	120.0	....	5,167.5	2
Brazos River	....	....	....	....	....	432.0	....	60.0	440.0	11.0	11.0	11.0	....	....	965.0	....
Barton Creek	....	....	....	....	20.0	....	....	....	....	....	....	....	....	45.0	65.0	....
Lavaca and Navidad Rivers	1.5	0.5	1.0	....	3.0	4.5	....	2.0	1.5	0.5	....	....	....	....	14.5	....
San Antonio and Medina Rivers	10.0	27.0	....	....	93.0	10.0	....	....	9.0	....	0.5	0.5	1.0	....	151.0	1
Guadalupe River and tributaries	40.0	7.0	3.0	....	96.0	93.0	....	10.5	22.0	....	1.5	....	13.6	....	286.6	2
Nueces and Frio Rivers & tributaries	55.0	57.0	75.5	32.5	525.5	202.0	5.5	16.5	210.0	21.0	275.0	12.0	89.0	....	1,576.5	....
Devils River	....	....	....	....	....	....	....	0.5	4.5	....	4.0	....	....	....	9.0	....
Rio Grande River	760.0	70.8	100.0	100.0	316.5	4,045.0	10.0	1.0	120.5	35.0	206.0	65.0	2,416.0	....	8,245.8	1
Total	1,080.5	232.3	356.7	305.6	2,063.6	8,182.5	19.1	359.3	947.2	133.1	1,258.3	182.1	2,921.6	45.0	18,126.9	6
GREAT SALT LAKE BASIN																
Bear River	....	....	....	....	....	....	....	....	....	....	7.9	....	....	....	7.9	....
Weber River	....	....	....	....	....	....	....	....	....	....	4.1	....	....	....	4.1	....
Total	....	....	....	....	....	....	....	....	....	....	12.0	....	....	....	12.0	....

See footnotes at the end of table.

ESTIMATED FLOOD LOSSES FOR 1958 (PROPERTY LOSSES IN THOUSANDS OF DOLLARS)

River and drainage	Urban Property					Rural Property					Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges. Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
GULF OF CALIFORNIA DRAINAGE																
Colorado Basin																
Indian Wash (Grand Junction, Colo.).	10.0	....	10.0	....	10.0	....	....	....	....	....	....	....	....	....	30.0	....
Gunnison River....................	....	....	....	....	2.0	1.5	....	....	....	....	....	....	0.5	....	4.0	....
Dolores River.....................	....	....	....	....	....	....	....	....	....	....	205.6	....	....	....	205.6	....
Total	10.0	....	10.0	....	12.0	1.5	....	....	....	....	205.6	....	0.5	....	239.6	....
PACIFIC SLOPE DRAINAGE																
Coastal Drainage																
Mojave River......................	....	....	....	....	41.1	....	....	....	....	....	10.0	....	....	....	51.1	....
Carbon Canyon Creek(Orange Co.,Calif)	....	....	1.2	....	....	12.8	....	1.0	....	....	....	....	....	....	15.0	....
Dominguez Creek (Los Angeles,Calif.)	....	....	....	....	20.0	....	....	....	....	....	....	....	....	....	20.0	....
Santa Maria and Sisquoc Rivers......	....	....	2.5	....	30.8	40.9	....	....	....	....	....	3.0	32.8	....	110.0	....
Small streams in San Francisco Bay area....................	....	....	....	....	....	....	....	....	....	....	365.1	....	....	....	365.1	....
Russian River and tributaries.......	240.0	....	150.0	....	31.0	1,312.5	....	15.0	19.0	....	1,448.0	29.0	642.0	....	3,886.5	....
Eel River.........................	....	....	....	....	....	46.0	....	....	....	....	....	....	....	....	46.0	....
Evans Creek (Rogue River Basin).....	....	....	....	....	12.5	....	....	....	....	....	....	....	....	....	12.5	....
Total	240.0	....	153.7	....	135.4	1,412.2	....	16.0	19.0	....	1,823.1	32.0	674.8	....	4,506.2	....
Monterey Bay																
Pajaro and San Lorenzo Rivers and tributaries....................	63.6	7.8	82.5	33.8	261.0	....	....	....	2.5	....	250.0	....	68.5	....	769.7	....
Total	63.6	7.8	82.5	33.8	261.0	....	....	....	2.5	....	250.0	....	68.5	....	769.7	....
San Pablo Bay																
Napa River and tributaries..........	....	....	....	....	543.8	....	....	....	....	....	....	....	....	....	543.8	....
Total	....	....	....	....	543.8	....	....	....	....	....	....	....	....	....	543.8	....
Tulare Lake																
Tule River and other small creeks...	....	....	....	....	....	....	....	....	....	....	....	....	....	5.0	5.0	....
Total	....	....	....	....	....	....	....	....	....	....	....	....	....	5.0	5.0	....
Sacramento and San Joaquin Basins																
Sacramento and San Joaquin Rivers...	3,245.0	....	1,324.0	....	....	....	....	....	....	13,750.0	405.0	7,200.0	....	1,254.0	D 27,178.0	9
Total	3,245.0	....	1,324.0	....	....	....	....	....	....	13,750.0	405.0	7,200.0	....	1,254.0	27,178.0	9
Columbia Basin																
Weiser River......................	....	....	....	....	....	....	....	....	....	....	2.0	....	....	....	2.0	....
Pine Creek (Baker, Ore.)...........	....	....	....	....	....	....	....	....	....	....	25.0	....	....	....	25.0	....
Willamette River and tributaries....	....	....	....	....	....	20.0	....	1.5	....	....	104.0	21.5	6.0	....	153.0	....
Columbia and Umatilla Rivers and McKay Creek....................	30.0	10.0	....	....	25.0	25.0	....	1.0	....	....	110.0	....	20.0	....	221.0	1
Total	30.0	10.0	....	....	25.0	45.0	....	2.5	....	....	241.0	21.5	26.0	....	401.0	1
Grand Total	10,214.0	1,158.8	11,372.3	1,742.2	9,905.8	127,341.8	775.0	713.3	4,029.3	14,653.0	13,342.0	8,470.7	10,259.7	4,277.0	218,254.9	47

A. Includes all crop losses
B. Includes all "other" property
C. Figures furnished by U.S.Engineers
D. Figures coordinated with U.S.Engineers
E. Includes all agricultural losses
F. Includes all urban losses

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS
YEAR 1959

The most damaging floods during 1959 occurred during January in the Ohio Basin. Record to near record stages occurred along several streams in southeastern Indiana, Ohio, and Pennsylvania. The flooding in the Whitewater Basin in Indiana and in the Scioto Basin in Ohio was generally the highest since 1913. The flooding along the East Fork of the White River in Indiana was the worst in a decade. Previous maximum stages in the Beaver River and the upper Allegheny River Basin in Pennsylvania were equalled or exceeded. Extensive and serious flooding occurred along the entire length of the Sandusky River in Ohio with near record stages in the headwaters. Severe local flooding occurred along small streams in the Cleveland, Ohio, area. Severe flash floods occurred on several small streams in Erie County in New York.

Severe flooding occurred in the Wabash Basin in Indiana during February. It was the greatest flood in 46 years at numerous points. Flooding was complicated by hugh ice jams which were the worst in memory in at least one or two areas. Flooding in the St. Marys and upper Maumee Basins in Indiana and Ohio was generally the highest since May 1943, and in the lower portion at Napoleon, Ohio, the highest since March 1913. Flood damages ranked second to the flood of 1913. The second serious flood in 3 weeks occurred on the Sandusky River in Ohio. Ice gorging was a major factor. Flooding elsewhere was mostly minor.

Significant floods occurred in the Suwannee and Alafia Rivers in Florida during March. The crests on the Suwannee River were the highest since the record flood of 1948. About 30 families were evacuated. Considerable areas of farmland were inundated. The floods on the Turkey River in Iowa and on the Pecatonica and Rock Rivers in Illinois equalled the all time previous high records.

Major flooding occurred during April in streams in the Puget Sound drainage in Washington. This was the highest water in the Skagit Valley since November 1955 and in the Snohomish Valley since February 1951. Near record high crests were reached on the Pecatonica in Wisconsin and on the Rock River in Illinois. Severe floods occurred in the upper Wabash Basin in Indiana.

One of the worst floods since 1951 occurred on the Cottonwood River in Kansas and on the upper Washita River in Oklahoma during May. According to local residents the flooding on White Shield Creek in Oklahoma was of record proportions. Major flooding occurred along the upper Wabash River in Indiana. Severe flash floods occurred in eastern Texas early in May. Near record flooding occurred on the Black Vermillion River in Kansas towards the end of the month.

Most important during June were the flash floods in southeastern Mississippi and western Pennsylvania. The flash floods in Mississippi occurred along the tributary streams of the Leaf and Pascagoula Rivers and were due to excessive rains accompanying tropical storm Arlene. In Pennsylvania, the flash floods in the headwaters of the Allegheny and Beaver Rivers were due to heavy local rains.

Near record flooding occurred along the Caney River in Oklahoma and serious flooding along the Chikaskia and Deep Fork Rivers in Oklahoma during July. Widespread flooding occurred in these basins and a large number of roads and highways were inundated and many families were forced from their homes. Elsewhere in Oklahoma, flash flooding in the Stillwater and Okmulgee Rivers caused many people to evacuate their homes. Flooding along major streams in Oklahoma was mostly light.

Numerous flash floods were reported during August in Arizona, Wisconsin, Iowa, Illinois, Nebraska, Pennsylvania, and Virginia. Flooding on the Weldon River in Missouri was very extensive, generally exceeding all previously known floods.

Severe flooding occurred during September along Walnut Creek in west-central Kansas following heavy local rains. Two-thirds of Albert, Kans., was under water and nearly all families were evacuated. Considerable flooding occurred along the path of hurricane Gracie as it moved through the Carolinas and Virginia the latter part of the month.

Near record flooding occurred along the main stem of the Arkansas River and record flooding on tributaries in the vicinity of Tulsa, Okla., during October. Several cities were severely damaged from flash flooding. The flood on the Pemigewasset, the Baker, and Mad Rivers in New Hampshire was considered by "old timers" as the greatest flood in the history of that area since 1936. Record flooding occurred on the Pedernales and the North Bosque Rivers and Cowhouse Creek in Texas. Flooding reported elsewhere was mostly minor.

Record flooding occurred on the Green River and major flooding on the Stillaguamish, Snoqualmie, and Snohomish Rivers in western Washington during November. Damages were heavy and there was one life lost. The highest winter stages since December 1933 occurred in the Cowlitz and Yakima Rivers in Washington. Flooding reported elsewhere was mostly minor.

Major flooding occurred on the Green, Snohomish, Snoqualmie, and Stillaguamish Rivers in Washington for the second consecutive month. The crest on the Stillaguamish River at Arlington, Wash., was 0.3 foot higher in the December flood than in November when it equalled the previous record set in February 1951. Flooding reported elsewhere in December was mostly light.

RAWINSONDE DATA

Average annual values

YEAR 1959

ALBANY N. Y. (1007 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	86	6.2	82	248	2.1
1,000	365	139	6.4	77	253	2.1
950	365	559	6.0	70	274	6.8
900	365	1,002	4.5	68	283	12.2
850	365	1,467	2.9	65	284	16.1
800	365	1,957	1.1	61	283	18.7
750	365	2,474	- .9	55	278	21.8
700	365	3,024	- 3.3	52	274	25.1
650	365	3,605	- 6.2	49	273	28.8
600	365	4,231	- 9.5		271	31.7
550	364	4,892	-13.4	42	269	34.8
500	364	5,617	-17.9		269	37.9
450	364	6,392	-22.9		270	41.0
400	364	7,252	-28.8		269	44.1
350	363	8,195	-35.3		268	47.6
300	363	9,253	-42.4		269	50.7
250	363	10,466	-49.5		268	52.5
200	360	11,908	-54.7		270	52.7
175	360	12,760	-56.0		271	49.9
150	357	13,739	-56.7		271	45.1
125	355	14,892	-57.6		270	38.5
100	352	16,299	-58.1		271	30.3
80	346	17,708	-57.1		271	22.5
60	335	19,534	-55.4		270	12.8
50	331	20,700	-54.4		272	8.7
40	325	22,134	-53.1		273	5.8
30	307	23,994	-51.4		277	2.3
25	286	25,182	-50.1		268	2.1
20	263	26,647	-48.4		259	2.9
15	224	28,552	-45.8		252	8.0

ALBUQUERQUE, N. MEX (839 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	1,619	8.5	55	74	2.1
1,000	365	135				
950	365	567				
900	365	1,026				
850	365	1,507				
800	365	2,012	9.6	45	271	2.5
750	365	2,543	6.9	43	281	7.4
700	365	3,110	3.5	44	283	11.3
650	365	3,703	- .4		282	13.6
600	365	4,343	- 4.6		278	15.0
550	365	5,016	- 9.2		270	15.7
500	365	5,755	-14.2		270	16.1
450	365	6,542	-19.7		274	16.3
400	365	7,412	-25.7		276	16.5
350	365	8,366	-32.8		275	18.5
300	364	9,433	-40.8		279	20.0
250	364	10,650	-49.3			
200	361	12,088	-56.4			
175	359	12,931	-58.9			
150	350	13,895	-61.5			
125	338	15,018	-64.3			
100	311	16,376	-65.7			
80	287	17,734	-64.1			
60	276	19,510	-60.7			
50	263	20,649	-58.8			
40	255	22,059	-56.8			

AMARILLO, TEX. (892 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	1,095	8.1	70	235	3.1
1,000	364	137				
950	364	566				
900	364	1,021				
850	364	1,496	11.0	52	247	8.9
800	364	2,001	10.0	45	264	10.3
750	364	2,532	7.4	43	269	11.3
700	364	3,100	4.0	41	273	12.6
650	364	3,693	.1		273	14.0
600	364	4,335	- 4.3		272	15.9
550	363	5,006	- 8.9		273	18.8
500	363	5,748	-13.8		274	21.0
450	363	6,532	-19.3		274	24.1
400	363	7,406	-25.6		273	27.2
350	363	8,361	-32.5		272	30.1
300	363	9,430	-40.4		271	35.4
250	360	10,650	-48.8		272	39.6
200	354	12,089	-55.8		270	44.3
175	352	12,935	-58.5		270	44.5
150	343	13,898	-61.2		272	42.0
125	326	15,023	-63.6		272	36.5
100	299	16,388	-65.2		272	26.6
80	278	17,749	-64.2		271	16.3
60	265	19,524	-60.9		276	4.7
50	237	20,665	-58.7		320	1.0
40	220	22,075	-56.7		79	2.5
30	196	23,910	-54.0		74	5.4
25	179	25,084	-52.4		72	6.0
20	164	26,536	-50.1			
15	95	28,426	-47.8			

ANCHORAGE, ALASKA (1004 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	30	0.2	77		0.0
1,000	364	64	.6		103	.6
950	364	474	1.2	65	76	1.2
900	364	911	- .1	63	110	2.7
850	364	1,367	- 2.6	64	120	3.7
800	364	1,845	- 5.5	65	133	4.7
750	364	2,346	- 8.5	65	149	5.6
700	364	2,882	-11.4	63	160	6.0
650	364	3,442	-14.8	59	178	5.8
600	364	4,049	-18.5	55	191	6.4
550	364	4,686	-22.7	52	207	6.4
500	364	5,386	-27.3	48	213	6.6
450	364	6,130	-32.4		225	8.2
400	364	6,958	-38.1		236	9.1
350	364	7,866	-44.1		241	10.1
300	363	8,886	-49.6		246	12.8
250	359	10,071	-52.7		250	14.6
200	355	11,517	-50.8		255	16.3
175	353	12,389	-49.8		252	17.3
150	350	13,398	-49.3		251	16.7
125	346	14,592	-49.1		252	16.1
100	344	16,057	-49.1		249	15.7
80	339	17,523	-48.9		252	14.6
60	325	19,417	-48.8		256	13.2
50	322	20,614	-48.9		257	12.0
40	311	22,079	-49.0		261	11.1
30	285	23,977	-48.7		264	8.2
25	268	25,179	-48.3		272	7.0
20	232	26,649	-47.7			

ANNETTE, ALASKA (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	37	6.4	84	130	4.1
1,000	364	115	6.3	80	122	1.9
950	364	532	4.5	77	163	3.9
900	364	974	1.9	76	188	5.2
850	364	1,433	- .7	74	203	6.4
800	364	1,916	- 3.2	70	220	6.8
750	363	2,421	- 5.9	65	240	8.0
700	363	2,963	- 8.9	61	254	9.3
650	363	3,528	-12.2	57	259	10.9
600	363	4,142	-15.8	54	266	11.9
550	363	4,787	-20.0	52	271	13.4
500	361	5,494	-24.6	49	273	14.4
450	360	6,246	-29.9	48	272	13.2
400	358	7,084	-35.8			
350	357	8,001	-42.0			
300	354	9,031	-48.4			
250	351	10,218	-52.9			
200	341	11,653	-52.3			
175	332	12,519	-51.4			
150	326	13,520	-51.2			
125	318	14,705	-51.4			
100	304	16,150	-51.5			
80	290	17,597	-51.5			
60	276	19,467	-51.2			
50	268	20,654	-51.1			
40	255	22,105	-51.0			
30	232	23,983	-50.5			
25	210	25,169	-50.2			

ATHENS, GA. (990 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	358	246	12.2	87	3	1.4
1,000	358	161				
950	358	595	14.0	67	284	1.6
900	358	1,050	12.4	64	265	4.1
850	358	1,528	10.3	61	262	7.0
800	358	2,031	8.1	56	260	9.1
750	358	2,561	5.7	51	263	11.7
700	358	3,125	2.9		265	13.6
650	358	3,719	- .3		265	15.3
600	358	4,358	- 4.0		266	18.3
550	358	5,035	- 8.0		268	19.8
500	358	5,775	-12.5		268	20.8
450	358	6,568	-17.7		267	22.9
400	358	7,444	-23.6		267	25.3
350	357	8,407	-30.5		267	27.0
300	357	9,485	-38.6			
250	355	10,714	-47.5			
200	346	12,162	-56.1			
175	338	13,004	-59.6			
150	331	13,960	-62.8			
125	316	15,074	-65.5			
100	300	16,427	-66.8			
80	292	17,779	-65.4			
60	278	19,544	-61.4			
50	268	20,682	-59.0			
40	256	22,090	-56.8			
30	241	23,925	-53.5			
25	221	25,102	-51.6			
20						

BARROW, ALASKA (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	8	-14.3	78	87	2.9
1,000	365	134	-12.6	78	90	5.1
950	365	528	-10.1	73	87	4.7
900	365	946	- 9.4	66	78	3.9
850	365	1,388	-10.1	60	72	3.5
800	365	1,854	-11.6	57	63	2.9
750	365	2,345	-13.7	54	53	1.9
700	365	2,870	-16.2		22	1.4
650	365	3,420	-19.2	48	325	1.4
600	365	4,017	-22.6		305	1.7
550	365	4,647	-26.5		287	2.7
500	365	5,335	-31.0		276	3.5
450	365	6,068	-36.1		271	4.7
400	365	6,884	-41.7		283	5.2
350	365	7,778	-47.4		279	6.4
300	363	8,786	-52.6		276	7.2
250	362	9,957	-54.5		268	8.7
200	356	11,396	-51.4		266	10.7
175	354	12,265	-50.5		265	11.1
150	351	13,270	-50.0		267	11.5
125	346	14,461	-50.0		267	11.9
100	344	15,921	-49.8		263	12.2
80	334	17,383	-49.6		262	12.2
60	313	19,267	-49.4		270	9.9
50	303	20,468	-49.4		274	10.3
40	279	21,937	-49.2			

BARTER IS., ALASKA (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	362	15	-14.2			0.0
1,000	362	129	-12.7	74	68	1.0
950	362	525	- 9.7	69		.0
900	362	942	- 8.6	62	262	.8
850	361	1,385	- 9.2	58	270	1.4
800	361	1,853	-10.8	57	279	2.9
750	361	2,344	-13.0	57	285	3.9
700	361	2,871	-15.5	53	283	4.5
650	360	3,423	-18.6	51	281	5.2
600	360	4,021	-22.1	48	280	6.0
550	360	4,651	-26.0		279	6.8
500	360	5,341	-30.5		279	8.5
450	360	6,076	-35.5		278	10.1
400	360	6,894	-41.0		278	11.9
350	360	7,790	-46.9		277	13.2
300	356	8,798	-52.1		277	14.0
250	354	9,972	-53.8		280	16.1
200	349	11,416	-50.6		279	16.3
175	346	12,291	-49.5		278	16.1
150	344	13,302	-49.2		277	16.1
125	340	14,498	-49.0		276	16.7
100	333	15,964	-48.9		277	17.3
80	322	17,433	-48.8		275	17.9
60	309	19,326	-48.8		278	17.7
50	290	20,532	-49.0		282	17.3

BETHEL, ALASKA (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	360	4	- 4.3	81	2	3.7
1,000	360	76	- 2.7		349	4.3
950	360	487	- 1.7	71	52	4.1
900	360	914	- 2.9	67	65	2.1
850	360	1,366	- 4.6	64	68	.8
800	360	1,841	- 6.8	61		.0
750	360	2,346	- 9.4	57		.0
700	360	2,874	-12.3	55	286	.6
650	360	3,437	-15.5	51	253	1.2
600	360	4,038	-19.1	48	219	1.9
550	360	4,680	-23.0		209	2.5
500	360	5,374	-27.6		242	2.5
450	360	6,122	-32.7		238	4.5
400	360	6,945	-38.3		252	5.2
350	360	7,853	-44.2		277	5.6
300	360	8,874	-49.8		255	7.0
250	359	10,058	-52.6		252	7.8
200	356	11,503	-51.1		251	8.9
175	355	12,373	-50.0		239	9.1
150	353	13,383	-49.4			
125	350	14,579	-49.3			
100	344	16,043	-49.2			
80	332	17,512	-48.8			
60	326	19,407	-48.8			
50	320	20,604	-48.9			
40	311	22,068	-48.9			
30	282	23,960	-48.6			
25	210	25,152	-48.5			

BISMARCK, N. DAK. (956 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	505	0.9	78	328	1.6
1,000	364	134				
950	364	551	.7	75	346	1.2
900	364	989	4.0	61	283	6.2
850	364	1,453	3.1	56	294	9.9
800	364	1,943	1.2	53	294	12.4
750	364	2,457	- 1.3	51	293	15.0
700	364	3,008	- 4.3	49	291	17.9
650	364	3,583	- 7.8		286	19.8
600	364	4,206	-11.3	46	283	22.2
550	364	4,861	-15.8		282	24.7
500	364	5,581	-20.6		278	26.8
450	364	6,346	-26.0		275	28.8
400	364	7,196	-32.0		273	30.1
350	364	8,126	-38.7		269	32.4
300	362	9,169	-46.0		268	34.4
250	361	10,364	-52.4		270	36.3
200	356	11,797	-55.0			
175	356	12,651	-54.7			
150	353	13,637	-54.7			
125	349	14,801	-55.4			
100	344	16,225	-55.9			
80	335	17,644	-55.6			
60	328	19,483	-54.7			
50	324	20,650	-54.2			
40	314	22,083	-53.6			
30	285	23,941	-52.4			
25	261	25,119	-51.6			
20	194	26,567	-50.5			

BOISE, IDAHO (918 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	868	5.9	70	155	3.1
1,000	365	154				
950	365	579				
900	365	1,027	8.5	57	182	1.0
850	365	1,500	8.0	49	297	3.5
800	365	1,998	5.2	50	289	7.4
750	365	2,521	1.9	51	284	10.7
700	365	3,076	- 1.5	51	281	13.8
650	365	3,659	- 5.1	50	277	15.9
600	365	4,288	- 9.1	46	273	18.1
550	365	4,950	-13.5		271	20.4
500	365	5,676	-18.4	44	273	21.6
450	364	6,451	-23.8		273	22.0
400	361	7,307	-29.9		274	21.4
350	360	8,245	-36.9			
300	359	9,294	-44.6			
250	358	10,494	-52.1			
200	353	11,924	-56.4			
175	349	12,771	-56.8			
150	342	13,746	-57.2			
125	335	14,896	-58.2			
100	327	16,301	-59.0			
80	316	17,702	-58.4			
60	305	19,517	-56.9			
50	300	20,714	-56.2			
40	278	22,093	-55.1			
30	258	23,938	-53.7			
25	227	25,113	-52.7			
20						
15						

BROWNSVILLE, TEX. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	7	19.0	91	142	1.0
1,000	366	130	20.2	84	149	4.7
950	365	571	18.9	77	159	11.9
900	365	1,036	17.2	68	166	11.5
850	365	1,524	15.3	60	170	9.5
800	365	2,036	13.1	52	181	7.0
750	365	2,573	10.7	47	202	5.2
700	365	3,149	7.4	46	232	4.9
650	365	3,750	3.8		253	6.2
600	365	4,401	- .3		257	8.0
550	365	5,084	- 4.5		257	10.1
500	365	5,837	- 9.2		258	11.7
450	364	6,638	-14.4		260	13.6
400	364	7,529	-20.4		264	13.6
350	364	8,504	-27.2		272	13.4
300	364	9,597	-35.4			
250	364	10,841	-45.0			
200	363	12,298	-55.6			
175	360	13,139	-60.8			
150	356	14,086	-65.7			
125	343	15,182	-69.9			
100	316	16,502	-72.1			
80	306	17,820	-70.9			
60	298	19,549	-64.7			
50	295	20,674	-60.9			
40	282	22,073	-57.5			
30	267	23,905	-53.7			
25	259	25,084	-51.5			
20	233	26,539	-49.0			
15	177	28,445	-46.0			

BUFFALO, N. Y. (995 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	182	6.9	79	231	3.5
1,000	364	136				
950	365	558	6.7	70	254	8.2
900	364	1,002	4.8	68	265	12.2
850	364	1,467	2.7	66	268	15.3
800	364	1,956	.7	61	270	18.5
750	364	2,474	- 1.4	57	273	21.0
700	364	3,021	- 3.9	53	274	23.9
650	364	3,602	- 6.9		272	27.0
600	364	4,224	-10.2		273	29.5
550	364	4,887	-14.1		273	32.6
500	364	5,608	-18.5		273	35.8
450	364	6,383	-23.7		272	38.3
400	364	7,239	-29.4		271	41.4
350	364	8,179	-35.9		272	44.7
300	363	9,234	-43.1		272	48.0
250	363	10,444	-49.9		273	49.4
200	362	11,887	-54.5		273	50.3
175	358	12,740	-55.5		274	46.4
150	355	13,721	-56.4		273	40.8
125	349	14,876	-57.3		273	33.2
100	339	16,285	-57.7		274	26.4
80	330	17,696	-57.1		277	18.3
60	318	19,523	-55.5		279	10.7
50	310	20,690	-54.5		285	7.0
40	286	22,125	-53.2		288	3.5
30	254	23,985	-51.4		297	1.9
25	234	25,175	-50.1		296	1.7

BURRWOOD, LA. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	354	3	19.6	88	71	1.7
1,000	354	145	19.8	81	89	2.7
950	354	587	17.9	77	140	3.1
900	354	1,049	15.7	69	182	4.1
850	354	1,534	13.7	62	214	4.9
800	352	2,044	11.5	56	229	5.6
750	351	2,580	8.9		240	7.2
700	351	3,151	6.0		249	8.7
650	350	3,752	2.6		255	10.7
600	350	4,398	- 1.2		257	12.8
550	349	5,082	- 5.4		260	14.2
500	348	5,830	-10.1		259	16.1
450	347	6,630	-15.3		260	18.1
400	346	7,515	-21.4		263	18.7
350	345	8,486	-28.5		267	16.9
300	342	9,574	-36.7		269	18.5
250	342	10,812	-46.2			
200	341	12,262	-56.2			
175	340	13,102	-60.7			
150	335	14,053	-64.9			
125	329	15,156	-68.5			
100	313	16,486	-70.3			
80	298	17,815	-69.1			
60	279	19,555	-63.4			
50	270	20,682	-60.4			
40	261	22,081	-57.2			
30	237	23,913	-53.8			
25	228	25,088	-51.5			
20	207	26,541	-48.9			
15	143	28,439	-45.5			

CAPE HATTERAS, N. C. (1017 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	4	15.9	83	330	2.1
1,000	365	149	16.3	75	309	2.7
950	365	580	14.1	71	277	4.5
900	365	1,040	11.8	67	263	6.6
850	365	1,517	9.6	60	263	9.5
800	365	2,019	7.4	55	262	12.4
750	365	2,546	5.1	51	262	15.3
700	365	3,110	2.5	46	262	18.3
650	365	3,700	- .5		261	20.0
600	365	4,342	- 4.1		261	22.5
550	365	5,016	- 8.1		261	25.3
500	365	5,758	-12.6		261	28.0
450	364	6,547	-17.8		262	30.9
400	363	7,426	-23.8		263	34.6
350	362	8,387	-30.7		263	38.5
300	362	9,465	-38.6		265	42.4
250	362	10,693	-47.5		267	46.0
200	356	12,140	-55.9		270	49.7
175	353	12,983	-59.2		272	48.4
150	350	13,944	-61.6		272	44.1
125	344	15,068	-63.7		270	37.1
100	338	16,432	-64.7		269	29.9
80	330	17,798	-63.4		270	19.4
60	321	19,582	-59.6		277	7.8
50	315	20,729	-57.4		289	2.9
40	304	22,147	-55.0		45	1.6
30	277	23,999	-51.8		84	1.9
25	244	25,187	-49.9		96	1.6
20	178	26,655	-47.7			

See reference note at end of table

RAWINSONDE DATA

Average annual values

CARIBOU, ME. (991 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	191	1.0	81	258	3.1
1,000--	365	120				
950----	365	533	1.2	71	273	7.0
900----	365	968	.0	68	285	10.3
850----	365	1,425	- 1.5	65	286	12.8
800----	365	1,907	- 3.1	60	283	15.3
750----	365	2,416	- 5.1	56	279	18.5
700----	365	2,956	- 7.4	53	277	22.2
650----	365	3,529	-10.1	49	275	24.5
600----	365	4,145	-13.3		274	27.4
550----	365	4,799	-17.0		272	30.7
500----	365	5,513	-21.3		270	34.0
450----	365	6,280	-26.3		269	37.9
400----	364	7,126	-31.9		269	42.7
350----	364	8,058	-38.0		269	47.0
300----	364	9,105	-44.4		268	51.1
250----	362	10,310	-50.1		270	53.2
200----	357	11,757	-53.2		269	50.5
175----	352	12,616	-53.8		269	48.0
150----	346	13,605	-53.9		270	41.8
125----	334	14,776	-54.2		267	35.2
100----	324	16,208	-54.5		266	28.8
80-----	317	17,639	-54.2		267	23.3
60-----	304	19,489	-53.0		266	16.3
50-----	291	20,667	-52.4		266	14.2
40-----	276	22,115	-51.2		265	12.2
30-----	253	23,992	-50.1		259	8.5
25-----	239	25,186	-49.4		256	10.3
20-----	214	26,652	-48.0			
15-----	169	28,561	-46.1			

CHARLESTON, S. C. (1018 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	356	13	14.5	92	322	1.4
1,000--	356	160	16.4	80	324	1.4
950----	356	596	15.7	70	272	2.5
900----	356	1,057	13.6	67	262	5.1
850----	356	1,537	11.3	62	259	7.2
800----	356	2,042	9.1	56	260	9.7
750----	356	2,573	6.6	51	260	11.9
700----	356	3,139	3.8		261	14.6
650----	356	3,736	.5		262	17.5
600----	356	4,377	- 3.1		261	20.6
550----	355	5,057	- 7.1		262	22.9
500----	354	5,800	-11.7		260	25.8
450----	354	6,593	-16.8		260	29.3
400----	353	7,475	-22.7		260	32.8
350----	352	8,441	-29.6		262	36.1
300----	352	9,523	-37.7		264	39.6
250----	350	10,756	-46.8		266	44.5
200----	347	12,205	-55.9		268	46.0
175----	346	13,047	-59.7		271	43.7
150----	344	14,003	-63.1		273	39.1
125----	343	15,117	-65.6		272	31.7
100----	337	16,469	-66.8		271	24.3
80-----	331	17,821	-65.3		274	14.4
60-----	325	19,592	-61.0		284	4.3
50-----	322	20,732	-58.2		357	1.0
40-----	317	22,147	-55.4		82	3.9
30-----	300	23,997	-52.1		84	3.3
25-----	282	25,182	-50.2		96	3.5
20-----	247	26,648	-48.2		89	1.2
15-----	178	28,551	-45.9			

COLD BAY, ALASKA (1005 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	27	2.1	87	267	1.4
1,000--	365	64	1.6		300	3.9
950----	365	476	.5	80	317	4.3
900----	365	910	- 1.5	76	321	5.2
850----	365	1,365	- 3.2	70	314	4.7
800----	365	1,843	- 5.2		296	5.6
750----	365	2,346	- 7.4		289	5.8
700----	364	2,885	-10.1		277	5.6
650----	363	3,447	-13.2		273	6.0
600----	362	4,058	-16.8		259	6.8
550----	362	4,701	-20.8		252	8.7
500----	361	5,405	-25.4		253	8.7
450----	361	6,154	-30.5		249	9.1
400----	361	6,991	-36.3		241	11.1
350----	360	7,905	-42.4		240	11.7
300----	357	8,933	-48.5		237	14.0
250----	355	10,121	-52.3			
200----	349	11,563	51.5			
175----	339	12,430	-50.6			
150----	334	13,436	-50.0			
125----	331	14,627	-50.2			
100----	323	16,083	-50.0			
80-----	313	17,545	-49.8		233	11.3
60-----	304	19,429	-49.7		224	8.9
50-----	299	20,622	-49.6		221	6.6
40-----	292	22,084	-49.3			
30-----	267	23,975	-48.9			
25-----	218	25,180	-48.6			
20-----						
15-----						

COLUMBIA, MO. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	238	8.5	83	167	1.4
1,000--	365	146				
950----	365	572	10.0	69	231	6.4
900----	365	1,022	9.0	64	258	10.9
850----	365	1,495	7.4	59	267	12.2
800----	365	1,993	5.6	54	269	13.0
750----	365	2,516	3.1	51	270	14.6
700----	365	3,076	.2	48	271	16.7
650----	365	3,661	- 3.1	45	272	18.7
600----	365	4,297	- 6.9	43	272	22.3
550----	365	4,964	-11.1	40	272	24.7
500----	365	5,697	-15.7		270	28.0
450----	365	6,477	-21.1		270	30.3
400----	365	7,345	-27.1		270	33.0
350----	365	8,294	-33.7		269	36.5
300----	365	9,358	-41.3		269	41.0
250----	365	10,576	-49.0		267	46.4
200----	364	12,018	-55.4		268	49.2
175----	363	12,866	-57.3		269	48.6
150----	359	13,838	-58.7		270	43.5
125----	354	14,977	-60.3		270	[illegible]
100----	340	16,363	-61.3		270	26.8
80-----	335	17,750	-60.6		271	17.3
60-----	324	19,552	-58.3		284	6.8
50-----	311	20,705	-56.9		312	2.9
40-----	289	22,122	-55.1		43	2.7
30-----	269	23,969	-53.0		59	5.1
25-----						
20-----						
15-----						

DAYTON, OHIO (983 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	297	7.7	77	254	1.4
1,000--	365	149				
950----	365	574	8.9	69	255	5.6
900----	365	1,023	7.5	66	262	11.5
850----	365	1,493	5.8	61	266	14.2
800----	365	1,988	3.7		267	16.5
750----	365	2,507	1.3	52	268	18.7
700----	365	3,064	- 1.3	49	269	21.2
650----	365	3,647	- 4.4	47	268	23.9
600----	365	4,279	- 7.9		268	26.8
550----	364	4,943	-12.0		267	29.0
500----	364	5,674	-16.5		267	32.1
450----	363	6,450	-21.7		267	35.8
400----	363	7,317	-27.6		267	39.4
350----	363	8,264	-34.3		268	43.7
300----	363	9,327	-41.6		267	48.4
250----	363	10,542	-49.4		267	52.1
200----	360	11 982	-55.6		269	53.8
175----	358	12,826	-57.3		270	50.7
150----	355	13,800	-58.6		269	45.1
125----	[illegible]	14,942	-60.0		269	37.9
100----	345	16,332	-60.7		270	29.5
80-----	339	17,724	-59.8		273	19.8
60-----	333	19,530	-57.6		279	9.9
50-----	326	20,684	-56.2		287	5.1
40-----	318	22,108	-54.4		335	2.1
30-----	298	23,961	-52.1		52	2.7
25-----	280	25,143	-50.5		67	5.1
20-----	256	26,603	-48.8		61	4.3
15-----						

DENVER, COLO. (838 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	1,611	3.3	70	209	2.5
1,000--	364	147				
950----	364	571				
900----	364	1,020				
850----	364	1,490				
800----	364	1,988	7.7	49	278	4.5
750----	364	2,518	5.6	45	295	7.2
700----	364	3,080	2.1	45	295	10.1
650----	364	3,672	- 1.8	45	295	13.6
600----	364	4,306	- 6.3	47	294	17.7
550----	364	4,975	-11.1	46	292	20.4
500----	364	5,706	-16.1	42	288	21.6
450----	364	6,484	-21.8		284	23.3
400----	364	7,348	-28.1		282	26.2
350----	364	8,293	-35.3		280	29.9
300----	364	9,350	-42.9		279	35.4
250----	364	10,559	-50.5		276	40.4
200----	364	11,995	-56.0		276	43.9
175----	364	12,842	-57.3		275	42.9
150----	362	13,814	-58.6		276	40.0
125----	358	14,957	-60.1		276	31.9
100----	353	16,346	-61.2		276	22.7
80-----	346	17,735	-60.2		278	14.6
60-----	334	19,540	-57.9		288	5.8
50-----	322	20,693	-56.7		317	2.9
40-----	308	22,116	-55.2		37	2.9
30-----	278	23,960	-53.3		54	4.3
25-----	257	25,138	-52.0		62	6.0
20-----	219	26,586	-50.1		67	6.4
15-----						

DODGE CITY, KANS. (925 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	360	792	7.1	79	220	1.7
1,000--	360	142				
950----	360	570				
900----	360	1,017	10.0	63	221	3.5
850----	360	1,494	10.5	51	258	6.0
800----	360	1,997	8.8	45	270	8.2
750----	360	2,528	6.0	43	277	9.7
700----	360	3,091	2.5	43	283	11.5
650----	360	3,685	- 1.3		276	13.8
600----	360	4,320	- 5.5		278	16.5
550----	359	4,993	-10.1		277	17.3
500----	359	5,726	-15.1		274	19.4
450----	358	6,509	-20.5		271	21.6
400----	357	7,377	-26.9		271	25.6
350----	357	8,327	-33.8		272	26.8
300----	357	9,390	-41.6		272	27.6
250----	355	10,604	-49.8			
200----	347	12,043	-55.9			
175----	342	12,888	-57.9			
150----	339	13,855	-59.8			
125----	332	14,989	-61.7			
100----	320	16,367	-62.7			
80-----	307	17,745	-61.5			
60-----	294	19,541	-58.8			
50-----	287	20,691	-57.2			
40-----	278	22,109	-55.5			
30-----	261	23,953	-53.3			
25-----	243	25,131	-51.8			
20-----	183	26,588	-49.7			
15-----						

EL PASO, TEX. (882 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	362	1,197	13.1	51	353	1.0
1,000--	362	119				
950----	362	555				
900----	362	1,020				
850----	362	1,505	14.9	41	281	1.6
800----	362	2,016	12.5	41	259	5.4
750----	362	2,550	9.4	41	260	8.4
700----	362	3,124	5.6		260	9.7
650----	362	3,721	1.6		259	10.5
600----	362	4,366	- 2.7		262	10.9
550----	362	5,043	- 7.1		267	12.0
500----	362	5,788	-12.1		272	13.8
450----	361	6,580	-17.6		271	15.5
400----	361	7,458	-23.9		272	17.5
350----	361	8,420	-30.9		278	18.1
300----	361	9,496	-38.9		275	21.4
250----	360	10,724	-47.7			
200----	359	12,171	-55.9			
175----	354	13,014	-59.5			
150----	347	13,971	-62.9			
125----	333	15,085	-66.1			
100----	311	16,431	-68.1			
80-----	289	17,776	-66.6			
60-----	280	19,534	-62.4			
50-----	279	20,667	-59.7			
40-----	272	22,071	-57.3			
30-----						
25-----						
20-----						
15-----						

ELY, NEV. (810 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	1,908	0.3	63	188	7.2
1,000--	365	175				
950----	365	597				
900----	365	1,046				
850----	365	1,513				
800----	365	2,006	5.3	52	195	4.7
750----	365	2,534	5.3	43	260	1.7
700----	365	3,094	2.0	43	282	6.8
650----	365	3,686	- 1.6		283	11.1
600----	365	4,321	- 5.8		282	14.2
550----	363	4,992	-10.5		276	16.7
500----	363	5,724	-15.5		273	18.3
450----	362	6,507	-20.9		269	20.6
400----	362	7,372	-27.3		268	19.8
350----	362	8,320	-34.5		268	20.8
300----	362	9,380	-42.5			
250----	360	10,590	-50.7			
200----	355	12,021	-56.7			
175----	354	12,865	-58.1			
150----	352	13,833	-59.4			
125----	349	14,971	-60.9			
100----	348	16,355	-61.9			
80-----	346	17,737	-61.2			
60-----	340	19,533	-58.7			
50-----	337	20,681	-57.5			
40-----	332	22,095	-56.1			
30-----	313	23,934	-54.1			
25-----	296	25,107	-52.9			
20-----	269	26,555	-51.1			
15-----	210	28,436	-48.9			

FAIRBANKS, ALASKA (995 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	135	- 6.7	75	8	2.1
1,000--	365	97				
950----	365	504	- 2.6	60	70	2.5
900----	365	931	- 3.7	60	113	2.3
850----	365	1,381	- 5.1	61	190	2.1
800----	365	1,856	- 7.2	62	216	3.3
750----	365	2,356	- 9.9	61	225	4.9
700----	365	2,887	-13.0	59	234	5.6
650----	365	3,445	-16.3	57	240	6.4
600----	365	4,047	-20.0	53	243	8.0
550----	365	4,683	-24.1	49	247	8.7
500----	365	5,377	-28.8		247	9.5
450----	365	6,117	-34.0		249	10.5
400----	365	6,940	-39.8		252	10.3
350----	364	7,841	-45.7		253	10.5
300----	364	8,854	-51.5		257	11.5
250----	364	10,030	-54.0		253	13.6
200----	363	11,471	-51.1		259	13.0
175----	363	12,342	-50.0		261	13.0
150----	361	13,350	-49.5		259	13.6
125----	355	14,546	-49.2		257	13.4
100----	353	16,010	-49.1		259	12.8
80-----	347	17,478	-49.0		262	12.2
60-----	338	19,368	-49.0		264	12.8
50-----	328	20,563	-49.1			
40-----	297	22,030	-49.1			
30-----	243	23,921	-48.9			
25-----	186	25,125	-48.6			
20-----						
15-----						

FLINT, MICH. (989 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	234	5.3	84	230	1.9
1,000--	365	140				
950----	365	562	6.2	73	262	6.2
900----	365	1,004	4.7	68	274	10.5
850----	365	1,469	3.1	63	274	13.8
800----	365	1,959	1.3	58	273	16.5
750----	365	2,476	- .9	54	272	19.6
700----	365	3,026	- 3.4	49	272	22.3
650----	365	3,606	- 6.4	47	272	25.1
600----	365	4,231	- 9.8		271	27.8
550----	365	4,893	-13.7		271	30.7
500----	365	5,616	-18.3		270	34.0
450----	364	6,388	-23.4		271	37.5
400----	364	7,247	-29.3		271	40.8
350----	364	8,188	-36.0		271	44.9
300----	364	9,243	-43.1		271	49.4
250----	364	10,452	-50.1		271	52.5
200----	364	11,892	-54.8		272	53.8
175----	360	12,744	-55.6		272	49.7
150----	358	13,724	-56.3		273	43.7
125----	353	14,881	-57.1		272	37.1
100----	345	16,290	-57.8		273	29.3
80-----	339	17,700	-57.2		276	20.2
60-----	325	19,527	-55.7		282	11.9
50-----	317	20,691	-54.6		288	7.8
40-----	309	22,124	-53.3		286	4.5
30-----	284	23,987	-51.3		338	2.1
25-----	271	25,175	-50.0		357	2.3
20-----	233	26,642	-48.1		7	1.7
15-----	174	28,558	-45.2			

FORT HUACHUCA, ARIZ. (857 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	316	1,428	11.7		216	2.9
1,000--	316	111				
950----	316	546				
900----	316	1,009				
850----	316	1,494	13.0		213	2.7
800----	316	2,005	12.1		226	3.3
750----	316	2,539	9.1		230	5.2
700----	316	3,111	5.6		239	7.4
650----	316	3,706	1.8		240	9.5
600----	316	4,353	- 2.5		249	11.5
550----	316	5,029	- 7.1		255	13.4
500----	316	5,775	-12.2		260	15.2
450----	316	6,564	-17.8		262	17.1
400----	316	7,443	-24.2		263	19.8
350----	316	8,402	-31.4		262	23.9
300----	315	9,476	-39.4		262	27.6
250----	315	10,700	-48.3		261	33.2
200----	315	12,140	-56.5		262	38.7
175----	311	12,981	-60.1		262	38.5
150----	303	13,936	-63.3		262	35.6
125----	296	15,048	-66.3		262	30.9
100----	270	16,391	-68.2		262	23.9
80-----	245	17,734	-66.6		265	11.7
60-----	240	19,491	-62.7		257	2.1
50-----	232	20,621	-60.3			
40-----	217	22,021	-58.0			
30-----	205	23,847	-55.1			
25-----						
20-----						
15-----						

FORT WORTH, TEX. (996 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	180	14.0	80	206	1.2
1,000--	365	143				
950----	365	577	14.4	69	205	8.0
900----	365	1,034	13.5	64	223	9.9
850----	365	1,515	12.2	57	240	9.5
800----	365	2,022	10.2	49	253	9.3
750----	365	2,554	7.5	45	260	10.1
700----	365	3,123	4.2	42	265	11.5
650----	365	3,718	.7		266	13.8
600----	365	4,361	- 3.3		267	15.7
550----	364	5,039	- 7.6		266	17.9
500----	363	5,780	-12.5		266	20.2
450----	363	6,570	-17.8		266	23.1
400----	363	7,449	-23.9		265	26.8
350----	363	8,411	-30.9		265	32.1
300----	363	9,487	-38.8		265	37.7
250----	363	10,716	-47.3		265	44.3
200----	362	12,165	-55.4		267	49.4
175----	358	13,010	-58.8		267	47.4
150----	355	13,972	-62.0		269	42.4
125----	347	15,091	-65.0		269	34.6
100----	336	16,444	-66.9		268	25.6
80-----	328	17,794	-65.8		268	14.4
60-----	319	19,559	-61.5		270	3.5
50-----	309	20,696	-59.1			.0
40-----	291	22,103	-56.8		85	2.9
30-----	276	23,939	-53.8		83	5.2
25-----	266	25,116	-51.8		85	4.1
20-----	235	26,569	-49.5		83	3.1
15-----						

GLASGOW, MONT (934 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	696	0.8	77	28	1.0
1,000--	365	137				
950----	365	553				
900----	365	992	4.6	62	292	3.9
850----	365	1,458	3.6	54	295	8.7
800----	365	1,948	1.1	53	294	11.7
750----	365	2,461	- 1.9	54	293	14.2
700----	365	3,010	- 5.1	53	288	16.1
650----	365	3,584	- 8.6	51	285	18.5
600----	365	4,205	-12.5	49	284	21.0
550----	365	4,858	-16.7		283	22.3
500----	365	5,574	-21.4		282	23.5
450----	365	6,335	-26.7		279	24.5
400----	365	7,183	-32.8		274	23.9
350----	365	8,110	-39.6		274	24.7
300----	364	9,148	-46.8		266	24.5
250----	364	10,339	-53.1			
200----	360	11,769	-55.0			
175----	359	12,625	-54.3			
150----	357	13,613	-54.2			
125----	352	14,780	-54.9			
100----	345	16,204	-55.2			
80-----	343	17,628	-55.1			
60-----	336	19,469	-54.4			
50-----	331	20,638	-54.0			
40-----	320	22,074	-53.5			
30-----	300	23,928	-52.7			
25-----	285	25,110	-52.0			
20-----	245	26,570	-50.6			
15-----						

GRAND JUNCTION, COLO. (853 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	363	1,474	7.3	53	115	5.8
1,000--	363	136				
950----	363	565				
900----	363	1,021				
850----	363	1,498	7.7		116	6.2
800----	363	2,001	8.5	41	[illegible]	5.6
750----	363	2,529	5.6	42	223	4.5
700----	363	3,093	1.9	44	265	8.5
650----	363	3,683	- 2.2	46	273	11.9
600----	363	4,318	- 6.6	47	275	15.0
550----	363	4,985	-11.4		277	17.7
500----	363	5,717	-16.4		279	19.4
450----	363	6,496	-21.7		281	22.2
400----	363	7,360	-27.9		285	22.3
350----	363	8,305	-34.9		289	24.3
300----	363	9,363	-42.8		291	26.6
250----	363	10,571	-50.7		290	31.1
200----	361	12,005	-56.2			
175----	360	12,851	-57.7			
150----	355	13,820	-59.2			
125----	346	14,957	-61.3			
100----	332	16,338	-62.1			
80-----	315	17,717	-61.4			
60-----	299	19,513	-58.8			
50-----	293	20,661	-57.4			
40-----	282	22,076	-56.0			
30-----	254	23,913	-54.0			
25-----	235	25,087	-52.9			
20-----	190	26,533	-51.4			
15-----						

See reference note at end of table

RAWINSONDE DATA

Average annual values

YEAR 1959

GREAT FALLS, MONT. (887 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	1,123	3.6	64	231	6.6
1,000	365	132				
950	365	555				
900	365	1,003				
850	365	1,469	5.0	51	249	14.0
800	365	1,961	2.3	52	269	13.0
750	365	2,475	-.9	54	275	14.4
700	364	3,028	-4.2	55	279	16.9
650	364	3,604	-7.6	52	280	20.6
600	364	4,227	-11.4	50	280	23.7
550	364	4,882	-15.7	46	281	25.6
500	364	5,602	-20.4	45	282	28.2
450	364	6,367	-25.8		282	31.3
400	364	7,219	-31.9		283	34.0
350	362	8,150	-38.7		282	37.7
300	362	9,192	-46.1		281	41.0
250	361	10,387	-52.7		280	41.8
200	361	11,817	-55.4		278	39.8
175	361	12,669	-55.2		277	38.9
150	358	13,654	-54.9		277	35.4
125	354	14,818	-55.3		278	30.1
100	350	16,240	-55.9		281	23.9
80	348	17,660	-55.9		285	18.3
60	342	19,494	-54.9		295	11.3
50	339	20,660	-54.5		309	8.0
40	331	22,089	-54.0		330	7.0
30	316	23,939	-53.0		2	6.8
25	289	25,124	-52.2		19	6.6
20	247	26,569	-51.3		55	8.5
15						

GREEN BAY, WIS. (991 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	210	3.1	88	291	3.1
1,000	364	134				
950	364	552	4.5	72	278	6.0
900	364	992	3.2	65	281	8.5
850	364	1,455	1.8	61	280	11.1
800	364	1,943	.1	56	279	13.4
750	364	2,456	-2.3	52	282	15.9
700	364	3,004	-4.9	49	280	18.7
650	361	3,581	-7.9		279	21.0
600	361	4,203	-11.5		278	24.3
550	360	4,860	-15.4		275	25.6
500	360	5,579	-19.9		273	27.0
450	360	6,348	-25.1		270	28.0
400	360	7,200	-31.1		270	29.0
350	360	8,134	-37.5		268	32.1
300	359	9,182	-44.5			
250	359	10,385	-51.0			
200	358	11,822	-54.7			
175	356	12,676	-55.4			
150	356	13,658	-55.6			
125	354	14,818	-56.5			
100	351	16,232	-57.1			
80	346	17,644	-56.6			
60	337	19,473	-55.5			
50	329	20,636	-54.9			
40	312	22,063	-53.9			
30	289	23,916	-52.5			
25	266	25,092	-51.6			
20	209	26,551	-50.0			
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GREENSBORO, N. C. (987 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	273	10.4	86	299	1.2
1,000	365	165				
950	365	593	12.4	67	281	4.7
900	365	1,048	10.9	63	286	6.4
850	365	1,524	9.1	59	283	8.0
800	365	2,025	7.0	56	273	10.3
750	365	2,552	4.6	52	269	12.8
700	365	3,114	1.9	47	268	14.8
650	364	3,706	-1.3	45	265	16.1
600	364	4,343	-4.9		266	17.5
550	364	5,017	-8.9		264	18.5
500	364	5,755	-13.5		265	19.2
450	364	6,543	-18.7		264	19.4
400	364	7,418	-24.8			
350	364	8,376	-31.6			
300	362	9,449	-39.5			
250	361	10,673	-48.2			
200	359	12,116	-56.0			
175	357	12,959	-59.0			
150	353	13,921	-61.4			
125	347	15,045	-63.5			
100	344	16,412	-64.2			
80	341	17,784	-62.7			
60	333	19,571	-59.4			
50	326	20,717	-57.4			
40	322	22,134	-55.4			
30	311	23,981	-52.8			
25	301	25,156	-51.1			
20	278	26,620	-49.2			
15	208	28,516	-46.6			

HAVANA, CUBA (1010 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	345	49	22.6	87	83	2.3
1,000	345	133	22.9	84	94	4.1
950	345	578	21.0	78	111	7.8
900	345	1,048	18.2	76	114	5.8
850	345	1,536	15.6	70	133	4.3
800	345	2,050	13.1	62	158	3.3
750	345	2,587	10.4	54	180	2.9
700	345	3,163	7.6		204	2.9
650	345	3,768	4.3		239	4.1
600	344	4,419	.6		250	6.0
550	344	5,108	-3.4		259	8.2
500	343	5,862	-8.1		262	10.3
450	341	6,669	-13.5		269	11.1
400	341	7,561	-19.6		274	13.6
350	341	8,540	-26.8		274	15.9
300	338	9,634	-35.3		277	15.5
250	333	10,879	-45.1		285	16.9
200	323	12,335	-55.9		286	19.4
175	313	13,174	-61.4		290	17.3
150	300	14,118	-66.6		292	15.5
125	286	15,211	-70.6		295	12.6
100	269	16,526	-73.1			
80	252	17,837	-72.0			
60	240	19,558	-65.3			
50	233	20,680	-61.0			
40	215	22,080	-57.3			
30	179	23,918	-52.9			
25	149	25,100	-50.5			
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HILO, HAWAII (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	11	20.6	87	239	3.9
1,000	365	141	21.9	79	257	2.3
950	365	585	19.2	82	82	4.7
900	365	1,049	16.1	84	83	7.0
850	365	1,533	13.1	85	83	6.6
800	365	2,042	11.2	74	91	6.4
750	365	2,582	10.0		93	7.4
700	365	3,152	7.7		92	6.6
650	365	3,758	4.8		86	4.5
600	363	4,408	1.3		66	1.7
550	363	5,096	-2.8		331	1.7
500	363	5,852	-7.5		292	4.5
450	363	6,659	-13.0		280	7.6
400	363	7,552	-19.2		279	12.2
350	363	8,532	-26.1		278	17.9
300	363	9,630	-34.0		274	24.1
250	363	10,882	-43.4		273	30.1
200	363	12,348	-54.4		275	31.7
175	362	13,192	-60.2		276	29.7
150	360	14,140	-66.2		274	25.6
125	359	15,230	-71.5		275	15.9
100	356	16,537	-74.3		292	4.9
80	347	17,836	-73.2		74	6.2
60	339	19,547	-66.4		88	16.1
50	336	20,662	-62.2		90	17.9
40	333	22,052	-58.6		89	17.5
30	312	23,875	-54.7		86	17.3
25	270	25,045	-52.8		87	15.3
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INTERNAT. FALLS, MINN. (971 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	360	-1.0	77	231	1.4
1,000	365	124				
950	365	537	.8	72	236	3.5
900	365	971	.5	68	264	8.4
850	365	1,429	-.7	62	277	11.3
800	365	1,912	-2.3	57	281	13.0
750	365	2,421	-4.3	52	284	15.7
700	365	2,965	-7.0	50	284	18.3
650	364	3,535	-10.0	48	285	21.4
600	364	4,154	-13.5		286	24.5
550	364	4,804	-17.4		285	27.2
500	364	5,519	-22.0		284	30.1
450	364	6,280	-27.2		283	33.8
400	364	7,127	-33.0		283	38.3
350	364	8,053	-39.4		283	42.6
300	364	9,094	-46.0		283	46.2
250	363	10,291	-51.4		281	49.2
200	358	11,734	-53.2		278	47.4
175	352	12,593	-53.0		278	44.3
150	351	13,587	-53.0		279	39.1
125	343	14,764	-53.6		279	34.0
100	336	16,198	-54.1		280	27.4
80	328	17,631	-53.9		284	20.8
60	302	19,486	-53.4		293	13.6
50	287	20,661	-53.1		299	10.5
40	265	22,102	-52.6		313	6.0
30	222	23,958	-51.6		339	3.7
25	195	25,142	-50.9			
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JACKSON, MISS. (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	101	13.7	88		0.0
1,000	365	152	14.2	82	103	1.2
950	365	588	14.8	71	205	3.9
900	365	1,045	13.4	66	233	5.2
850	365	1,525	11.5	61	248	7.0
800	365	2,030	9.2	57	257	8.9
750	365	2,562	6.6	52	260	10.5
700	365	3,127	3.9		260	12.2
650	365	3,723	.6		262	14.8
600	365	4,364	-3.1		262	17.1
550	365	5,043	-7.2		263	19.2
500	365	5,785	-11.7		261	21.4
450	365	6,580	-17.0		262	24.5
400	365	7,458	-23.0		261	27.6
350	365	8,423	-29.9		262	30.9
300	365	9,504	-37.8		263	35.6
250	365	10,738	-46.8		263	38.5
200	363	12,188	-55.5		266	40.6
175	361	13,032	-59.2		270	38.7
150	360	13,990	-62.7		273	32.8
125	356	15,106	-65.7		274	25.6
100	348	16,454	-67.4		275	15.9
80	340	17,802	-66.0		281	7.2
60	326	19,565	-61.1		59	1.9
50	319	20,704	-58.7		84	6.0
40	302	22,113	-55.9		87	8.4
30	280	23,959	-52.2		90	9.9
25	272	25,145	-50.3		88	9.5
20	231	26,608	-47.9		89	6.0
15						

JACKSONVILLE, FLA. (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	6	16.9	93	329	1.7
1,000	365	161	18.3	81	346	1.0
950	365	597	17.1	74	208	1.4
900	365	1,062	15.0	70	228	3.7
850	365	1,545	12.7	65	244	5.1
800	365	2,053	10.5	58	255	7.0
750	365	2,585	8.0	51	259	9.7
700	365	3,155	5.1		261	12.0
650	365	3,751	1.9		262	15.0
600	364	4,399	-1.7		263	17.7
550	363	5,081	-5.8		264	20.2
500	363	5,828	-10.4		263	22.9
450	363	6,624	-15.6		263	25.5
400	363	7,511	-21.7		264	29.1
350	363	8,481	-28.7		265	31.7
300	356	9,568	-36.9		266	35.4
250	355	10,805	-46.3		270	39.4
200	351	12,255	-56.0		274	41.2
175	349	13,096	-60.2		275	41.4
150	345	14,049	-64.1		277	38.1
125	336	15,159	-67.2		277	30.7
100	331	16,497	-69.1		275	23.3
80	324	17,835	-67.6		280	14.2
60	310	19,585	-62.8		4	1.9
50	302	20,717	-60.0		75	5.1
40	296	22,120	-57.1		83	8.2
30	282	23,955	-53.5		88	9.1
25	273	25,133	-51.6		89	9.5
20	248	26,590	-49.4		83	9.9
15	201	28,492	-46.5			

JOHNSTON IS., PACIFIC AREA (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	358	3	25.3	78	73	12.6
1,000	358	120	24.4	78	75	14.6
950	358	567	21.0	81	83	17.3
900	358	1,036	17.9	79	86	17.3
850	358	1,523	15.0	76	89	15.3
800	358	2,036	13.1	60	90	12.4
750	358	2,575	11.6		91	9.9
700	358	3,152	9.0		91	6.8
650	358	3,758	5.8		88	5.2
600	358	4,413	2.1		78	3.7
550	358	5,103	-2.0		74	1.7
500	358	5,863	-6.5		312	1.2
450	358	6,672	-11.7		288	4.5
400	358	7,573	-17.5		277	8.7
350	358	8,560	-24.2		272	14.4
300	356	9,666	-32.2		266	21.4
250	354	10,928	-41.7		262	28.0
200	353	12,404	-53.2		265	32.4
175	349	13,252	-59.6		267	33.4
150	347	14,202	-66.3		269	30.1
125	338	15,289	-72.5		272	22.7
100	324	16,587	-76.3		278	9.9
80	303	17,875	-75.1		63	4.1
60	282	19,574	-67.5		91	11.9
50	270	20,687	-62.7		90	15.2
40	254	22,073	-59.1		88	17.9
30	233	23,897	-55.0		89	18.5
25	217	25,068	-52.8		88	17.9
20	148	26,512	-50.9			
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KING SALMON, ALASKA (1006 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	15	-1.4	84	59	1.0
1,000	364	63	-1.1		280	1.4
950	364	476	-.3	71	68	1.6
900	364	906	-1.7	68	78	1.2
850	364	1,360	-3.5	66	122	1.0
800	364	1,837	-5.8	64	179	1.2
750	364	2,340	-8.3	60	219	1.4
700	363	2,874	-11.1	55	241	2.1
650	363	3,437	-14.4	52	249	3.7
600	363	4,043	-18.0		246	4.7
550	363	4,684	-22.0		249	6.4
500	363	5,384	-26.6		249	7.6
450	363	6,132	-31.5		252	9.5
400	363	6,963	-37.1		254	11.9
350	363	7,875	-42.9		257	14.0
300	362	8,901	-48.7		254	17.5
250	362	10,089	-52.2		256	19.6
200	358	11,536	-50.8		254	19.8
175	355	12,408	-49.9		253	19.8
150	354	13,418	-49.4		252	17.7
125	350	14,613	-49.4		252	16.7
100	340	16,075	-49.3		251	15.0
80	329	17,538	-49.1		251	12.8
60	308	19,428	-48.9		248	10.3
50	291	20,629	-48.8		248	8.9
40	279	22,097	-48.7		252	6.6
30	229	23,991	-48.5		251	2.9
25	185	25,202	-48.0			
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KOTZEBUE, ALASKA (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	363	5	-8.2	80	60	2.1
1,000	363	102	-5.9	72	62	2.3
950	363	504	-4.9	64	96	3.3
900	363	931	-5.9	62	126	2.3
850	363	1,378	-7.2	59	148	1.4
800	363	1,849	-8.9	56	196	1.0
750	362	2,345	-11.3	53	218	1.4
700	361	2,875	-14.0	51	229	1.9
650	361	3,429	-17.2	48	244	2.5
600	360	4,031	-20.8	46	243	3.5
550	360	4,664	-24.8		244	4.7
500	360	5,357	-29.3		242	5.2
450	360	6,096	-34.5		249	6.0
400	360	6,918	-40.1		251	8.0
350	359	7,818	-45.9		247	8.4
300	358	8,832	-51.3		246	9.7
250	357	10,008	-53.6		244	10.7
200	355	11,495	-51.3		251	12.2
175	352	12,319	-50.1		248	13.4
150	346	13,328	-49.6		246	14.0
125	339	14,520	-49.5		243	15.5
100	332	15,981	-49.0		245	17.3
80	327	17,448	-48.8		244	19.0
60	311	19,339	-48.8			
50	305	20,539	-48.7			
40	294	22,008	-48.5			
30	272	23,904	-48.4			
25	232	25,108	-48.1			
20	148	26,593	-47.5			
15						

LAKE CHARLES, LA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	5	16.0	87	50	2.5
1,000	365	146	17.1	79	82	3.1
950	365	584	16.4	71	158	2.5
900	365	1,045	14.8	65	210	3.3
850	365	1,528	12.8	60	236	4.3
800	365	2,036	10.6	54	252	5.4
750	365	2,569	8.1	49	257	7.4
700	365	3,140	5.2		261	8.7
650	364	3,737	1.8		261	10.1
600	362	4,384	-2.0		263	12.0
550	362	5,063	-6.2		266	14.0
500	362	5,811	-10.8		263	16.5
450	361	6,607	-16.2		261	17.7
400	361	7,492	-22.2		262	21.0
350	360	8,461	-29.0		260	22.5
300	360	9,546	-37.0			
250	360	10,784	-46.1			
200	357	12,237	-55.6			
175	353	13,079	-59.9			
150	343	14,032	-63.7			
125	332	15,141	-67.2			
100	309	16,482	-69.1			
80	289	17,819	-67.8			
60	273	19,568	-62.8			
50	269	20,700	-59.7			
40	260	22,105	-56.7			
30	248	23,944	-53.1			
25	233	25,127	-51.0			
20	197	26,588	-49.0			
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LANDER, WYO. (829 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	1,696	2.1	64	247	2.5
1,000	364	147				
950	364	567				
900	364	1,015				
850	364	1,487				
800	364	1,981	5.5	48	285	1.7
750	364	2,503	3.3	45	293	4.9
700	364	3,063	.0	45	289	10.7
650	364	3,646	-3.8	45	288	16.3
600	364	4,280	-8.0	45	289	20.6
550	364	4,942	-12.6	42	285	22.9
500	364	5,672	-17.6	39	282	24.3
450	364	6,444	-23.1		276	24.5
400	364	7,305	-29.5		275	25.3
350	364	8,244	-36.6		274	27.2
300	364	9,295	-44.3		275	29.5
250	361	10,496	-51.7		276	32.4
200	359	11,926	-55.9			
175	354	12,775	-56.5			
150	346	13,751	-56.9			
125	331	14,900	-58.0			
100	316	16,302	-58.6			
80	298	17,705	-58.1			
60	288	19,524	-56.6			
50	278	20,684	-55.7			
40	269	22,108	-54.8			
30	243	23,952	-53.4			
25						
20						
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LAS VEGAS, NEV. (938 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	660	14.7	35	234	3.7
1,000	365	109				
950	365	546				
900	365	1,010	17.8	27	296	2.1
850	365	1,496	15.3	28	312	3.7
800	365	2,007	11.9	30	295	3.3
750	365	2,540	8.5		280	3.5
700	365	3,109	4.7		274	4.5
650	365	3,703	.7		277	6.0
600	364	4,347	-3.6		276	8.5
550	364	5,020	-8.2		278	12.2
500	364	5,762	-13.3		278	15.9
450	364	6,548	-19.1		280	19.2
400	364	7,421	-25.7		279	21.8
350	364	8,375	-33.0		279	25.5
300	364	9,442	-41.0		277	29.5
250	363	10,659	-49.5		275	33.6
200	355	12,095	-56.6		271	39.2
175	354	12,938	-58.7		271	39.2
150	352	13,901	-60.7		270	35.2
125	349	15,030	-63.2		272	29.5
100	339	16,397	-64.5		275	21.2
80	329	17,761	-63.7		280	11.9
60	320	19,538	-60.5		318	2.9
50	309	20,677	-58.8		45	2.5
40	297	22,082	-57.3		66	5.4
30	275	23,908	-55.2		74	8.0
25	256	25,074	-53.9		76	9.1
20	220	26,507	-52.2		75	8.5
15	140	28,387	-49.7			

LIHUE, HAWAII (1012 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	36	22.4	79	41	7.0
1,000	365	145	22.1	78	51	9.3
950	365	590	18.9	80	70	12.8
900	365	1,053	15.6	82	73	12.4
850	365	1,537	12.7	80	77	10.9
800	365	2,045	11.3	59	86	9.5
750	365	2,583	10.3		94	7.4
700	365	3,155	7.8		99	3.9
650	365	3,760	4.5		95	1.6
600	365	4,410	.8		276	.6
550	365	5,099	-3.4		290	3.1
500	365	5,851	-8.3		277	5.4
450	365	6,657	-13.7		274	9.1
400	364	7,547	-20.0		275	13.4
350	363	8,524	-27.0		275	18.8
300	361	9,618	-35.0		273	25.3
250	361	10,866	-44.0		275	30.7
200	361	12,331	-54.3			
175	361	13,177	-59.7			
150	360	14,128	-65.0			
125	357	15,227	-69.7			
100	352	16,547	-72.8			
80	344	17,857	-71.9			
60	340	19,578	-65.5			
50	334	20,697	-61.7			
40	329	22,091	-58.3			
30	317	23,917	-54.5			
25	284	25,090	-52.6			
20						
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See reference note at end of table

RAWINSONDE DATA

Average annual values

YEAR [illegible]

LITTLE ROCK, ARK. (1009 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	79	12.4	84	281	0.6
1,000	365	151	12.7	79	262	.6
950	365	585	13.0	70	232	4.9
900	365	1,038	11.6	65	244	7.2
850	365	1,515	9.9	61	252	8.7
800	365	2,018	7.8	55	260	9.5
750	365	2,550	5.3	51	263	11.1
700	365	3,110	2.4	46	266	11.9
650	365	3,704	- 1.0		266	13.4
600	365	4,341	- 4.7		263	14.4
550	364	5,016	- 8.8		263	16.3
500	363	5,754	-13.5		265	18.1
450	363	6,543	-18.9		263	20.0
400	363	7,416	-24.9			
350	363	8,374	-31.9			
300	361	9,447	-39.7			
250	360	10,672	-48.2			
200	342	12,117	-56.0			
175	333	12,959	-58.8			
150	324	13,921	-61.8			
125	313	15,042	-64.2			
100	286	16,395	-65.4			
80						
60						
50						
40						
30						
25						
20						

McGRATH, ALASKA (998 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	103	- 6.6	78	289	0.8
1,000	365	88	- 5.8			
950	365	493	- 3.6	67	50	2.5
900	365	920	- 4.0	66	77	3.1
850	365	1,371	- 5.1	65	99	2.3
800	365	1,845	- 7.1	63	129	1.4
750	365	2,343	- 9.7	61	170	1.2
700	365	2,876	-12.7	57	198	2.1
650	365	3,432	-16.1	55	210	3.3
600	365	4,036	-19.8	52	216	3.7
550	365	4,671	-23.9		218	4.3
500	364	5,366	-28.4		222	5.4
450	364	6,107	-33.5		229	6.0
400	364	6,931	-39.2		237	7.4
350	364	7,834	-45.1		240	8.7
300	364	8,851	-50.7		242	11.1
250	364	10,031	-53.1		251	11.9
200	363	11,475	-51.1		250	13.2
175	363	12,346	-50.0		248	13.4
150	362	13,354	-49.4		248	14.2
125	360	14,548	-49.4		249	14.4
100	359	16,011	-49.3		247	14.6
80	359	17,476	-49.0		246	15.3
60	351	19,368	-49.0		254	14.0
50	348	20,565	-49.1		254	14.0
40	334	22,033	-49.1		257	11.5
30	311	23,929	-48.9		256	9.9
25	259	25,129	-48.6			
20						

MEDFORD, OREG. (972 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	401	6.5	83	184	0.6
1,000	365	162				
950	365	590	9.0	73	277	1.7
900	365	1,035	9.0	65	224	1.2
850	365	1,508	7.3	60	216	2.5
800	365	2,005	5.2	52	252	5.2
750	365	2,529	2.8	46	265	9.3
700	365	3,086	- .1	43	268	13.4
650	365	3,672	- 3.3		271	15.7
600	365	4,305	- 7.1		272	17.7
550	365	4,972	-11.3		271	18.7
500	365	5,703	-16.3		271	20.4
450	365	6,481	-21.8		270	21.4
400	365	7,346	-28.2		272	21.6
350	365	8,291	-35.4			
300	365	9,347	-43.5			
250	365	10,551	-51.8			
200	363	11,977	-57.5			
175	363	12,820	-57.9			
150	362	13,792	-58.3			
125	356	14,939	-59.5			
100	349	16,334	-60.0			
80	339	17,732	-59.2			
60	336	19,542	-57.6			
50	331	20,695	-56.7			
40	325	22,115	-55.5			
30	316	23,956	-54.0			
25	293	25,132	-53.0			
20	263	26,578	-51.5			

MERIDA, MEXICO (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	11	20.7	96	92	3.3
1,000	365	127	22.5	87	99	7.4
950	365	572	21.4	80	119	12.8
900	365	1,043	19.3	71	123	10.5
850	365	1,534	16.8	66	125	8.0
800	365	2,050	14.1	61	136	5.6
750	365	2,591	11.5	54	147	5.2
700	365	3,167	8.5		160	4.1
650	365	3,773	5.3		167	3.1
600	365	4,427	1.6		195	2.5
550	365	5,116	- 2.5		235	2.1
500	365	5,873	- 7.0		250	4.1
450	365	6,682	-12.4		255	6.2
400	365	7,578	-18.6		260	9.1
350	364	8,560	-25.8		264	11.9
300	364	9,657	-34.4		270	15.2
250	363	10,906	-44.3		272	19.0
200	362	12,365	-55.4		269	22.9
175	360	13,205	-61.2		270	22.9
150	359	14,148	-66.8		271	20.8
125	354	15,237	-71.3		272	15.7
100	350	16,547	-73.7		276	6.8
80	348	17,852	-72.7		89	2.3
60	341	19,568	-65.5		86	12.0
50	341	20,688	-61.3		88	15.0
40	335	22,086	-56.9		89	15.7
30	327	23,925	-52.8		87	15.0
25	314	25,109	-51.1		86	14.6
20	277	26,577	-47.5		83	12.4

MIAMI, FLA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	4	21.7	86	82	1.4
1,000	365	147	22.5	78	95	3.7
950	365	592	20.1	78	116	5.6
900	365	1,059	17.3	75	132	4.9
850	365	1,546	14.9	68	159	3.1
800	365	2,059	12.5	61	215	2.7
750	365	2,596	10.1	53	244	4.3
700	365	3,171	7.2		251	5.6
650	365	3,773	3.9		256	7.4
600	364	4,424	.2		259	9.3
550	364	5,108	- 3.9		261	11.1
500	364	5,864	- 8.5		263	11.9
450	364	6,667	-13.9		268	14.4
400	364	7,560	-20.1		272	15.9
350	364	8,536	-27.2		273	17.7
300	364	9,627	-35.6		278	19.0
250	363	10,870	-45.5		284	19.0
200	361	12,322	-56.2		289	21.0
175	359	13,161	-61.3		290	21.6
150	355	14,108	-65.7			
125	350	15,205	-69.5			
100	344	16,527	-71.9			
80	340	17,844	-70.6			
60	328	19,574	-64.7			
50	324	20,698	-61.0			
40	310	22,095	-57.4		88	15.2
30	296	23,933	-53.0			
25	273	25,113	-50.6			
20	233	26,575	-48.0			

MIDLAND, TEX. (916 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	871	11.4	75	143	1.2
1,000	364	134				
950	364	570				
900	364	1,023	13.2	66	169	3.1
850	364	1,506	13.9	52	214	8.7
800	364	2,016	12.0	46	244	8.4
750	364	2,552	9.1	43	262	8.5
700	364	3,123	5.5		267	9.1
650	364	3,723	1.6		271	10.5
600	364	4,365	- 2.7		272	12.4
550	364	5,044	- 7.2		273	13.6
500	364	5,786	-12.1		271	16.7
450	364	6,578	-17.7		270	17.5
400	364	7,456	-23.8		272	19.4
350	364	8,418	-30.8		274	20.4
300	363	9,495	-38.8			
250	361	10,723	-47.5			
200	356	12,172	-55.8			
175	352	13,015	-59.4			
150	336	13,971	-62.6			
125	323	15,088	-65.9			
100	309	16,437	-67.8			
80	288	17,783	-66.4			
60	278	19,543	-62.1			
50	273	20,677	-59.6			
40	270	22,083	-57.0			
30						
25						
20						
15						

MONTGOMERY ALA. (1011 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	61	14.2	86	48	1.4
1,000	365	156	15.0	79	78	1.7
950	365	591	15.3	69	190	2.3
900	365	1,051	13.7	66	232	4.5
850	365	1,531	11.5	62	247	6.6
800	365	2,037	9.3	56	253	9.1
750	365	2,569	6.8	51	258	11.3
700	365	3,135	3.9		259	13.2
650	365	3,731	.6		261	15.7
600	365	4,373	- 3.0		262	18.3
550	365	5,052	- 7.0		263	21.0
500	365	5,795	-11.5		263	23.9
450	365	6,589	-16.7		262	27.2
400	365	7,471	-22.7		262	31.1
350	363	8,437	-29.6		261	36.1
300	362	9,519	-37.6		262	40.4
250	362	10,753	-46.7		263	46.6
200	359	12,203	-55.7		265	49.4
175	356	13,046	-59.7		266	48.6
150	352	14,002	-63.1		268	44.3
125	345	15,116	-66.2		268	37.1
100	332	16,462	-67.7		267	28.0
80	313	17,808	-66.3		271	16.5
60	297	19,570	-61.8		280	2.7
50	287	20,706	-59.1		78	1.7
40	279	22,116	-56.3		88	4.5
30	262	23,957	-53.0		92	6.4
25	246	25,137	-51.0		88	6.2
20	228	26,597	-48.6		88	4.9
15						

NANTUCKET, MASS. (1015 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	357	14	8.7	83	295	3.3
1,000	357	139	9.1	75	301	4.9
950	357	564	8.5	67	294	7.4
900	357	1,011	6.8	63	282	10.1
850	357	1,479	4.9	58	279	13.4
800	357	1,973	3.1	53	278	17.3
750	357	2,493	.8		278	20.0
700	357	3,046	- 1.9	49	277	21.6
650	357	3,630	- 4.9	46	278	23.5
600	357	4,259	- 8.3	43	275	25.8
550	357	4,925	-12.2			
500	357	5,653	-16.7			
450	357	6,430	-21.9			
400	357	7,295	-27.9			
350	357	8,241	-34.7			
300	357	9,301	-42.2			
250	356	10,514	-49.9			
200	354	11,951	-55.8			
175	352	12,797	-57.6			
150	350	13,768	-58.8			
125	348	14,910	-59.8			
100	347	16,304	-59.9			
80	346	17,701	-58.7			
60	340	19,515	-56.9			
50	336	20,672	-55.8			
40	331	22,096	-54.4			
30	315	23,945	-52.7			
25	291	25,125	-51.5			
20	267	26,577	-50.1			
15	198	28,459	-48.0			

NASHVILLE, TENN. (998 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	177	11.2	87	238	1.2
1,000	364	156				
950	364	586	12.3	69	235	6.0
900	364	1,041	10.6	66	257	7.6
850	364	1,516	8.7	62	268	9.1
800	364	2,017	6.4	57	269	10.5
750	364	2,542	4.0	52	270	12.2
700	364	3,103	1.2	48	271	13.6
650	363	3,693	- 1.9	44	269	15.2
600	363	4,330	- 5.5		267	15.7
550	362	5,001	- 9.5		266	17.5
500	362	5,738	-14.1		266	18.7
450	362	6,524	-19.4			
400	362	7,397	-25.4			
350	362	8,353	-32.2			
300	362	9,424	-40.0			
250	362	10,647	-48.6			
200	354	12,088	-56.1			
175	352	12,931	-58.8			
150	339	13,894	-61.3			
125	320	15,020	-63.3			
100	303	16,386	-64.5			
80	290	17,753	-63.2			
60	269	19,539	-59.8			
50	259	20,685	-57.9			
40	251	22,099	-55.8			
30	233	23,940	-53.5			
25	210	25,117	-51.9			
20	175	26,568	-50.1			
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N. Y. INT. AP, IDLEWILD (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	5	9.9	74	303	4.7
1,000	365	146	9.4	69	304	6.0
950	365	572	8.3	66	289	7.8
900	365	1,017	6.6	63	282	11.3
850	365	1,486	4.9	61	277	14.8
800	365	1,979	3.0	56	273	18.1
750	365	2,500	.7		272	21.6
700	365	3,052	- 2.0	50	273	24.5
650	365	3,637	- 4.9	48	271	28.4
600	365	4,263	- 8.4	46	270	31.3
550	365	4,930	-12.3		269	33.8
500	365	5,656	-16.8		269	37.5
450	365	6,435	-21.9		268	41.4
400	365	7,297	-27.7		268	45.7
350	365	8,244	-34.4		268	49.0
300	365	9,306	-41.8		269	52.8
250	365	10,521	-49.4		270	55.6
200	364	11,960	-55.7		271	55.6
175	364	12,807	-57.4		272	51.1
150	360	13,778	-58.7		272	44.3
125	358	14,920	-59.9		273	37.1
100	350	16,311	-60.2		274	29.1
80	346	17,706	-59.2		274	20.4
60	340	19,519	-57.0		275	10.9
50	333	20,676	-55.8		278	6.0
40	324	22,103	-54.0		272	2.9
30	307	23,958	-51.9		242	.6
25	297	25,145	-50.6			.0
20	271	26,606	-48.9		261	1.9
15	218	28,510	-46.2			

NOME, ALASKA (1011 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	7	- 5.1	79	37	4.1
1,000	365	91	- 3.3	74	32	2.9
950	365	496	- 3.4	68	68	2.9
900	365	924	- 4.6	66	74	1.9
850	365	1,374	- 6.0	62	73	1.2
800	365	1,847	- 8.0	59	345	.8
750	365	2,343	-10.4	56	317	1.0
700	365	2,875	-13.3	53	316	2.3
650	365	3,430	-16.4	51	302	2.3
600	365	4,035	-19.9		285	3.3
550	365	4,668	-23.9		277	4.1
500	365	5,366	-28.5		273	5.1
450	365	6,106	-33.6		272	6.2
400	365	6,932	-39.3		265	7.2
350	365	7,835	-45.3		272	8.5
300	365	8,851	-50.9		263	9.5
250	365	10,030	-53.3		262	10.5
200	365	11,473	-51.1		258	11.5
175	365	12,345	-49.8		255	11.3
150	365	13,355	-49.4		252	12.0
125	364	14,550	-49.3		246	12.4
100	362	16,014	-48.9		244	13.6
80	362	17,482	-48.6		247	13.8
60	360	19,376	-48.4		248	14.6
50	357	20,577	-48.4		251	11.5
40	351	22,045	-48.3		256	11.5
30	331	23,946	-48.1		255	10.1
25	311	25,147	-47.9		261	9.1
20	283	26,624	-47.4		276	9.7
15	221	28,537	-46.5			

NORFOLK, VA. (1018 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	9	13.2	82	287	1.4
1,000	365	156	13.8	73	284	2.9
950	365	588	12.6	66	274	7.2
900	365	1,041	10.6	61	273	8.7
850	365	1,517	8.5	56	269	10.9
800	365	2,016	6.3	54	267	13.6
750	365	2,543	3.8	50	266	17.1
700	365	3,102	1.1	47	266	19.8
650	364	3,693	- 1.8	43	266	23.5
600	364	4,328	- 5.4		266	26.6
550	364	5,001	- 9.3		265	29.3
500	364	5,738	-13.8		264	32.6
450	364	6,526	-19.0		265	35.8
400	364	7,399	-25.0		265	39.6
350	364	8,356	-31.9		266	44.7
300	364	9,429	-39.8		266	47.6
250	364	10,652	-48.4		268	51.9
200	359	12,094	-56.2		271	52.3
175	359	12,937	-59.0		272	49.4
150	358	13,900	-61.1		273	44.9
125	353	15,027	-62.9		272	37.1
100	350	16,398	-63.6		271	29.1
80	342	17,772	-62.1		272	18.1
60	335	19,564	-58.9		279	8.0
50	328	20,713	-56.9		287	3.1
40	322	22,134	-54.8		1	.6
30	306	23,985	-52.0		102	1.7
25	297	25,173	-50.3		99	2.1
20	280	26,635	-48.1		134	.8
15	240	28,542	-45.4		241	3.1

NORTH PLATTE, NEBR. (917 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	363	848	3.6	83	348	1.4
1,000	363	135				
950	363	555				
900	363	999	6.4	71	303	2.1
850	363	1,471	7.9	55	279	7.0
800	363	1,970	6.3	51	288	9.5
750	363	2,493	3.9	48	288	11.5
700	363	3,056	.6	47	285	13.8
650	363	3,641	- 3.1	47	283	16.1
600	363	4,277	- 7.3	47	279	18.7
550	363	4,942	-11.9	45	276	20.6
500	363	5,674	-16.8	43	273	21.6
450	363	6,448	-22.2		269	23.5
400	363	7,313	-28.6		267	24.9
350	363	8,256	-35.5		263	26.6
300	363	9,312	-43.3		264	26.4
250	362	10,519	-51.0		268	29.7
200	355	11,954	-56.0			
175	350	12,801	-57.2			
150	348	13,774	-58.1			
125	343	14,920	-59.4			
100	336	16,314	-60.2			
80	327	17,710	-59.2			
60	321	19,520	-57.3			
50	318	20,677	-56.2			
40	309	22,101	-54.9			
30	293	23,949	-53.3			
25	284	25,126	-52.2			
20	247	26,577	-50.6			
15						

OAKLAND, CALIF. (1016 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	6	11.3	82	280	0.8
1,000	364	136	12.5	73	284	1.4
950	364	569	13.1	58	311	3.3
900	364	1,024	14.5	37	321	6.6
850	364	1,505	12.6		306	6.0
800	364	2,012	10.0		297	6.2
750	364	2,543	7.1		295	7.8
700	364	3,110	3.7		294	9.1
650	364	3,704	.0		291	11.1
600	364	4,344	- 4.2		290	13.4
550	364	5,018	- 8.8		288	15.9
500	364	5,758	-13.9		286	18.3
450	364	6,544	-19.6		285	21.0
400	364	7,415	-26.3		285	23.3
350	363	8,367	-33.5		285	26.4
300	363	9,431	-41.6		285	29.3
250	362	10,645	-50.4		284	33.0
200	358	12,078	-57.3		280	36.1
175	356	12,919	-58.9		278	36.3
150	349	13,884	-60.2		276	34.2
125	344	15,017	-62.0		275	28.6
100	336	16,392	-63.2		280	21.0
80	327	17,766	-62.4		283	12.2
60	323	19,551	-59.9		320	3.7
50	320	20,693	-58.4		37	3.5
40	315	22,100	-56.9		67	6.0
30	295	23,929	-54.9		73	8.5
25	283	25,096	-53.7		74	9.7
20	270	26,534	-52.3		73	11.1
15	203	28,401	-50.5			

OKLAHOMA CITY, OKLA. (971 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	392	10.5	86	176	2.5
1,000	364	140				
950	364	569	12.2	71	193	6.0
900	364	1,024	12.2	62	227	9.1
850	364	1,502	11.2	53	253	7.4
800	364	2,007	9.1	48	263	8.2
750	363	2,536	6.4	45	267	9.7
700	363	3,102	3.1		273	11.9
650	362	3,695	- .6		276	13.6
600	361	4,334	- 4.6		273	15.3
550	360	5,007	- 8.9		271	17.5
500	358	5,746	-13.7		268	19.6
450	358	6,532	-19.2		267	22.5
400	358	7,405	-25.5		269	24.1
350	358	8,360	-32.5		268	25.1
300	358	9,429	-40.4		275	24.9
250	355	10,650	-48.8			
200	347	12,091	-55.8			
175	341	12,937	-58.4			
150	327	13,900	-60.7			
125	313	15,029	-63.2			
100	290	16,392	-64.6			
80	269	17,758	-63.4			
60	252	19,539	-59.9			
50	243	20,682	-58.0			
40	228	22,095	-55.9			
30	201	23,937	-53.3			
25						
20						
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See reference note at end of table

RAWINSONDE DATA

Average annual values

YEAR 1959

OMAHA, NEBR. (968 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	403	5.7	82	204	1.0
1,000	364	135				
950	364	559	7.3	70	227	2.5
900	364	1,003	7.6	60	263	7.4
850	363	1,474	6.5	55	275	9.5
800	363	1,971	4.8	52	278	11.5
750	363	2,493	2.2	50	279	13.4
700	363	3,051	- .9	49	279	15.7
650	363	3,635	- 4.3	47	280	17.9
600	363	4,266	- 8.1	44	279	21.0
550	363	4,932	-12.4		280	22.7
500	363	5,660	-17.1		279	24.1
450	363	6,438	-22.5		277	26.2
400	363	7,299	-28.6		276	28.6
350	362	8,242	-35.4		275	32.4
300	362	9,299	-42.9		274	35.4
250	360	10,508	-50.3		272	39.8
200	357	11,945	-55.7		270	43.1
175	356	12,793	-56.8		271	42.2
150	353	13,769	-57.7		272	38.5
125	338	14,915	-58.9		274	33.2
100	327	16,314	-59.6		274	25.6
80	312	17,710	-59.2		276	17.9
60	295	19,521	-57.2		282	10.1
50	284	20,678	-56.2		292	6.0
40	275	22,099	-55.1		326	3.9
30	248	23,946	-53.3		3	2.9
25	231	25,124	-52.3			
20	202	26,571	-50.8			
15						

PEORIA, ILL. (993 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	363	201	6.8	83	234	0.8
1,000	363	143				
950	363	568	8.2	68	253	6.0
900	363	1,014	7.0	63	266	9.9
850	363	1,483	5.6	59	270	12.4
800	363	1,978	3.7	56	271	14.6
750	363	2,497	1.3	51	271	16.7
700	363	3,053	- 1.5	48	273	19.2
650	363	3,636	- 4.7	46	272	21.4
600	362	4,266	- 8.3		274	24.7
550	362	4,929	-12.3		274	26.8
500	361	5,659	-16.9		273	29.5
450	361	6,434	-22.2		272	31.7
400	361	7,298	-28.2		270	35.2
350	361	8,243	-34.9		268	38.9
300	360	9,302	-42.3		267	43.7
250	360	10,514	-49.7		268	46.8
200	357	11,954	-55.5		269	50.5
175	349	12,802	-57.0		270	48.8
150	342	13,776	-58.0		271	44.9
125	336	14,922	-59.2		271	38.1
100	327	16,319	-60.0		272	30.3
80	315	17,713	-59.2		274	20.0
60	302	19,524	-57.2		284	9.9
50	297	20,680	-56.1		294	4.3
40	283	22,104	-54.8		324	2.5
30	259	23,952	-52.7		43	2.3
25	242	25,131	-51.3		61	3.3
20	205	26,588	-49.6		76	6.2
15						

PITTSBURGH, PA. (976 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	363	353	7.3	81	255	1.7
1,000	363	156				
950	363	580	8.6	71	250	6.0
900	363	1,026	7.1	69	264	12.6
850	363	1,495	5.0	67	270	16.1
800	363	1,989	2.9	64	271	18.3
750	363	2,508	.5	60	270	20.6
700	363	3,062	- 2.2	56	272	23.5
650	362	3,645	- 5.2	50	271	26.4
600	362	4,273	- 8.6		271	28.6
550	362	4,939	-12.3		270	30.7
500	362	5,667	-16.8		269	34.2
450	362	6,445	-22.0		269	37.5
400	362	7,308	-28.1		268	40.6
350	361	8,254	-34.9		269	42.2
300	360	9,313	-42.4		268	45.7
250	359	10,526	-49.9		269	48.0
200	355	11,964	-55.6		270	48.0
175	354	12,812	-57.4		270	43.9
150	351	13,784	-58.7		269	38.5
125	344	14,924	-60.1		270	32.4
100	338	16,314	-60.7		272	23.1
80	327	17,708	-59.5			
60	317	19,515	-57.6			
50	310	20,669	-56.6			
40	299	22,089	-55.0			
30	285	23,937	-52.7			
25	271	25,118	-51.4			
20						
15						

POINT ARGUELLO, CALIF. † (1004 MB.) *

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	37	10.5	85	16	0.8
1,000	364	128	11.6		21	1.6
950	364	565	14.7	56	16	5.6
900	364	1,019	15.6		25	6.0
850	364	1,502	13.7		4	5.8
800	364	2,010	11.2		340	5.8
750	364	2,545	8.5		319	6.8
700	364	3,113	5.2		306	7.4
650	364	3,710	1.4		299	8.4
600	364	4,353	- 2.8		299	10.3
550	364	5,030	- 7.5		294	11.5
500	364	5,772	-12.7		289	13.0
450	364	6,561	-18.5		285	14.8
400	364	7,436	-25.1		286	16.1
350	364	8,392	-32.4		286	17.9
300	364	9,461	-40.6		280	20.2
250	364	10,679	-49.4		273	24.7
200	364	12,116	-57.0		271	30.1
175	364	12,956	-59.3		271	29.9
150	364	13,917	-61.4		269	28.6
125	364	15,042	-63.8		271	23.3
100	364	16,404	-65.4		276	15.9
80	358	17,764	-64.6		296	8.2
60	351	19,534	-61.4		40	2.7
50	349	20,669	-59.5		71	5.4
40	344	22,070	-57.7		74	8.7
30	333	23,895	-55.5		77	11.1
25	326	25,061	-54.1		78	12.2
20	304	26,499	-52.4			
15	249	28,367	-50.2			

PORTLAND, ME. (1014 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	20	4.9	84	296	2.5
1,000	364	134	5.9	70	301	3.5
950	364	554	5.7	63	291	6.4
900	364	996	4.0	62	285	8.7
850	364	1,460	2.4	60	282	11.9
800	364	1,949	.7	56	280	15.9
750	364	2,462	- 1.4	54	275	20.0
700	364	3,014	- 4.0	51	272	23.7
650	364	3,591	- 6.9	49	272	27.6
600	364	4,217	-10.2	47	272	31.3
550	363	4,875	-14.0	45	270	34.8
500	362	5,600	-18.5	43	270	37.9
450	362	6,370	-23.6		269	41.8
400	362	7,231	-29.4		269	45.7
350	362	8,172	-35.8		268	49.2
300	362	9,229	-42.8		268	53.0
250	362	10,441	-49.5		269	56.9
200	361	11,885	-54.4		270	54.6
175	356	12,739	-55.5		269	50.9
150	353	13,720	-56.4		268	45.3
125	348	14,875	-57.1		267	37.7
100	343	16,286	-57.3		267	31.3
80	338	17,701	-56.6		269	22.7
60	321	19,534	-55.1		267	14.4
50	306	20,702	-54.0		264	11.3
40	287	22,138	-52.8		265	8.7
30	262	24,006	-51.0		259	6.6
25	224	25,200	-49.8		254	6.2
20	192	26,667	-48.2			
15						

RAPID CITY, S. DAK. (904 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	966	3.5	68	333	3.7
1,000	365	134				
950	365	556				
900	365	1,000	3.5	64	332	3.9
850	365	1,468	6.3	51	302	9.5
800	365	1,964	4.2	50	301	12.4
750	365	2,483	1.5	49	300	14.2
700	365	3,040	- 1.7	48	295	16.5
650	365	3,622	- 5.4	49	290	18.7
600	365	4,250	- 9.5	47	285	21.4
550	365	4,911	-13.9	45	284	24.1
500	365	5,635	-18.8	43	283	27.0
450	365	6,406	-24.2		281	29.9
400	365	7,261	-30.4		279	33.4
350	364	8,198	-37.3		277	36.1
300	363	9,245	-44.9		277	39.6
250	362	10,444	-52.0		275	42.7
200	359	11,874	-55.8		274	43.9
175	359	12,724	-56.0		272	41.0
150	357	13,703	-56.5		272	37.7
125	350	14,857	-57.5		272	32.8
100	346	16,263	-58.3		275	25.1
80	339	17,668	-57.7		279	17.3
60	320	19,490	-56.5		288	9.7
50	308	20,648	-55.8		303	5.1
40	287	22,073	-54.8		348	3.3
30	255	23,924	-53.3		40	5.8
25	231	25,100	-52.4		50	6.8
20	187	26,549	-50.9			
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ST. CLOUD, MINN. (978 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	316	2.1	83	264	0.8
1,000	365	130				
950	365	550	3.6	73	268	2.3
900	365	986	3.5	64	275	6.6
850	365	1,449	2.2	58	283	9.9
800	365	1,938	.5	53	285	12.6
750	365	2,455	- 1.8	49	283	14.8
700	365	3,000	- 4.6	49	284	17.1
650	365	3,579	- 7.9	48	283	19.2
600	365	4,199	-11.5	46	283	22.0
550	365	4,858	-15.6	43	283	23.9
500	365	5,575	-20.1		281	26.0
450	364	6,344	-25.5		279	27.2
400	364	7,193	-31.5		277	29.5
350	363	8,125	-38.1		277	29.5
300	363	9,170	-45.4		274	31.7
250	362	10,368	-51.9			
200	360	11,801	-55.2			
175	360	12,654	-55.3			
150	360	13,637	-55.5			
125	357	14,798	-56.3			
100	356	16,213	-56.8			
80	352	17,627	-56.5			
60	344	19,459	-55.4			
50	337	20,626	-54.5			
40	316	22,058	-54.1			
30	293	23,911	-52.9			
25	280	25,093	-52.1			
20	222	26,540	-50.9			
15						

ST. PAUL IS., ALASKA (1008 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	10	1.4	88	43	1.7
1,000	365	71	1.1		348	2.1
950	365	482	- .4	81	352	2.9
900	365	915	- 2.0	75	339	2.7
850	365	1,368	- 3.8	69	329	3.1
800	365	1,845	- 5.9	62	313	3.7
750	365	2,347	- 8.4	56	311	4.5
700	365	2,882	-11.2	51	311	5.1
650	365	3,444	-14.5		297	6.2
600	365	4,050	-18.1		284	6.6
550	365	4,690	-22.2		274	6.6
500	365	5,391	-26.6		263	8.0
450	365	6,137	-31.7		260	9.9
400	365	6,969	-37.3		261	11.5
350	365	7,880	-43.4		257	12.8
300	364	8,904	-49.4		258	13.8
250	363	10,087	-53.1		255	14.4
200	362	11,528	-51.9		254	15.0
175	358	12,397	-50.5		247	14.2
150	356	13,405	-49.9		243	14.8
125	353	14,598	-49.8		241	14.6
100	351	16,058	-49.7		238	14.2
80	347	17,520	-49.3		241	12.6
60	341	19,408	-49.1		234	9.9
50	330	20,604	-49.0		233	10.1
40	311	22,068	-48.8		237	8.4
30	266	23,962	-48.5			
25						
20						
15						

SALEM, OREG. (1012 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	61	7.6	89	190	2.5
1,000	365	159	8.7	82	206	2.1
950	365	582	8.2	75	235	3.3
900	365	1,029	6.8	70	243	5.2
850	365	1,497	4.9	64	247	8.4
800	365	1,990	2.7	58	255	10.9
750	365	2,509	.3	52	262	13.0
700	365	3,061	- 2.4		267	15.9
650	365	3,642	- 5.6		270	18.5
600	365	4,270	- 9.2		272	21.6
550	364	4,932	-13.4		274	24.5
500	364	5,658	-18.1		276	27.0
450	364	6,430	-23.6		278	30.3
400	364	7,289	-29.8		279	33.4
350	363	8,228	-36.7		279	36.9
300	363	9,278	-44.5		280	39.4
250	360	10,478	-52.1		280	42.0
200	359	11,905	-56.5		278	41.2
175	357	12,752	-56.6		277	38.5
150	355	13,730	-56.8		275	34.4
125	351	14,884	-57.8		276	29.9
100	347	16,289	-58.2		277	22.9
80	342	17,698	-57.5		280	15.3
60	331	19,523	-56.3		292	6.6
50	324	20,685	-55.6		319	3.3
40	316	22,109	-54.7		25	3.3
30	284	23,959	-53.6		53	6.0
25	268	25,133	-52.8		56	8.2
20	221	26,585	-51.7			
15						

SALT LAKE CITY, UTAH (873 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	1,288	6.5	65	158	4.1
1,000	365	151				
950	365	576				
900	365	1,029				
850	365	1,503	9.6	47	168	4.7
800	365	2,006	7.7	43	212	4.5
750	365	2,533	4.3	45	255	6.2
700	365	3,093	.5	47	275	10.1
650	365	3,680	- 3.4	48	277	13.4
600	365	4,313	- 7.6	48	275	16.5
550	365	4,981	-12.1	48	276	20.0
500	365	5,708	-17.1		276	22.7
450	365	6,487	-22.5		277	25.3
400	365	7,347	-28.6		278	28.4
350	365	8,291	-35.4		276	30.9
300	365	9,346	-43.2		275	33.8
250	365	10,553	-51.0		274	36.7
200	364	11,987	-56.1		273	38.1
175	361	12,833	-57.2		271	36.9
150	359	13,806	-58.2		271	34.2
125	356	14,950	-59.9		272	28.8
100	348	16,339	-60.7		274	21.6
80	342	17,729	-60.0		278	13.6
60	336	19,534	-58.1		294	4.5
50	335	20,686	-57.0		340	1.7
40	326	22,102	-55.8		44	3.3
30	302	23,941	-54.2		61	5.6
25	295	25,112	-53.1		64	6.4
20	276	26,555	-51.7		64	8.5
15	191	28,435	-49.7			

SAN ANTONIO, TEX. (988 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	243	15.4	85	25	1.4
1,000	364	139				
950	364	577	15.8	75	151	4.5
900	364	1,036	14.9	68	183	8.5
850	364	1,520	13.7	60	196	9.1
800	364	2,030	11.6	53	216	7.2
750	364	2,566	9.1	46	238	6.8
700	364	3,137	5.8	43	251	8.0
650	364	3,736	2.3		259	9.9
600	364	4,382	- 1.8		264	11.5
550	364	5,063	- 6.2		260	13.6
500	364	5,810	-10.9		263	15.7
450	362	6,608	-16.2		263	18.5
400	362	7,490	-22.3		265	19.2
350	361	8,458	-29.1		271	22.0
300	359	9,542	-37.1		275	21.2
250	358	10,779	-46.0			
200	353	12,233	-55.6			
175	339	13,078	-59.9			
150	324	14,032	-63.9			
125	304	15,140	-67.4			
100	288	16,476	-69.4			
80						
60						
50						
40						
30						
25						
20						
15						

SAN DIEGO, CALIF. (999 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	124	13.6	84		0.0
1,000	365	120				
950	365	553	15.3	63		.0
900	365	1,015	15.4	45	311	1.2
850	365	1,498	14.3	36	294	3.5
800	365	2,008	12.0		283	4.5
750	365	2,540	9.1		279	5.1
700	365	3,115	5.8		278	5.8
650	365	3,710	2.1		278	7.2
600	365	4,360	- 2.1		279	9.3
550	365	5,035	- 6.9		277	11.1
500	365	5,784	-12.1		277	13.6
450	365	6,571	-18.0		278	15.3
400	365	7,454	-24.6		278	18.5
350	363	8,412	-31.6		276	22.7
300	363	9,485	-39.7		272	26.8
250	363	10,709	-48.4		270	31.9
200	362	12,150	-56.4		267	38.1
175	359	12,992	-59.5		267	38.1
150	357	13,951	-62.2		266	35.9
125	352	15,070	-65.1		269	28.6
100	344	16,422	-66.9		272	19.6
80	333	17,770	-65.8		279	11.3
60	321	19,532	-62.1		349	1.7
50	315	20,666	-59.8		76	4.3
40	305	22,067	-57.8		82	6.4
30	281	23,893	-55.4		82	9.7
25	262	25,060	-53.7		82	10.1
20	218	26,499	-51.8			
15						

SAN JUAN, P. R. (1015 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	6	23.7	84	109	2.5
1,000	365	140	24.0	78	100	9.1
950	365	590	21.3	78	92	14.6
900	365	1,056	18.4	77	94	14.8
850	365	1,545	15.5	74	94	14.0
800	365	2,058	13.1	64	92	12.4
750	365	2,598	10.8	51	92	11.3
700	365	3,172	8.2		91	9.7
650	365	3,780	5.1		88	8.5
600	365	4,430	1.5		82	7.0
550	365	5,121	- 2.4		74	5.2
500	365	5,877	- 6.9		58	3.1
450	365	6,685	-12.4		5	2.5
400	365	7,581	-18.9		319	4.5
350	365	8,561	-26.3		296	7.2
300	365	9,656	-35.0		293	11.7
250	364	10,902	-44.6		286	17.7
200	364	12,360	-55.8		281	23.9
175	363	13,199	-61.3		281	25.1
150	360	14,142	-67.3		283	23.1
125	357	15,230	-71.5		283	17.5
100	353	16,536	-75.0		302	9.1
80	351	17,833	-73.6		34	5.1
60	348	19,543	-66.4		72	12.6
50	338	20,660	-61.5		79	14.6
40	331	22,057	-57.5		83	16.7
30	319	23,893	-52.9		87	17.5
25	303	25,076	-50.4		92	17.5
20	257	26,543	-47.4		92	15.7
15						

SANTA MONICA, CALIF. (1010 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	363	38	15.1	76	36	2.5
1,000	363	124	15.7	71	48	2.3
950	363	561	15.2	59	68	2.5
900	363	1,018	15.3	42	26	1.9
850	363	1,500	13.7	35	315	2.1
800	363	2,009	11.4		293	3.9
750	363	2,542	8.6		290	5.1
700	363	3,112	5.2		285	6.2
650	362	3,709	1.5		284	7.6
600	361	4,353	- 2.7		282	9.5
550	358	5,031	- 7.5		282	11.5
500	358	5,774	-12.6		283	14.2
450	358	6,561	-18.5		281	16.5
400	357	7,439	-25.1		279	19.0
350	357	8,395	-32.3		279	21.8
300	356	9,466	-40.4		277	25.3
250	356	10,686	-49.1		274	30.7
200	353	12,126	-56.7		271	34.2
175	351	12,965	-59.5		268	35.2
150	350	13,925	-61.8		269	33.2
125	343	15,046	-64.4		272	27.0
100	339	16,404	-66.1		275	19.8
80	329	17,758	-65.3		283	11.1
60	321	19,523	-61.9		338	2.5
50	315	20,657	-59.9		51	3.5
40	297	22,059	-57.9		70	6.6
30	266	23,881	-55.6		74	8.9
25	249	25,046	-54.2		74	9.5
20	225	26,481	-52.6		64	7.8
15	172	28,350	-50.2			

SAULT STE. MARIE, MICH. (990 MB.)

Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	221	1.5	86	32	1.2
1,000	364	135				
950	364	551	2.5	74	267	2.5
900	364	987	1.3	72	280	7.8
850	364	1,446	- .5	69	282	11.5
800	364	1,930	- 2.3	62	281	14.4
750	364	2,440	- 4.4	56	281	17.3
700	364	2,982	- 6.9	52	280	20.2
650	364	3,555	- 9.7	49	280	23.5
600	364	4,172	-13.1		279	26.6
550	364	4,827	-16.9		277	29.9
500	364	5,541	-21.4		276	33.0
450	364	6,305	-26.6		275	36.9
400	363	7,152	-32.4		274	40.4
350	362	8,081	-39.0		273	45.1
300	362	9,123	-45.7		272	48.8
250	362	10,321	-51.4		271	51.3
200	355	11,758	-53.9		273	49.9
175	349	12,615	-54.2		273	46.6
150	343	13,603	-54.6		273	41.6
125	338	14,767	-55.2		273	36.1
100	330	16,191	-55.8		274	29.3
80	323	17,612	-55.7		277	22.0
60	312	19,446	-55.0		280	13.6
50	310	20,611	-54.6		286	9.9
40	297	22,046	-53.8		291	5.4
30	285	23,900	-52.6		324	2.3
25	267	25,084	-51.5		337	2.1
20	245	26,534	-50.1		62	5.4
15	182	28,439	-47.5		79	9.5

See reference note at end of table

RAWINSONDE DATA

Average annual values

YEAR 1959

SEATTLE, WASH. (1003 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	125	7.8	88	149	2.9
1,000	365	148	7.8		140	2.7
950	365	570	7.5	76	193	6.0
900	365	1,016	5.6	73	223	7.8
850	365	1,482	3.3	70	232	9.3
800	365	1,972	.9	64	244	10.7
750	365	2,486	- 1.7	59	255	12.4
700	365	3,035	- 4.5	53	264	15.3
650	365	3,611	- 7.6	49	265	18.3
600	365	4,235	-11.2	46	268	21.4
550	365	4,891	-15.3		270	24.5
500	365	5,613	-19.9		271	27.8
450	365	6,377	-25.2		272	31.5
400	365	7,233	-31.2		274	35.4
350	364	8,166	-37.9		275	39.4
300	364	9,212	-45.3		276	42.9
250	362	10,409	-52.2		277	44.7
200	356	11,839	-55.3		277	42.4
175	355	12,693	-55.0		276	38.9
150	350	13,676	-55.0		275	35.0
125	346	14,838	-55.7		277	29.9
100	341	16,257	-55.9		278	23.7
80	331	17,676	-55.5		281	16.7
60	322	19,512	-54.8		290	9.7
50	314	20,677	-54.2		304	6.6
40	293	22,112	-53.5		334	4.9
30	263	23,964	-52.6		13	4.7
25	239	25,146	-51.8			
20	200	26,596	-50.8			
15						

SHREVEPORT, LA. (1009 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	76	13.7	86	138	1.4
1,000	365	145	14.2	79	140	2.1
950	365	581	14.7	68	204	6.0
900	365	1,038	13.3	63	225	7.2
850	365	1,518	11.6	58	244	8.0
800	365	2,024	9.3	52	257	9.1
750	365	2,555	6.8	48	261	10.3
700	365	3,121	3.8	45	262	12.2
650	365	3,716	.3		264	14.4
600	365	4,358	- 3.3		263	17.1
550	365	5,037	- 7.5		263	19.2
500	365	5,779	-12.2		263	21.8
450	365	6,572	-17.5		262	25.5
400	363	7,450	-23.6		261	29.5
350	363	8,413	-30.4		262	34.0
300	363	9,491	-38.3		262	38.7
250	363	10,722	-47.1		262	46.0
200	361	12,170	-55.7		265	50.1
175	359	13,014	-59.3		266	48.0
150	357	13,972	-62.5		266	43.9
125	351	15,088	-65.6		267	36.7
100	340	16,439	-67.4		267	26.4
80	333	17,785	-66.3		267	15.0
60	328	19,547	-61.9		272	3.5
50	325	20,682	-59.3		98	1.9
40	318	22,089	-56.7		90	4.1
30	305	23,926	-53.5		83	5.4
25	290	25,104	-51.6		83	5.6
20	255	26,561	-49.3		81	4.3
15	195	28,454	-46.8			.0

SPOKANE, WASH. (932 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	722	4.6	77	168	3.3
1,000	364	145				
950	364	567				
900	364	1,010	6.3	64	201	6.2
850	364	1,478	4.7	58	234	9.1
800	364	1,970	1.9	58	248	11.9
750	364	2,486	- 1.2	57	257	13.6
700	364	3,035	- 4.4	54	265	15.9
650	364	3,611	- 7.7	52	267	18.7
600	364	4,234	-11.3	48	268	22.2
550	364	4,891	-15.3	46	271	24.1
500	364	5,611	-20.0		273	26.8
450	364	6,376	-25.3		274	29.9
400	364	7,229	-31.4		274	33.0
350	364	8,162	-38.1		276	36.5
300	364	9,207	-45.5		279	40.0
250	364	10,404	-52.4		279	42.2
200	364	11,835	-55.1		278	41.2
175	361	12,689	-54.5		278	39.1
150	357	13,677	-54.4		278	34.2
125	352	14,842	-55.3		278	28.2
100	350	16,266	-55.8		278	22.2
80	343	17,688	-55.4		282	15.3
60	334	19,524	-54.7		298	9.3
50	326	20,691	-54.1		316	6.0
40	315	22,126	-53.4		354	5.1
30	291	23,983	-52.4		29	6.0
25	274	25,165	-51.6		40	7.6
20	240	26,619	-50.3		48	8.5
15						

SWAN ISLAND, W. I. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	10	26.1	86	77	8.7
1,000	365	119	25.3	85	78	10.3
950	365	569	21.9	85	93	12.8
900	365	1,038	18.9	79	99	14.2
850	365	1,528	16.2	69	100	13.8
800	364	2,043	13.5	64	101	12.6
750	363	2,582	11.1	54	100	11.5
700	363	3,159	8.5		99	10.3
650	363	3,764	5.3		101	8.9
600	363	4,419	1.8		104	7.8
550	363	5,110	- 2.1		108	6.2
500	363	5,867	- 6.8		110	4.3
450	363	6,676	-12.2		110	2.1
400	362	7,573	-18.5			.0
350	362	8,555	-25.8		294	3.1
300	362	9,653	-34.3		284	7.8
250	362	10,902	-44.3		274	11.5
200	354	12,360	-55.8		269	15.7
175	346	13,199	-61.8		271	18.3
150	339	14,140	-67.7		271	16.7
125	319	15,223	-72.7		272	11.7
100	300	16,523	-75.5		306	2.7
80	290	17,817	-74.5		75	6.2
60	277	19,520	-67.1		81	12.4
50	275	20,634	-62.2		81	14.8
40	267	22,027	-58.1		85	16.1
30	248	23,857	-53.7		86	16.9
25	230	25,035	-51.0		88	15.7
20	175	26,493	-48.0			
15						

TAMPA, FLA. (1017 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	8	18.9	90	66	3.1
1,000	364	153	19.4	81	84	4.5
950	364	596	18.1	77	134	3.9
900	362	1,058	15.9	71	175	3.1
850	361	1,542	13.5	66	215	3.7
800	361	2,051	11.3	58	225	4.5
750	360	2,590	8.8		244	5.8
700	360	3,157	5.8		253	7.2
650	360	3,761	2.5		258	9.3
600	360	4,404	- 1.3		259	10.9
550	360	5,089	- 5.5		260	12.6
500	359	5,835	-10.1		263	14.6
450	359	6,637	-15.4		263	16.5
400	358	7,521	-21.6		265	18.3
350	356	8,492	-28.7		268	19.0
300	354	9,578	-37.1		272	19.4
250	352	10,814	-46.7		282	19.2
200	350	12,259	-57.2		288	20.2
175	344	13,096	-61.8			
150	335	14,040	-66.0			
125	315	15,138	-69.4			
100	306	16,462	-71.1			
80	294	17,784	-70.0			
60	287	19,518	-64.2			
50	280	20,643	-61.1			
40	269	22,039	-57.9			
30	247	23,871	-53.9			
25	231	25,047	-51.6			
20	195	26,503	-49.1			
15						

TATOOSH IS., WASH. (1013 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	363	31	8.9	87	150	4.7
1,000	363	138	8.7	82	167	4.3
950	363	558	7.2	75	210	6.0
900	363	1,005	4.9	72	229	7.8
850	363	1,469	2.6	68	239	9.1
800	363	1,958	.3	63	249	11.5
750	363	2,468	- 2.2	57	256	13.6
700	363	3,019	- 5.0	53	261	15.5
650	363	3,591	- 8.3	49	264	18.7
600	363	4,215	-11.8		265	21.6
550	362	4,867	-15.9		266	24.5
500	362	5,590	-20.5		266	27.2
450	361	6,350	-25.8		264	29.9
400	361	7,205	-31.8		266	34.2
350	360	8,136	-38.4		265	36.7
300	358	9,180	-45.7		266	40.6
250	358	10,375	-52.6		265	42.2
200	354	11,805	-55.3		264	40.0
175	352	12,657	-54.8		264	35.9
150	350	13,644	-54.5		264	32.1
125	345	14,809	-55.1		266	26.8
100	341	16,232	-55.7		269	20.0
80	338	17,653	-55.3		270	14.0
60	331	19,492	-54.6		276	7.6
50	325	20,659	-54.1		291	4.1
40	315	22,091	-53.6		318	2.3
30	284	23,948	-52.6		34	2.9
25	256	25,130	-51.9		40	3.7
20	155	26,582	-51.0			
15						

TOPEKA, KANS. (985 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	269	8.1	82	171	1.0
1,000	364	143				
950	364	570	9.6	69	213	5.1
900	364	1,019	9.1	62	243	8.5
850	364	1,492	8.0	55	260	10.5
800	364	1,991	6.2	50	271	11.7
750	364	2,516	3.7	46	274	13.4
700	364	3,076	.6	45	277	15.5
650	364	3,663	- 3.0	44	278	17.5
600	363	4,298	- 6.8		278	20.2
550	363	4,964	-11.1		275	22.7
500	362	5,698	-15.8		274	25.5
450	362	6,476	-21.1		273	28.2
400	362	7,344	-27.3		274	31.5
350	361	8,293	-34.1		274	35.2
300	361	9,355	-41.7		272	39.8
250	361	10,570	-49.6		270	44.7
200	358	12,010	-55.7		270	48.0
175	349	12,856	-57.5		270	47.6
150	340	13,827	-58.8		274	42.4
125	329	14,965	-60.2		274	33.8
100	317	16,353	-61.5		273	26.0
80	303	17,735	-60.7		274	16.1
60	286	19,534	-58.4		286	5.4
50	282	20,686	-57.0		343	1.7
40	268	22,104	-55.4		60	3.1
30						
25						
20						
15						

WASHINGTON, D. C. (1008 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	88	10.6	79	259	1.4
1,000	365	153	10.7	73	256	1.9
950	365	581	10.7	65	279	7.4
900	365	1,033	8.9	63	283	10.5
850	365	1,505	6.9		280	13.0
800	365	2,002	4.8	55	276	15.2
750	365	2,524	2.3	52	273	17.9
700	365	3,082	- .5	50	270	20.8
650	365	3,668	- 3.5	47	268	24.3
600	365	4,301	- 6.9	44	268	27.2
550	365	4,969	-10.8		268	30.5
500	365	5,703	-15.2		268	33.0
450	365	6,485	-20.4		267	36.3
400	365	7,354	-26.4		269	38.1
350	365	8,306	-33.2		268	40.4
300	365	9,372	-40.8		268	44.1
250	365	10,591	-48.9		270	46.4
200	362	12,031	-56.0		271	47.0
175	361	12,876	-58.2		272	43.7
150	360	13,843	-60.0		273	36.3
125	358	14,977	-61.4		272	31.3
100	358	16,358	-61.9		272	22.9
80	354	17,743	-60.7		273	15.3
60	348	19,543	-58.1		276	6.2
50	344	20,696	-56.6		283	2.9
40	339	22,118	-54.8		331	.8
30	324	23,970	-52.2		76	2.1
25	307	25,154	-50.6		71	2.9
20	287	26,616	-48.7		79	2.1
15	224	28,511	-46.4			

WINNEMUCCA, NEV. (871 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	365	1,310	2.7	58	126	1.0
1,000	365	167				
950	365	589				
900	365	1,038				
850	365	1,507	9.3	44	115	1.9
800	365	2,009	7.6	40	266	3.3
750	365	2,532	4.3	41	275	7.2
700	365	3,096	.6	42	273	10.1
650	365	3,680	- 3.1		274	13.2
600	365	4,316	- 7.2		273	16.3
550	365	4,981	-11.6		273	19.0
500	365	5,714	-16.4		277	21.8
450	365	6,490	-21.8		281	23.9
400	365	7,356	-28.1		281	25.8
350	365	8,300	-35.3		280	27.4
300	365	9,356	-43.2		281	31.3
250	365	10,563	-51.2		279	33.8
200	363	11,992	-56.8		275	35.0
175	361	12,837	-57.7		273	34.8
150	360	13,808	-58.6		271	32.4
125	355	14,951	-59.9		273	28.2
100	344	16,340	-60.9		274	21.2
80	333	17,728	-60.2		278	12.8
60	324	19,530	-58.3		301	4.7
50	319	20,679	-57.2		346	2.7
40	314	22,095	-56.0		34	4.1
30	294	23,930	-54.5		54	7.0
25	283	25,101	-53.5		53	8.4
20	235	26,541	-52.3			
15						

YAKUTAT, ALASKA (1009 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	364	12	2.7	87	91	4.7
1,000	364	87	4.0		100	4.3
950	364	500	3.1	73	130	5.1
900	364	938	.5	72	147	4.9
850	364	1,395	- 2.2	71	164	4.5
800	364	1,875	- 5.0	69	178	4.7
750	363	2,378	- 7.9	66	201	4.7
700	363	2,913	-11.0	62	223	5.2
650	363	3,475	-14.4	58	233	6.8
600	363	4,082	-18.2	54	243	7.4
550	363	4,722	-22.4	51	254	8.7
500	363	5,421	-27.0	49	262	9.9
450	363	6,166	-32.2		268	11.3
400	363	6,995	-38.0		260	11.3
350	363	7,904	-43.9		271	10.9
300	362	8,925	-49.6		275	10.5
250	360	10,109	-52.7			
200	357	11,555	-50.9			
175	357	12,426	-50.0			
150	356	13,434	-49.8			
125	353	14,628	-49.7			
100	350	16,089	-49.8			
80	341	17,549	-49.5			
60	331	19,432	-49.9			
50	326	20,623	-49.9			
40	318	22,083	-49.8			
30	301	23,967	-49.7			
25	286	25,155	-49.5			
20	261	26,623	-49.0			
15	188	28,525	-47.8			

YUCCA FLAT, NEV. ‡ (884 MB.) *

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	361	1,196	7.9	42	358	2.3
1,000	361	133				
950	361	562				
900	361	1,019				
850	361	1,498	13.7	30	356	2.1
800	361	2,006	10.9		233	1.9
750	361	2,538	7.6		255	3.7
700	361	3,106	4.0		266	5.2
650	361	3,699	.0		272	6.6
600	361	4,341	- 4.4		276	9.1
550	361	5,013	- 9.0		279	12.6
500	361	5,752	-14.0		280	16.5
450	361	6,535	-19.6		281	20.4
400	361	7,409	-26.1		278	23.5
350	361	8,362	-33.3		277	25.5
300	361	9,427	-41.3		277	29.7
250	360	10,643	-49.6		275	33.8
200	359	12,080	-56.3		273	37.7
175	358	12,924	-58.2		271	38.5
150	357	13,891	-59.9		273	35.2
125	348	15,027	-62.2		275	28.8
100	317	16,402	-63.7			
80						

YUMA, ARIZ. (996 MB.)

Standard pressure surface (mb)	Number of observations	Dynamic height	Temperature	Relative humidity	Wind Direction	Wind Speed
SURFACE	359	105	17.8	43	31	1.6
1,000	359	99				
950	359	541	21.0		312	3.1
900	359	1,008	18.8		283	2.1
850	359	1,496	15.6	35	253	2.5
800	359	2,007	12.2	36	243	3.1
750	359	2,542	8.9		243	3.5
700	359	3,113	5.3		253	4.9
650	359	3,711	1.5		259	6.8
600	359	4,354	- 2.8		268	8.9
550	359	5,035	- 7.4		271	11.5
500	359	5,774	-12.5		272	13.8
450	359	6,565	-18.3		273	16.5
400	359	7,440	-24.9		271	19.4
350	359	8,396	-32.1		270	23.7
300	359	9,466	-40.2		268	29.0
250	359	10,687	-48.9		265	36.5
200	359	12,126	-56.7		263	41.2
175	353	12,967	-59.7		261	40.0
150	341	13,926	-62.4		262	37.7
125	301	15,044	-65.4		263	30.5
100	268	16,396	-67.1		265	20.6
80	242	17.741	-65.8		261	11.3

* Surface pressure considered unrepresentative due to combining of records; other surface data may be unrepresentative.

† Point Arguello combined with Santa Maria. Santa Maria January 1959 through June 1959; Point Arguello July 1959 through December 1959.

‡ Yucca Flat combined with Jackass Flat. Yucca Flat January 1959 through April 1959, Jackass Flat May 1959 through August 15, 1959; Yucca Flat August 16, 1959 through December 1959.

Note: All observations scheduled at 1200, G.C.T. "Number of observations" refers to those of dynamic height only. Temperature, humidity or wind data may be missing for one or more pressure surfaces of some observations. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element

These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees Celsius, relative humidity in percent, and resultant winds in degrees and knots. The resultant of wind speed are biased toward lower wind speeds as the number of observations on which the resultant is based lessen. See note following Table 22 in the January 1950 issue of Climatological Data, National Summary.

SOLAR RADIATION DATA

Average daily values (direct and diffuse) received
on a horizontal surface, tabulated in langleys.

YEAR 1959

Station	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alkavik, Mackenzie	5	---	184	373	468	653	439	325	142	58	13	8	---
Albuquerque, N. Mex.	340	372	547	598	676	729	706	---	589	429	350	241	---
Ames, Iowa	---	---	---	---	---	---	575	446	329	246	198	107	---
Annette, Alaska	49	127	164	346	---	---	---	---	242	134	64	33	---
Apalachicola, Fla.	269	294	387	511	596	490	533	464	483	332	334	293	416
Astoria, Oreg.	85	121	220	380	503	444	568	---	---	192	136	83	---
Atlanta, Ga.	---	237	393	456	499	555	485	473	389	255	270	91	---
Barrow, Alaska	†	33	189	371	487	579	393	271	114	40	‡	---	---
Bethel, Alaska	40	94	357	532	434	461	398	328	242	139	42	32	258
Bismarck, N. Dak.	162	258	356	484	503	628	675	540	352	256	145	112	373
Blue Hill, Mass.	169	231	341	---	528	371	452	440	383	243	127	92	---
Boise, Idaho	128	208	370	489	567	650	680	561	414	316	214	152	396
Boston, Mass.	150	225	---	---	571	410	---	454	390	243	127	99	---
Brownsville, Texas	242	238	342	412	536	510	599	532	498	346	310	269	403
Canton Island, Pacific	538	503	633	582	571	532	551	604	656	685	---	---	---
Cape Hatteras, N. C.	273	267	437	570	736	775	607	577	548	326	281	100	458
Caribou, Me.	143	274	398	402	496	384	564	386	356	182	106	121	318
Charleston, S. C.	229	220	375	484	518	551	463	428	364	281	---	90	---
Cleveland, Ohio	145	202	291	356	468	545	528	450	346	210	121	95	313
Columbia, Mo.	185	255	339	437	521	576	581	516	421	260	211	130	369
Corvallis, Oreg.	91	---	274	440	517	522	677	553	342	216	173	79	---
Dartmouth, N. S.	---	---	340	390	460	386	456	346	367	218	105	98	---
Davis, Calif.	165	267	444	566	676	727	708	625	474	380	282	198	459
Dodge City, Kans.	257	---	---	---	---	---	---	569	494	381	320	212	---
Edmonton, Alberta	84	---	297	427	496	483	570	387	293	148	104	60	---
El Paso, Tex.	357	409	590	618	730	719	678	609	593	467	360	284	535
Ely, Nev.	226	340	467	610	639	714	638	611	486	413	313	223	475
Fairbanks, Alaska *	17	74	224	364	444	541	349	343	171	88	22	4	220
Flaming Gorge, Utah	---	---	---	---	---	---	665	531	413	352	275	208	---
Ft. Worth, Tex.	248	280	485	496	500	593	578	602	480	394	318	219	433
Fresno, Calif.	165	279	442	536	629	655	606	550	471	362	255	188	428
Gainesville, Fla.	310	357	393	532	583	553	551	523	481	383	331	204	433
Glasgow, Mont.	153	276	377	464	543	591	624	509	363	234	148	114	366
Grand Junction, Colo.	235	309	440	546	595	700	---	438	---	356	295	206	---
Great Falls, Mont.	118	251	325	422	537	574	708	517	---	220	132	103	---
Greensboro, N. C.	251	286	424	437	506	596	520	511	401	289	236	115	381
Griffin, Ga.	245	261	354	452	530	585	552	493	426	285	315	105	384
Indianapolis, Ind.	168	234	327	413	466	572	550	479	413	274	188	122	351
Inyokern, Calif.	364	435	628	735	844	872	789	740	652	---	390	291	---
Ithaca, N. Y.	125	219	341	368	512	555	605	471	393	202	90	89	331
Lake Charles, La.	244	245	430	474	527	534	465	448	432	325	294	227	387
Lander, Wyo.	224	308	448	494	585	646	677	578	399	332	---	211	---
Lansing, Mich. *	---	254	349	391	517	610	580	472	400	197	119	109	---
Laramie, Wyo.	234	314	400	501	514	608	615	471	399	294	222	168	395
Las Vegas, Nev.	286	373	535	648	716	731	668	622	542	432	330	240	510
Lemont, Ill.	---	---	332	394	489	600	568	468	399	225	153	110	---
Lexington, Ky.	186	274	406	487	556	672	611	526	518	---	---	141	---
Lincoln, Neb.	214	313	391	505	442	555	533	505	367	257	212	---	---
Little Rock, Ark.	199	276	463	500	509	567	542	530	446	376	263	172	404
Los Angeles (U)	279	313	475	519	555	637	670	599	455	368	316	230	451
Los Angeles	256	312	---	536	596	628	639	584	471	361	291	208	---
Madison, Wis.	181	---	---	---	---	---	---	---	---	---	---	---	---
Manhattan, Kans.	---	---	382	415	439	559	526	520	392	267	256	148	---
Matanuska, Alaska	31	96	268	350	467	---	---	---	231	119	---	13	---
Mauna Loa Obs., Hawaii	489	565	726	655	---	---	766	671	599	627	509	471	---
Medford, Oreg.	103	194	328	478	556	622	688	583	395	286	193	101	377
Miami, Fla.	323	417	399	580	528	526	512	487	411	385	331	322	435
Midland, Tex.	325	362	550	558	621	634	572	592	535	409	342	263	480
Moosonee, Ontario	98	---	311	384	438	479	442	393	275	127	87	66	---
Nanaimo, B. C.	82	127	237	427	541	520	651	489	294	194 *	107	57	311
Nashville, Tenn.	191	264	418	466	507	588	554	473	453	319	225	147	384
Newport, R. I.	169	239	360	411	546	448	455	---	---	---	140	131	---
New York, N. Y.	162	233	334	373	506	---	---	---	411	245	129	129	---
Normandin, Quebec	119	---	372	397	488	438	469	369	295	157	103	65	---
North Omaha, Neb.	200	295	373	512	440	584	591	521	367	271	216	142	376
Oak Ridge, Tenn.	207	253	359	425	500	553	499	478	406	292	226	151	362
Oklahoma City, Okla.	267	363	---	492	484	539	533	571	462	345	289	187	---
Ottawa, Ontario	145	---	366	435	515	507	580	453	369	162	112	115	---
Page, Ariz.	---	381	564	---	---	---	675	595	529	427	329	245	---
Phoenix, Ariz. *	322	387	558	626	709	716	672	586	544	422	359	239	512
Portland, Me.	172	248	417	399	560	413	589	479	---	251	127	---	---
Pullman, Wash.	103	184	327	---	571	657	711	543	342	247	152	117	---
Raleigh, N. C.	236	62	62	449	---	---	---	---	---	---	---	---	---
Rapid City, S. Dak.	191	295	380	518	537	588	652	547	386	299	200	171	397
Resolute, N.W.T.	---	13	123	351	569	565	428	304	126	30	#2	---	---
Riverside, Calif.	312	345	538	570	607	688	694	615	484	417	355	261	491
St. Cloud, Minn.	160	255	364	424	416	569	645	447	341	197	135	110	339
Salt Lake City, Utah	---	---	---	---	---	---	---	---	428	343	265	183	---
San Antonio, Tex.	227	253	462	439	505	580	605	532	479	382	303	235	417
Santa Maria, Calif.	279	324	545	565	690	768	694	597	523	451	322	219	498
Sault Ste. Matie, Mich.	152	211	358	440	485	588	609	412	336	170	129	94	332
Sayville, N. Y.	201	285	---	---	---	---	---	---	---	---	---	116	---
Scarboro, Ontario	---	---	---	---	---	---	---	---	386	192	128	110	---
Schenectady, N. Y.	156	233	349	397	524	---	---	---	---	---	---	---	---
Seattle, Wash. (U of W.)	66	109	227	355	470	500	---	---	269	---	---	---	---
Seattle-Tacoma, Wash.	74	117	251	363	513	519	608	472	272	172	117	70	296
Shreveport, La.	---	269	446	447	528	552	564	531	439	360	283	208	---
Spokane, Wash.	105	187	313	478	553	655	674	570	318	---	142	81	---
State College, Pa.	126	221	325	390	550	560	563	486	428	256	159	113	348
Stillwater, Okla.	---	282	367	447	441	560	512	533	422	310	260	156	---
Suffield, Alberta	115	---	321	460	528	539	605	496	326	209	133	95	---
Tampa, Fla.	296	342	387	510	551	532	517	403	450	387	317	279	414
Toronto, Ontario	126	---	316	404	510	556	577	471	376	184	119	105	---
Tucson, Ariz. (U of A.)	360	406	---	632	747	681	---	569	---	458	338	265	---
Vancouver, B. C.	76	104	187	343	468	482	545	398	252	160	95	56	264
Wake Island, Pacific	477	562	627	667	683	695	715	699	603	562	513	---	---
Washington, D. C.	191	270	385	430	531	556	466	466	427	284	190	154	363
Winnipeg, Manitoba	140	---	347	443	428	503	569	465	282	144	122	83	---

Note: Langley is the unit used to denote one gram calorie per square centimeter.
(U) Indicates Urban sites.
† Sun below horizon through 28th.
‡ Sun below horizon after 18th.
# Polar night starts November 7.
* Data should be considered doubtful.

Chart I. Departure from Normal of Annual Temperature (°F) at Surface, 1959.

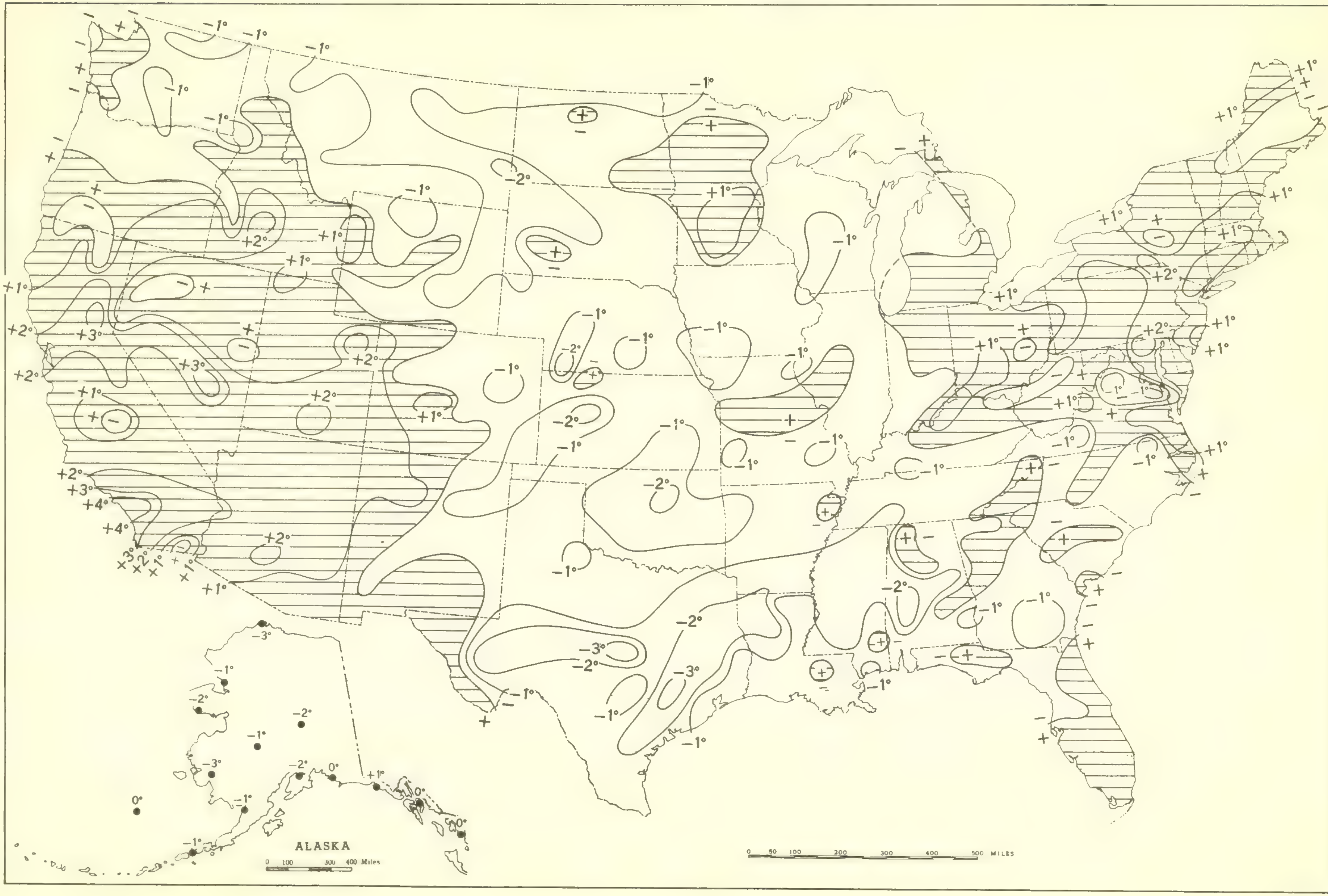

Chart II. Total Precipitation (Inches), 1959.

Chart III. Percentage of Normal Annual Precipitation, 1959.

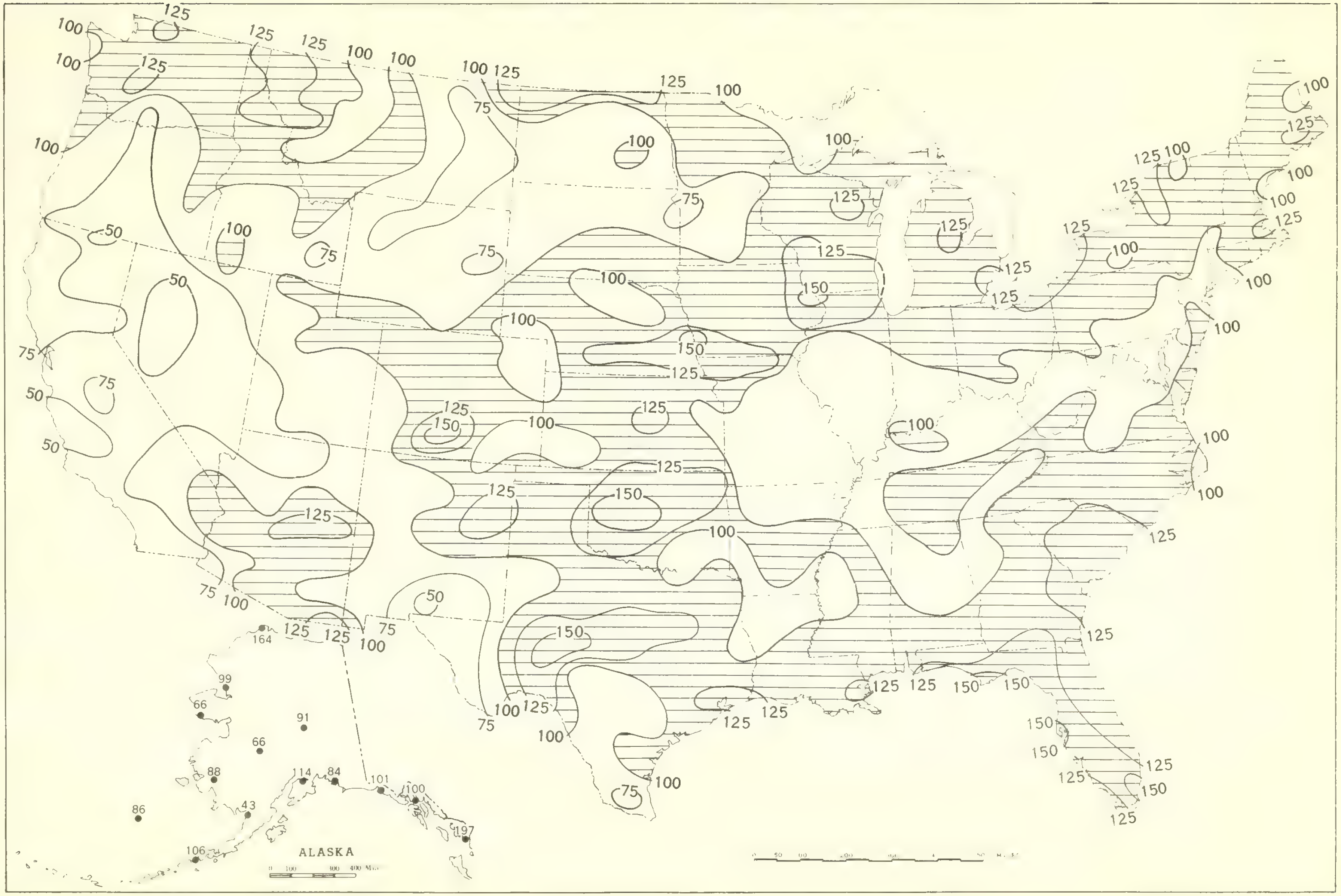

Chart IV. Tracks Of Tornadoes, 1959.

USCOMM-WB-Asheville - 5/19/60 - 2500

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